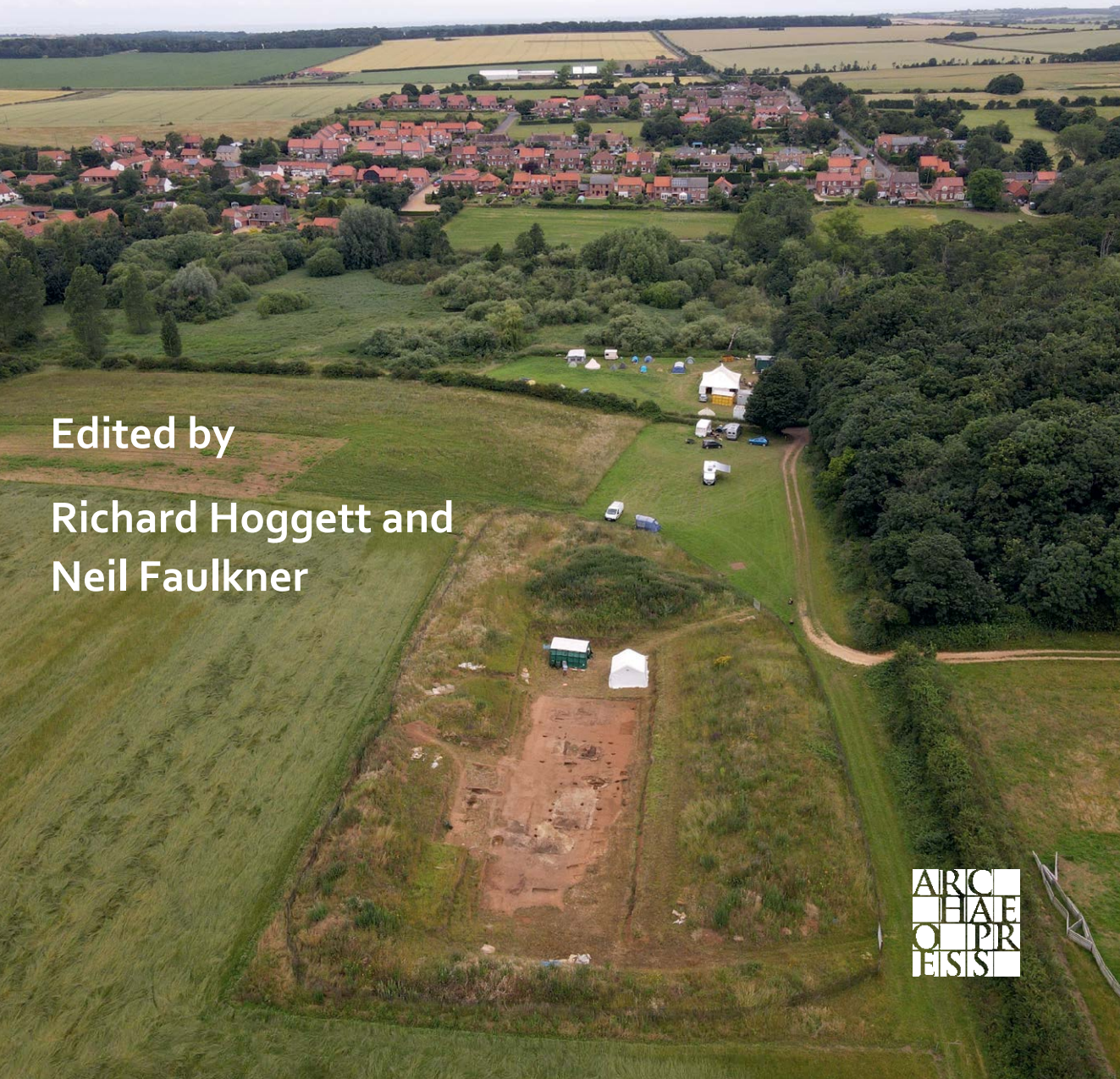
THE ANGLO-SAXON AGRICULTURAL REVOLUTION IN NORFOLK



Edited by

Richard Hoggett and
Neil Faulkner

ARC HAE O PR JESS

In memoriam

Dr Neil Faulkner (1958–2022)

The Anglo-Saxon Agricultural Revolution in Norfolk

Proceedings of a conference to mark the 25th anniversary of the Sedgeford Historical and Archaeological Research Project

Edited by

Richard Hoggett and Neil Faulkner

Archaeopress Publishing Ltd
13–14 Market Square
Bicester
Oxfordshire
OX26 6AD
United Kingdom
www.archaeopress.com

ISBN 978-1-80583-072-6
ISBN 978-1-80583-073-3 (e-Pdf)

Cover: Aerial view of the Sedgeford Historical and Archaeological Project (Hoggett). Back cover: Ipswich ware wasters from the Cox Lane kiln, Ipswich. (Photo: Carleton Van Selman, courtesy of Ipswich Museum: Acc. No. 1920.53.15 and 1920.53.1).
Typsetting: Richard Hoggett Heritage

This book is available direct from Archaeopress or from our website www.archaeopress.com

Contents

List of Contributors

Dr Sue Anderson is a specialist in the post-Roman pottery of East Anglia and recently completed a PhD on this subject at the University of East Anglia. She worked for many years as Finds Manager and later as Archaeological Archives Manager for the Suffolk County Council Archaeological Service.

Andrea Beckham (née Cox) has worked in archaeology for nearly 30 years and in that time has been involved in commercial archaeology, community heritage projects and curatorial archaeological roles in the Westcountry and Norfolk.

Dr Eleanor Blakelock is an archaeometallurgist with a specialism in early medieval metalworking. She has been involved with SHARP since 2000, first as a volunteer and then as a supervisor, and has been a director of the malting-complex excavations since 2018.

Jeffrey Bonas read History at Oxford University before spending his career in industry. He is the founding chairman of the North West Norfolk History Society, a keen sponsor of SHARP.

Dr Hannah Caroe is an archaeobotanist who undertook work on the environmental evidence from the malting-complex excavations as part of her doctoral research undertaken at Oxford University between 2019 and 2022.

Dr Gareth Davies is Director of Archaeology at the York Archaeological Trust and a medieval specialist. He first attended the excavations at Sedgeford in 1998 and excavated the site for many years. He continues to maintain a research link with SHARP and served as its Chair of Trustees in 2023–24.

Dr Neil Faulkner was an archaeologist, historian, writer, lecturer, broadcaster and political activist. He was founder-director of SHARP and of the Great Arab Revolt Project (GARP), and a former editor of *Current Archaeology* and *Military History Matters*. Neil died in February 2022.

Brian Fraser is responsible for site safety at SHARP and worked extensively on the aerodrome project, as well as undertaking his own research into the local history of the East Riding of Yorkshire. He was a SHARP Committee member and Trustee until he retired in 2022.

Professor Helena Hamerow is Professor of Early Medieval Archaeology at the University of Oxford. Her research focusses on the rural communities, farming practices and economy of north-west Europe during the Early Middle Ages, between AD 400–1000.

Tiggy Harris is the eldest daughter of Neil Faulkner and Lucy Harris and has attended SHARP for her whole life. She took the BERT course as a teenager, but did not pursue a career in archaeology, instead qualifying as a veterinary physiotherapist in 2020. She joined the SHARP Committee in early 2023 and is also a Trustee.

Dr Richard Hoggett is a freelance heritage consultant, lecturer and writer specialising in Anglo-Saxon East Anglia and monastic landscapes. He first attended SHARP in 1997 and was responsible for the project's work on the parish church and wider landscape studies until 2022.

Dr Matilda Holmes has been a consultant zooarchaeologist since 1997. She worked on the inter-disciplinary *FeedSax* project (2017–22) and has taught zooarchaeology at University College London and the Universities of Leicester, Nottingham and Birmingham.

Dr John Jolleys is a General Medical Practitioner (retired 2013) and first came to SHARP as a volunteer in 1997. He was formerly SHARP's Chair of Committee and Trustees (2017–22) and Director of Historical Research (2018–22).

Kathryn Oliana attended SHARP as a volunteer, initially on the aerodrome project, and undertook much of the 'leg work', including wading along the river, to contribute to the writing of this conference paper.

Dr Keith Robinson taught archaeology for continuing students at Sussex University and was for many years a tutor with the Open University. He has been involved with SHARP since its first year, directing landscape projects and the aerodrome project, as well as being a contributing author and joint editor of the *Digging Sedgeford* monograph.

David Wood is a retired RAF Wing Commander and SHARP's Director of Remote Sensing, working in Hall Field, Chalkpit Field and Park Field in particular. He was formerly a SHARP Committee Member and Trustee until he stood down in 2022.

List of Sponsors

In 2021, SHARP carried out a fundraising campaign to install a power cable to the site. We were extremely grateful to those who donated, although ultimately the amount raised was not enough to carry out the work. Since then, we have started a larger sustainability project and received funding to cover 80% of the cost of our own solar array. The earlier contributions will be used to fund the remaining 20% of this work.

The following individuals and organisations donated towards this project:

Helena Aldis
Ray Baldry
Simon Binns
Ellie Blakelock
Stephen Blakelock
Yvonne Bolton-Smith
Valerie Boudet
Pamela Breckenridge
Virginia Brimson
Josephine Brock
Daniel Cockling
Jane Cogg
Nick Coneybear
Shirley Christine Coupe
Adrian Donaghey
Sally Donaghey
Hazel Faulkes
Kate Faulkes
Fergus Fitzgerald
Alex Flintham
David Flintham
Rachel Galpin
Roger James
Guy Jilling
Iain Jones
John Jolleys
Alistair King
Sarah Lloyd
Guy Montgomery
Chris Ogden
Joe Ogden
Kate Parker
Jure Podlogar
Shelagh Rowling
Nigel Sadler
Graham Shuttlewood
Harry Taylor
Bronwen Trudinger
Charlotte Trudinger
Ronald J. Todd
John Ward
Sally Ward
Richard Wilkins
David Wood
Norfolk Archaeological & Historical Research Group

SHARP would like to thank all of the above for these donations. We would also like to thank those that have donated to our other fundraising campaigns, such as the sustainability project crowdfunder in 2024–5, and to all those who have donated to SHARP over the years.

SHARP is also incredibly grateful to the North West Norfolk History Society, who were originally planning to support our 25th-anniversary celebrations, which unfortunately had to be cancelled due to the Covid pandemic. Instead, they have funded the publication of this conference volume.

Introduction

Richard Hoggett

The year 2020 witnessed many important historical anniversaries, among them the 1,000th anniversary of the foundation of the Abbey of St Edmund in Bury St Edmunds, the 850th anniversary of the martyrdom of Archbishop Thomas Becket, the 800th anniversary of the translation of Becket's body into his shrine at Canterbury Cathedral, and the 400th anniversary of the sailing of the *Mayflower* from Plymouth. The year also marked the 25th season of fieldwork for the Sedgeford Historical and Archaeological Research Project (SHARP), a milestone celebrated with a silver-anniversary conference, the proceedings of which are presented in this volume.

Unfortunately, 2020 will also be remembered for the outbreak of the Covid-19 pandemic, the global impacts of which continue to affect us today and which ultimately prevented any fieldwork being undertaken during the 25th summer season. In early 2022, an even greater blow was dealt by the untimely death of SHARP's founder-director, Neil Faulkner, whose influence extended to every aspect of the project. As architect of the anniversary conference and the co-editor of these proceedings, this volume is published in his memory.

SHARP Focus

In the long, hot summer of 1996, the Three Lions were rampant, the Battle of Britpop raged and Cool Britannia ruled the waves. While John Major presided over the dying months of a tired Conservative government mired in scandal and divided over Europe, Gareth Southgate's infamous missed penalty saw the England football team knocked out of the Euros by a newly reunified Germany. The front-pages of the tabloid press were dominated by the Spice Girls and the bitter rivalry between Blur and Oasis, which culminated in Oasis performing to 250,000 people over two nights at Knebworth, an event which has since been mythologised as 'the landmark gathering for a generation'.

That same summer, a quiet corner of north-west Norfolk witnessed a different kind of 'landmark gathering': the first field season of what was then known as the Sedgeford Hall Archaeological Research Project, rebranded the following year as the Sedgeford Historical and Archaeological Research Project (Figure 1). The origins of SHARP have

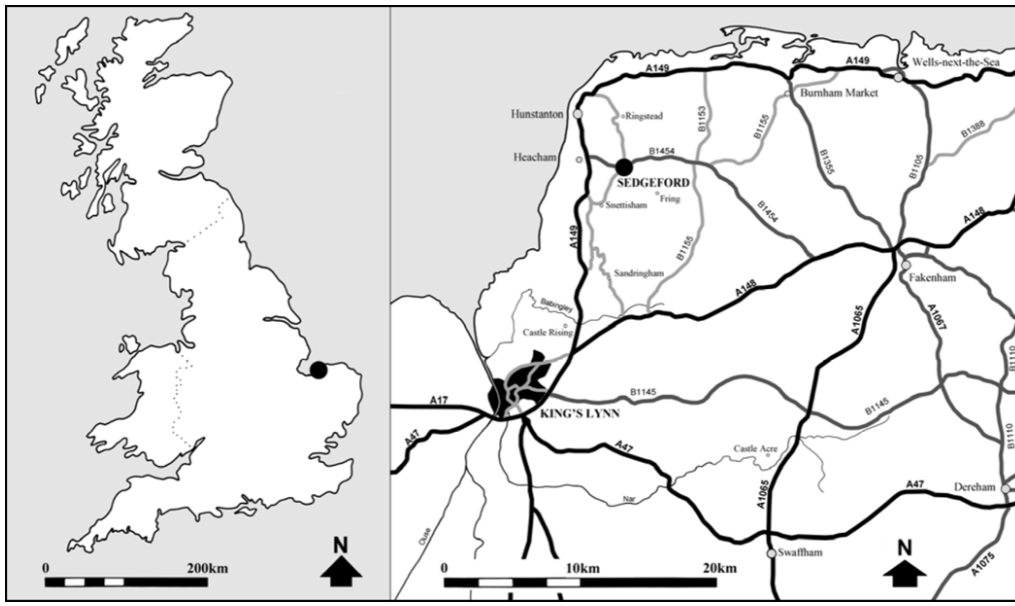


Figure 1. The location of Sedgeford in north-west Norfolk. (SHARP Archive)

been well rehearsed, resulting from a chance meeting between the then-landowners, Bernard and Susan Campbell, and founder-director Neil Faulkner in a bar overlooking the Bay of Naples (Faulkner *et al.* 2014: ix–x). Neil was looking for somewhere to start an archaeological excavation and the Sedgeford Hall estate encapsulated a rich archaeological landscape; the rest, as they say, is history (and archaeology)!

Since its inception, SHARP has been described, in adjectivally rich terms, as a 'long-term, multi-period, multi-disciplinary research project' focussed on investigating the full range of human history in a typical Norfolk parish, with the project's investigations being driven by a Mallory-esque 'because it's there' approach. During the last 25 years, the project has carried out extensive fieldwork across the parish, the locations of which are shown in Figure 2 and summarised below. Of course, SHARP isn't and was never just about historical and archaeological research. From its earliest days, Neil Faulkner wanted the project to be a socio-political experiment, in which everyone who participates in the project has an equal voice and vote in its running. Coining the phrase 'Democratic Archaeology' to describe this ethos, alongside the fieldwork results Neil keenly documented the development of the project itself, including the weathering of several 'political crises', with a social-anthropologist's eye (Faulkner 2000; 2002; 2009; Faulkner *et al.* 2014: ix–xiv).

In its early days, the main research focus of the project was the excavation of the Middle Anglo-Saxon Christian cemetery and associated settlement features in the Boneyard and Reeddam, on the southern side of the river valley (Figure 2, nos 2 and 3). These had first been investigated by John Hurst, Peter Jewell and Don Brothwell in the

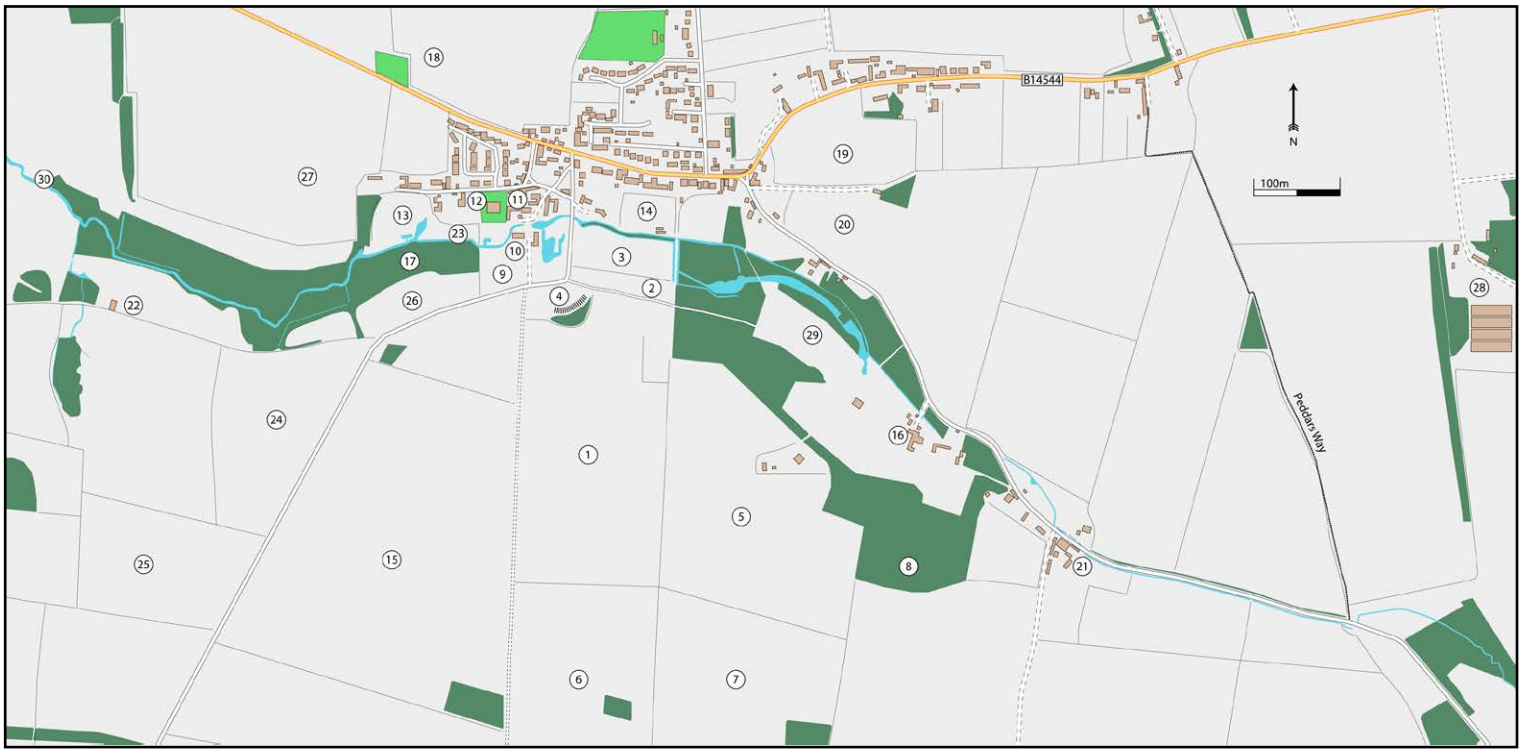


Figure 2. Locations within Sedgeford where SHARP has conducted fieldwork. (SHARP Archive)

1. Chalkpit Field; 2. Boneyard Field; 3. Reeddam; 4. Chalkpit Quarry; 5. Hall Field; 6. Shernborne Breck; 7. Polar Breck; 8. Hall Woods; 9. Saggy Horse Field; 10. West Hall; 11. West Hall Paddock; 12. Church of St Mary the Virgin; 13. Ladywell Field; 14. Allotment Field; 15. West Hall Field; 16. Sedgeford Hall; 17. Sedgeford Carr; 18. Susan's Field; 19. Manor Rise; 20. Almshouse Field; 21. Glover's Farm; 22. Eaton Barn; 23. Dovecote Field; 24. Jolly's Field; 25. Sedgeford Road; 26. West Hall Long Meadow; 27. Cemetery Field; 28. Sedgeford Aerodrome; 29. Park Field; 30. Kyme Mill

late 1950s and 1960s (Cabot *et al.* 2004; Faulkner *et al.* 2014: 79–136). Cemeteries of this date are rare survivals, the majority of them being buried beneath 1,500 years of later churchyard burials. The inhumations excavated by SHARP remain one of the most important skeletal assemblages from the Middle Anglo-Saxon period and have been used in a wide range of research projects (e.g. Gretzinger *et al.* 2022). As is explored more fully in this volume, during the course of the last 25 years the excavations on the southern side of the river have expanded to incorporate a much larger area, revealing evidence for an extensive Middle Anglo-Saxon malting complex (Figure 2, no. 1), which has formed the focus of much of the project's more recent fieldwork (Figure 3; Faulkner *et al.* 2014: 79–136; Blakelock and Faulkner 2020).

The survival of intact Middle Anglo-Saxon features and deposits on the southern side of the river is largely due to the fact that during the Late Anglo-Saxon period Sedgeford's settlement focus was relocated to the northern bank of the river, where the medieval manor and the parish church were established. In order to understand this settlement shift and its consequences, the investigation of the medieval settlement complex in and around West Hall (Figure 2, nos 10 and 11) and St Mary's church (Figure 2, no. 12) also became important early research objectives (Faulkner *et al.* 2014: 167–214).

From studies of historical mapping and the field-names preserved in manorial archives, to geophysical surveys undertaken using home-made resistance meters, extensive fieldwalking and metal-detector surveys, SHARP has always taken a progressive approach to studying the historic landscape of the parish and its surroundings. Inspired by Mick Aston's Shapwick project in Somerset (Gerrard with Aston 2007), SHARP was an early adopter of archaeological test-pitting within residents' gardens to gain a better understanding of those areas of the parish now buried beneath later settlement (Moshenska 2005; Faulkner *et al.* 2014: 215–24). SHARP began during the infancy of the internet, in a period when few people had mobile phones (and even fewer had reception on the Boneyard), but as new technologies have emerged during the last 25 years SHARP's volunteers have embraced the technicalities of GPS survey, the use of Geographic Information Systems to manage digital mapping and Lidar data, and drone photography to bring greater depth and understanding to the development of Sedgeford's historic landscape. The results of their labours are also presented in this volume.

Although the Anglo-Saxon period has been and remains one of SHARP's principal research foci, within the wider parish numerous other avenues of investigation have been explored during the last quarter-century. The discovery in 2003 of the Iron Age 'Sedgeford Hoard', comprising 20 gold coins concealed within a cow bone, prompted an exploration of the Iron Age remains in the parish (Davies *et al.* 2004; Dennis and Faulkner 2005). These included the discovery by metal-detecting in 2004 of the 'missing' terminal of the Iron Age gold 'Sedgeford torc', the rest of which had been ploughed up in 1965; the two pieces have now been reunited in the British Museum (Faulkner *et al.* 2014: 35).

Figure 3. Aerial view showing the spatial relationship between the cemetery, settlement and malting houses excavation areas. (SHARP Archive)

For several years, SHARP excavated a Roman farmstead (Figure 2, nos 6 and 7), which revealed the remains of a corn-drying oven containing burnt human bone (Faulkner *et al.* 2014: 53–68). Representing either a Roman murder mystery or an opportunistic cremation, the work highlighted the important and wide-ranging influence of the Romans on the landscape of west Norfolk. The Peddars Way passes northwards through Sedgeford on its way to the Roman fort of *Branodunum* at Brancaster, and the canalised river flows westwards through the parish linking the Roman villa complex at Fring to the Wash. The impact of these features on the development of the Anglo-Saxon landscape is explored in this volume, too.

SHARP's interests are not only ancient and one of the most successful strands of the projects research has been the investigation of the First World War aerodrome (Figure 2, no. 28), which was established at the eastern edge of the parish in 1915 and subsequently housed the Royal Flying Corps (Rossin 2018). Extensive historical research and fieldwork conducted between 2009 and 2018 resulted in the erection of a memorial on the site under the auspices of the Airfields of Britain Conservation Trust.[1]

[1] https://www.abct.org.uk/airfields/airfield-finder/sedgeford/

Wider Angles

As is explored more fully in the papers presented in this volume, the Middle (AD 650–850) and Late (AD 850–1066) Anglo-Saxon periods comprise one of the most fundamentally important periods in the establishment of the East Anglian landscape. This period saw the transition from the ephemeral, localised and largely transitory practices of the Early Anglo-Saxon (AD 410–650) period, which gave way to the emergence of the Anglo-Saxon kingdoms, the foundation of towns, bishoprics, monastic houses, churches and almost all of the settlements which we know today. It saw the conversion of the population to Christianity, the establishment of specialised means of production, the widespread use of coinage, significant advancements in farming and fenland drainage, and the implementation of laws, language and local administration. The period was also punctuated by the arrival of the Vikings and the imposition of the Danelaw, before East Anglia became part of the newly forged kingdom of England in the later tenth century. Indeed, by the time of the Norman Conquest in 1066, it is fair to say that much of the East of England as we recognise and understand it today was well established, as is reflected in the detailed entries recorded in the folios of Domesday book.

The dramatic increase in the evidence for and our understanding of Anglo-Saxon East Anglia which have occurred during SHARP's first 25 years are reflected in the various iterations of the *Regional Research Framework* which have been published since the late 1990s (Wade 1997; 2000; Ayers 1997; 2000; Medlycott 2011: 49–59). The latest version of the *Regional Research Framework* was revised between 2018–2020 and was published online in 2021.[2] In the new *Framework*, the Anglo-Saxon period is sub-divided into assessments of the Early Anglo-Saxon period, written by Catherine Hills,[3] and the Middle and Late Anglo-Saxon periods, written by the current author with significant input from Gareth Davies.[4]

Like all pre-industrial societies, the primary focus of the Middle and Late Anglo-Saxon economy was agricultural production, combining arable and pastoral regimes, with the vast majority of the population actively engaged in husbandry of some kind. While archaeological excavations have routinely collected and analysed faunal assemblages and environmental samples from Middle and Late Anglo-Saxon sites, enabling detailed interpretations to be developed on a site-by-site basis, until comparatively recently the vast majority of these data have sat in grey literature reports and archaeological archives. Fortunately, the past decade has seen a resurgence of interest in the fundamental subject of Anglo-Saxon agricultural practices, with a particular emphasis on farming regimes, and several studies have been undertaken which have attempted to use primary excavation data of this kind and synthesise it to produce regional and national overviews of the subject (Williamson 2013). These are subjects to which archaeological fieldwork is able to contribute a great deal, but the best

[2] https://researchframeworks.org/eoe/
[3] https://researchframeworks.org/eoe/resource-assessments/early-anglo-saxon/
[4] https://researchframeworks.org/eoe/resource-assessments/middle-and-late-anglo-saxon/

surveys have been those which are able to combine archaeological evidence with corroborative historical sources.

An overarching synthesis of Anglo-Saxon farms and farming practices has been published by Banham and Faith (2014), in which they present the evidence for the different agricultural practices undertaken by the Anglo-Saxons, the crops grown, animals reared and products obtained. These are complemented by landscape-type-based analyses of the balances struck between arable and pastoral practices in different regions across the country, including the East of England, from which numerous case-studies have been drawn. Their work is complemented by the ongoing work of Pam Crabtree (2010; 2012; 2013), who has published a series of analyses of animal husbandry across Middle Anglo-Saxon East Anglia, derived from faunal assemblages collected at key archaeological sites, including Brandon (Suffolk), Wicken Bonhunt (Essex) and Ipswich.

Perhaps the most significant, and certainly the most wide-ranging and detailed analysis of Anglo-Saxon farming in the East of England is that undertaken by Mark McKerracher, whose doctoral research at the University of Oxford (2014) and subsequent books (2018; 2019) examined the transformation of farming practices during the Middle Anglo-Saxon period. Taking the eastern region as one of two large case-study areas, McKerracher uses archaeological data – excavated features, faunal assemblages and environmental samples – from a wide range of East Anglian sites to present sub-regional analyses of farming practices, animal husbandry and crop cycles (McKerracher 2018). What emerges from the data is that the Middle Anglo-Saxon period in the East of England, like other places in lowland England and the Continent, witnessed an agricultural revolution which saw farming spread and intensify throughout the landscape, adapting its practices to differing terrains and landscape types in the process.

In order to better understand the mechanisms behind this agricultural revolution and address the questions of when, where and how these developments occurred, the European Research Council-funded *Feeding Anglo-Saxon England* (*FeedSax*) project was undertaken at the Universities of Oxford and Leicester between 2017 and 2022. The *FeedSax* project applied a suite of science-based techniques, such as stable-isotope analysis and functional-weed ecology, to preserved seeds, animal bones and pollen, in order to generate the first direct evidence for how crops were grown and livestock were kept in this transformative period of agricultural history.[5] The results of the project were presented at a two-day online conference held in December 2020, the proceedings of which were published in 2022 and are available via Open Access (McKerracher and Hamerow 2022).[6] Several of the contributors to the present volume were either directly involved with the *FeedSax* project or contributed Sedgeford-related papers to the *FeedSax* conference and the volume contains much which is of relevance to the ongoing research at SHARP.

[5] https://feedsax.arch.ox.ac.uk/index.html
[6] https://liverpooluniversitypress.co.uk/doi/book/10.3828/9781802077230

The 25th-Anniversary Conference

Since its inception, SHARP has held summer lecture series during the excavation season and has regularly hosted one-day conferences focussing on particular themes in the project's ongoing research, such as the Anglo-Saxon church (2001) and Anglo-Saxon burial practices (2003). These conferences have often attracted a range of speakers from across the discipline and have always been well attended. As SHARP's 25th fieldwork season approached in 2020, it was decided to hold a celebratory silver-anniversary conference to mark the occasion and, given the project's focus on agricultural production and malting in particular, it was considered appropriate that this conference should focus on the agricultural economy of the Middle Anglo-Saxon period.

Sponsorship for the conference was kindly provided by the North West Norfolk History Society, who have also sponsored the production of this publication.[7] Aptly, the Maltings in the Norfolk coastal village of Wells-next-the-Sea was booked and a panel of speakers duly arranged. The running-order of the conference was structured around three sessions, each focussing on a different aspect of the Middle Anglo-Saxon agricultural economy. The first session comprised a series of presentations setting out the latest results from the ongoing fieldwork and scientific analyses at Sedgeford. The second session took a broader view, setting the Sedgeford evidence within its regional context. The third session addressed the national context, and contained papers drawing upon large-scale research projects and offering models of the Anglo-Saxon economy.

Then, the Covid-19 pandemic struck. Overnight, all in-person events were cancelled as lockdowns and social distancing were enforced. The 2020 excavation season had to be cancelled and the plans for the conference were put on hold. Not to be deterred, like many groups and organisations facing similar restrictions, the organisers of the conference decided to switch the event to an online format, using Zoom, and the conference went ahead more-or-less as planned on 14 November 2020.

As many discovered during lockdown and since, while an online format somewhat reduces the personal contact inherent in such events, it does have the benefit of opening up the event to a truly global audience and enables people to participate who otherwise would not necessarily be able to make the in-person journey to the venue. Given the international character of SHARP's volunteer base and the relatively remote nature of Sedgeford itself, with hindsight this enforced switch of format was something of a blessing in disguise. Working on a pay-what-you-can basis and freed from the constraints of physical travel to north Norfolk in November, the online version of the conference attracted an audience of some 220 people from across the UK, and also participants from elsewhere in Europe, Canada and Australia.

[7] https://www.nwnhistorysociety.com/

The conference having been held to mark SHARP's 25th season in 2020, the publication of these proceedings coincides with the 30th season in 2025. Those familiar with publications such as this will appreciate that such a time-lag, while not desirable, is not unusual and we are fortunate that many of the original contributors to the conference and additional contributors were willing and able to supply written versions of their papers for this volume. Other speakers at the conference, including Debby Banham, Tim Pestell and John Blair, had or have since published the results of their researches elsewhere (e.g. Banham and Faith 2014; Pestell 2017; Blair 2018).

The decision to publish these proceedings with Archaeopress was made very early in the process, as their ethos is considered to be a very good fit with SHARP's own ideology. Consequently, this book is being published in paperback for those who wish to buy their own copy and is also being published online via Open Access, making the volume freely accessible to anyone who wishes to read it. This approach to 'access for all' is thoroughly in keeping with the tenets of Democratic Archaeology and many of SHARP's other publications are similarly available online via the project website.[8]

Like the conference, the papers in this volume fall into three groups, providing local, regional and national perspectives on the agricultural landscape and economy of the Middle Anglo-Saxon period.

Part I presents the results of two major strands of research undertaken by SHARP, focussing on different aspects of the Anglo-Saxon economy and landscape in and around Sedgeford. In the first paper, Eleanor Blakelock and Hannah Caroe combine their conference presentations to explore the archaeological remains and archaeobotanical evidence excavated from the Middle Anglo-Saxon malting complex on the southern side of the river. Their paper is complemented by an analysis of the development of the Anglo-Saxon landscape in the Sedgeford area, which has been compiled from a variety of different documentary sources and episodes of fieldwork by John Jolleys, Brian Fraser, David Wood and Kathyrn Oliana.

Part II takes a broader perspective and places the evidence from Sedgeford within the wider context of Anglo-Saxon East Anglia. Gareth Davies draws upon the fieldwork he conducted at SHARP and subsequently across west Norfolk to give an account of the changing approaches to and perceptions of the Middle Anglo-Saxon period which have occurred during the last 25 years. This is complemented by a commissioned paper from Sue Anderson, which provides an up-to-date assessment of Ipswich Ware, informed by the results of the Ipswich Ware Project (Blinkhorn 2012), more recent excavations in Ipswich and elsewhere, and the author's own doctoral research (Anderson 2024).

[8] https://www.sharp.org.uk/publications

Part III considers wider aspects of the Anglo-Saxon economy. Matilda Holmes and Helena Hamerow draw upon their research undertaken as part of the *FeedSax* project to provide a zooarchaeological perspective on agriculture and trade in Anglo-Saxon England. In our final paper, Neil Faulkner sets out in his characteristically ebullient fashion his hypothetical model for the development of the political economy of Middle Anglo-Saxon England which grew out of his fieldwork at Sedgeford. This paper forms a pair with that also published posthumously in the *FeedSax* conference volume (Faulkner 2022) and it is to be regretted that we will not get to see how this model might have been refined in light of further research and discussion.

Following the conference, Neil became very ill with an aggressive form of lymphoma and he passed away in February 2022. Neil remained industrious throughout the period of his illness and we are fortunate that he was able to provide a finished draft of his paper and was also able to play an active role in editing some of the other papers presented in this volume. In recognition of the great debt which the Sedgeford project and many of the individual contributors to this volume owe to Neil, the following section presents a selection of the tributes paid to Neil by members of the SHARP community, and we are pleased to be able to dedicate this volume to his memory.

References

Anderson, S. 2024. Tradition and Innovation: six centuries of pottery production, use and disposal in Late Saxon to late medieval East Anglia. Unpublished PhD dissertation, University of East Anglia.

Ayers, B. 1997. Anglo-Saxon, Medieval and Post-Medieval (Urban), in J. Glazebrook (ed.) *Research and Archaeology: a Framework for the Eastern Counties 1. Resource Assessment*: 59–66. East Anglian Archaeology Occasional Paper 3.

Ayers, B. 2000. Anglo-Saxon, Medieval and Post-Medieval (Urban), in N. Brown and J. Glazebrook (eds) *Research and Archaeology: a Framework for the Eastern Counties 2. Research Agenda and Strategy*: 27–32. East Anglian Archaeology Occasional Paper 8.

Banham, D. and R. Faith. 2014. *Anglo-Saxon Farms and Farming*. Oxford: Oxford University Press.

Blair, J. 2018. *Building Anglo-Saxon England*. Woodstock: Princeton University Press.

Blakelock, E. and N. Faulkner. 2020. The excavation of a Mid Anglo-Saxon malthouse at Sedgeford, Norfolk: An interim report. *Anglo-Saxon Studies in Archaeology and History* 22: 68–95.

Blinkhorn, P. 2012. *The Ipswich Ware Project. Ceramics, trade and society in Middle Saxon England*. London: Medieval Pottery Research Group.

Cabot, S., G. Davies and R. Hoggett. 2004. Sedgeford: Excavations of a Rural Settlement in Norfolk, in J. Hines, A. Lane and M. Redknap (eds) *Land, Sea and Home: Settlement in the Viking Period*: 313–23. London: Society for Medieval Archaeology.

Crabtree, P. 2010. Agricultural innovation and socio-economic change in early medieval Europe: Evidence from Britain and France. *World Archaeology* 42: 122–36.

Crabtree, P. 2012. *Middle Saxon Animal Husbandry in East Anglia*. Bury St Edmunds: East Anglian Archaeology Report 143.

Crabtree, 2013. Animal husbandry and farming in East Anglia from the 5th to the 10th centuries CE. *Quaternary International* 346: 102–08.
Davies, G., M. Dennis and R. Thirkettle. 2004. A hoard of Iron Age coins discovered at Sedgeford, 2003. *Norfolk Archaeology* 44(3): 538–40.
Dennis, M. and N. Faulkner. 2005. *The Sedgeford Hoard*. Stroud: Tempus.
Faulkner, N. 2000. Archaeology from Below. *Public Archaeology* 1: 21–33.
Faulkner, N. 2002. The Sedgeford Project, Norfolk: An Experiment in popular participation and dialectical method. *Archaeology International 2001–2*: 16–20.
Faulkner, N. 2009. The Sedgeford Crisis. *Public Archaeology* 8: 51–61.
Faulkner, N. 2022. An Agro-Social Revolution in a Mid Saxon Village: Making Sense of the Sedgeford Excavations, in M. McKerracher and H. Hamerow (eds) *New Perspectives on the Medieval 'Agricultural Revolution'*: 161–78. Liverpool: Liverpool University Press.
Faulkner, N., K. Robinson and G. Rossin (eds) 2014. *Digging Sedgeford: A People's Archaeology*. Cromer: Poppyland Publishing.
Gerrard, C. with M. Aston. 2007. *The Shapwick Project, Somerset: A Rural Landscape Explored.* London: Society for Medieval Archaeology Monograph 25.
Gretzinger, J. *et al.* 2022. The Anglo-Saxon migration and the formation of the early English gene pool. *Nature* 610: 112–19. https://www.nature.com/articles/s41586-022-05247-2
McKerracher, M. 2014. Agricultural Development in Mid Saxon England. Unpublished PhD dissertation, University of Oxford.
McKerracher, M. 2018. *Farming Transformed in Anglo-Saxon England*. Oxford: Windgather Press.
McKerracher, M. 2019. *Anglo-Saxon Crops and Weeds: A Case Study in Quantitative Archaeobotany*. Oxford: Archaeopress Access Archaeology.
McKerracher, M. and H. Hamerow (eds) 2022. *New Perspectives on the Medieval 'Agricultural Revolution'.* Liverpool: Liverpool University Press.
Medlycott, M. (ed.) 2011. *Research and Archaeology Revisited: a revised framework for the East of England*. East Anglian Archaeology Occasional Paper 24.
Moshenska, G. 2005. The Sedgeford Village Survey: Digging for local history in the back garden. *The Local Historian* 35(3): 159–67.
Pestell, T. 2017. The Kingdom of East Anglia, Fisia and Continental Connections, *c.* AD 600–900, in J. Hines and N. IJssennagger (eds) *Frisians and their North Sea Neighbours*: 193–222. Woodbridge: The Boydell Press.
Rossin, G. 2018. *Sedgeford Aerodrome and the aerial conflict over North West Norfolk during the First World War*. Lowestoft: Poppyland Publishing.
Wade, K. 1997. Anglo-Saxon and Medieval (Rural), in J. Glazebrook (ed.) *Research and Archaeology: a Framework for the Eastern Counties 1. Resource Assessment*: 47–58. East Anglian Archaeology Occasional Paper 3.
Wade, K. 2000. Anglo-Saxon and Medieval (Rural), in N. Brown and J. Glazebrook (eds) *Research and Archaeology: a Framework for the Eastern Counties 2. Research Agenda and Strategy*: 23–6. East Anglian Archaeology Occasional Paper 8.
Williamson, T. 2013. *Environment, Society and Landscape in Early Medieval England: Time and Topography*. Woodbridge: Boydell.

Neil Faulkner: A Tribute

with contributions from Keith Robinson, Tiggy Harris, Eleanor Blakelock, Gareth Davies, Andrea Beckham, John Jolleys and Jeffrey Bonas

Introduction

Numerous obituaries and personal tributes were published following Neil's death on 4 February 2022. These reflected the broad range of his interests and included pieces in both *The Telegraph*[1] and *The Guardian,*[2] as well as other archaeological and political publications. This section reproduces the obituary for Neil published in *Norfolk Archaeology*, together with memories and tributes from different voices within the SHARP community.

Norfolk Archaeology Obituary

Neil's long-standing colleague and friend, Keith Robinson, wrote this obituary, which was published in *Norfolk Archaeology* in 2023 and reproduced here with the permission of the author and the Norfolk and Norwich Archaeological Society (NNAS).

> For members of NNAS, Dr Neil Faulkner is probably best known as the founder–director of the long-running, community-archaeology programme at Sedgeford. Started in 1996, the Sedgeford Historical and Archaeological Research Project (SHARP) is still running today and even makes a brief appearance in the popular crime novels of Elly Griffiths, featuring forensic archaeologist Ruth Galloway.
>
> Neil had been given the opportunity to dig at Sedgeford by the eminent anthropologist Professor Bernard Campbell, who owned a significant portion of the parish. Anglo-Saxon remains had been found in the parish and when a field south of the river had been ploughed up a large quantity of human remains turned up. The field ever since was known as the Boneyard and has been central to the life of SHARP.
>
> Neil had met the Campbells, Bernard and his wife Susan, whilst leading a cultural tour of classical sites in the Mediterranean. Leading and lecturing on such tours was one of the many strings to Neil's life as a freelance archaeologist.

[1] *The Telegraph*, 7 February 2022: https://www.telegraph.co.uk/obituaries/2022/02/07/neil-faulkner-archaeologist-historian-revolutionary-socialist/
[2] *The Guardian,* 15 March 2022: https://www.theguardian.com/science/2022/mar/15/neil-faulkner-obituary

Neil, although born in Walthamstow, north-east London, was brought up in the Weald of Kent and was educated at the Skinners' School in Tunbridge Wells. From there he went to King's College, Cambridge, where he read social and political sciences, and then spent some six years teaching history and sociology before a change in direction beckoned.

This time, his focus was on archaeology, and he joined the Institute of Archaeology, University College London, where he went on to complete his PhD in matters Roman Britain and was a joint recipient of the Petrie Prize. Here he found a like-minded supervisor in Richard Reece. The resultant thesis became his first book, *The Decline and Fall of Roman Britain* (2001). The wider Roman Empire would be much more fully explored in his third book, *Rome: Empire of the Eagles, 753 BC–AD 476* (2008), where he further develops his concept of the Empire as based on robbery with violence.

It was from amongst his fellows at the Institute that the first SHARP supervisory team was drawn. Although many locals were involved in the dig and mostly formed the SHARP committee, there was a certain tension between those moving towards professional careers and Neil's developing idea of a democratic archaeology. Archaeology driven by a top-down structure was antithetical to Neil's hope of creating a dig where all participants' voices were heard and listened to and where specialists helped volunteers to develop their archaeological skills. A radical concept, which showed that his political studies at Cambridge had not been forgotten. Indeed, political activism was to march side by side with his archaeological activities. Marx and Freud heavily influenced his writings and his interpretation of past events, and he much admired the writings of the archaeologist V. Gordon Childe.

Neil's experiment with democratic archaeology paid off in many ways, not least through the introduction of many people new to the skills of field archaeology. Numerous courses were developed and his passion for teaching and communicating with a wider public were ever on display. Working on what was confirmed as a Middle Anglo-Saxon burial site allowed the growth of an excellent Human Remains Team.

SHARP's work expanded, finding the settlement to go with the cemetery. Life of the people of this ordinary north Norfolk village in the period began to more fully unfold. Alongside which, some excellent finds were discovered. These included a hoard of Icenian gold staters stored in a cow bone, now on display in King's Lynn Museum, and the terminal of a gold torc, which proved to be the missing part of a torc discovered in the 1960s, now united and on display in the British Museum.

But Neil's passion and his energy would not be confined by one project and he increasingly became interested in military history and archaeology, particularly as the anniversary of WWI approached. This expanded to Sedgeford, too, in the organisation of archaeological work on the WWI aerodrome that had been created in the northern reaches of the parish.

His second book, *Apocalypse: The Great Jewish Revolt Against Rome AD 66–73* (2002), had earlier indicated his interest in things military, and also to a fascination with the Middle East and its politics. In particular, these interests became focused on the figure of T.E. Lawrence, aka Lawrence of Arabia. Here lies the genesis of Neil's other great project, in collaboration with Professor Nick Saunders of Bristol University, The Great Arab Revolt Project (GARP).

Over ten seasons of excavation in Jordan, GARP uncovered Ottoman tent rings, bits of playing card, tunic buttons, boot leather, cigarette packets and oil lamps. The traces of ordinary men, from both sides, drawn into a war not of their making. His field research led to his book *Lawrence of Arabia's War: The Arabs, the British and the Remaking of the Middle East in WW1* (2016) and an exhibition in 2016 with many of the finds on display, entitled 'Shifting Sands – Lawrence of Arabia', at the National Civil War Centre, Newark Museum.

His last book further explores the clash between British Imperialism and Arab politics, this time in Africa, where it comes under detailed and radical analysis in *Empire and Jihad: The Anglo-Arab Wars of 1870–1920* (2021).

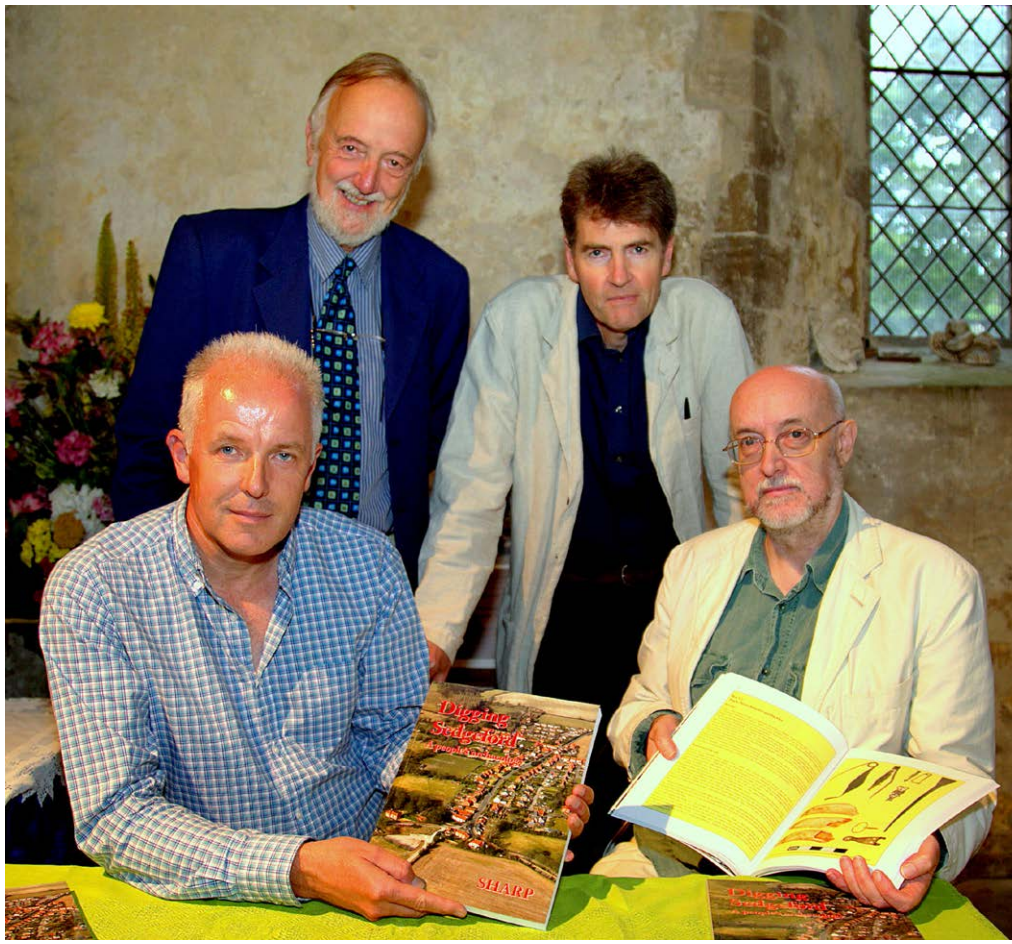
Although his move from editor of *Current Archaeology* to editor of *Military History Matters* may seem to indicate a shift away from archaeology, this was not the case. With Faulknerian energy he continued his love affair with archaeology, writing, talking on radio, creating podcasts, leading cultural tours and appearing on TV, including *Time Team*.

Norfolk was not forgotten either, for he still liked to get his hands dirty, and as SHARP progressed he was there to see the uncovering of a new and significant find. Several drying/malting ovens began to appear to the east of the settlement area, suggesting an industrial-scale malting operation not known anywhere else in this Middle Anglo-Saxon period.

His writing and editing skills also came into use as he drove forward the production of SHARP's first monograph, *Digging Sedgeford: A People's Archaeology* (2014), which he co-edited and co-authored. Here the aim was to break away from a dry, academic account of the archaeology, to one which was accessible and related both to the people of the past and to the people who had uncovered their stories, a fitting tribute to his concept of Democratic Archaeology.

Neither was Norfolk done with Neil, for he also started a new project in King's Lynn, King's Lynn Under Siege, which has begun to unearth the story of the English Civil War defences in the town, which remain some of the most complete in the country. This project still continues.

Archaeology has lost a fine son much too early, though Neil seem to have fitted several lives into one. He will be much missed by many, and most of all by his partner Lucy, and his children Tiggy, Rowena, and Finnian.



Publicity photo from the launch of Digging Sedgeford *in 2014, featuring editors Neil Faulkner (back right), Keith Robinson (front right) and Gary Rossin (front left) and publisher Peter Stibbons (back left). (SHARP Archive)*

Sedgeford Memorial Event

A memorial event was held for Neil in St Mary's church, Sedgeford on 30 July 2022. St Mary's has hosted many events for SHARP since the project's inception, including the weekly lecture series, and the building was a major focus of the project's research between 1996 and 2002. At the memorial event, numerous tributes were delivered by family, friends and members of the wider SHARP community. A selection of these tributes is reproduced here.

Neil's eldest daughter, Tiggy Harris, delivered a moving tribute on behalf of the family:

> Dad – there will never be words that can do justice to how much you meant to us all, but I am going to give it a go. I won't be as eloquent as you always were and I

am sure you would have done a much better job, but you'll have to forgive me – I couldn't ask you to edit it and make your 'improvements' this time.

In mid-January, when Neil realised that his illness was taking hold, he quoted the Ancient Greek philosopher, Heraclitus: 'No man ever steps in the same river twice, for it is not the same river and he is not the same man. There is nothing permanent except change.' This was a characteristic response. Even when facing his own mortality, he was able to express his fears and emotions within the context of the human condition. Life, like a river, takes twists and turns. There are calm spells and rapids; tributaries that join; changing landscapes. But the current never ceases to pull you forward.

The river of Neil's life was made up of a number of currents and themes. History, politics and archaeology were the three intertwining pillars that made up his life's work and his ethos; all of them informing and enriching each other. But I will come to these shortly.

Neil was proud of his Scottish and Irish heritage. His father's family came from the Scottish borders, and his mother's family emigrated from Ireland in the 1920s and settled in Walthamstow, North London, where Neil was born. Neil grew up in the Weald of Kent, with his father, also Neil, his mother, Mary, and his sister, Maura. From an early age, Neil had an interest in exploring and discovering. He could often be found out in the garden digging and making mud pies. Early photographs show him with a mini wheelbarrow and small pots, very proud of his most recent discovery. The family ventured to many historical sites together, a favourite being Bodiam Castle in Sussex.

It was during his time at Skinners' School, Tunbridge Wells, that Neil's interest in history and politics became a true passion. Two school friends, Chris Giles and Simon Foulkes, both of whom became lifelong friends of Neil's, recall toiling through A-Level history together, until Neil turned up with Christopher Hill's *The World Turned Upside Down*. Chris describes Neil's enthusiasm for what he had read and how 'suddenly history was vibrant and involving.'

At this young age, Neil's politics were also starting to emerge. He described to us many times how his first act of rebellion took place during his school days. In a P.E. lesson, on a particularly cold, wet winter's day, Neil decided that being forced to play rugby in such conditions was wholly unjust and that he had had enough. Freezing, and with blotchy blue legs, Neil marched off the pitch in protest. His classmates followed his lead. His lifelong commitment to political activism had begun.

However, it wasn't until his time at King's College, Cambridge, that Neil really started to hone his politics. When Neil spoke about his time here, it wasn't to tell us about the prestige or the world-renowned teaching. Instead, we heard about his political antics with the Cambridge Left. Ruth Evans, a friend from Cambridge with whom Neil remained very close, recalls climbing onto the roof of King's and 'catapulting makeshift missiles at attendants of the infamous May Ball'. He was also responsible for stealing the King's College flag, which he kept in his possession

until coming clean and returning it only a few years ago. Another friend, John Mullen, remembers how Neil's dorm room was always left open, perhaps inviting his friends into his room to admire his vast collection of hand-painted model soldiers, carefully positioned in a battle reenactment.

Neil became heavily involved in the anti-apartheid campaign taking place at King's during the late 1970s. He rallied his friends to participate in the ongoing rent strike and organised debates which included speakers whom he had invited from South Africa. Neil initiated direct action against Barclay's Bank, one of the worst pro-apartheid banks at the time, leading his fellow students around Cambridge town, gluing up Barclay's cash-points.

Upon leaving Cambridge, Neil remained dedicated to his politics, taking a full-time job with the British Anti-Apartheid Movement. Although in 1982, he decided to train as a teacher and went on to spend a year teaching English in Sudan, followed by six years working as a schoolteacher back in Britain, where he quickly became the trade union rep.

In 1990, however, Neil returned to his study of history. Completing an MA at the Institute of Archaeology, UCL, he then undertook his PhD on The Rise and Fall of Romano-British Towns. The research of which formed the foundations of his first book. About this time, another friend from Cambridge, Sarah Phibbs, introduced Neil to her sister, Lucy, making this period a turning point in Neil's life in a number of ways.

Having found his niche, Neil began turning his long-term interest in history and archaeology into a career. His eloquence, charisma and energy as a public speaker made him popular as a lecturer and cultural tour guide. And it was on one of his early tours to the Bay of Naples that he met Bernard and Susan Campbell. It is strange looking back now at how this chance meeting changed Neil's life and our life as a family forever. Of course, none of us would be here today, had this meeting never happened!

While not the Mediterranean, camping in Boneyard field has its own charms and became an important part of our family summers. As young children, Rowena, Finnian and I remember spending summer after summer running around the campsite, come rain or shine, quite oblivious to the archaeological importance of the site. Our main contribution was dressing up in Anglo-Saxon costume and parading around on the annual open days. But as the three of us got older, with Dad's encouragement, we started getting more involved in the archaeology. This often meant cleaning, with an old toothbrush, the wheelbarrows full of Anglo-Saxon daub that were being brought down from the excavation. Apparently some ovens had been found, causing much excitement amongst the real archaeologists.

In many ways, we grew up here, but we are not the only ones for whom the project has had a profound impact. Over the years, hundreds of people have been up the dusty track and there are many for whom the project completely turned their lives

around. Since Neil's death, we have been overwhelmed by the number of messages from people whose lives were touched by him. There is one word that keeps coming up again and again: mentor.

We have heard stories from so many people, describing how Neil helped to set them on a better path, giving them the opportunity to prove what they were capable of. Nadia Durrani, a close friend of Neil's, talks about how mentoring younger people, and people new to an area, was Neil's thing. She remembers the first research trip she went on with Neil after joining Current Publishing. During the car journey home, she said to Neil, 'You'll write the article, and I'll proof-read it, yes?' At the time she was new to journalism, so this was her expectation. 'Oh no. You will write it! And you'll do it really well,' Neil replied, giving Nadia a huge vote of confidence.

This is why Sedgeford is so important. Back in 1996, when Sedgeford was founded, Neil had a vision of community-based Democratic Archaeology. And today, everyone involved, regardless of experience, has a voice and their contribution matters. This ideology was reflective of Neil's politics and the project will be a lasting legacy.

For me, Rowena, and Finnian, our recollections of Dad are dominated by family dinners, Friday film-nights with Dad's homemade pizza, and family holidays. Otherwise, he was working; always working. There was always a new project, always something in the pipeline. Work took up most of his time, so family events were special. Even so, his mind never strayed far from his main focus. It was a common occurrence for family mealtimes to drift into political pontification. Neil always had something to say. Throughout his life, he remained unwaveringly dedicated to his political convictions, always standing alongside ordinary people.

In more recent years, we had some fantastic family holidays. But of course, there was always a historical focus. First World War sites in northern France, American Civil War battlefields in Virginia, and following in the footsteps of Che Guevarra and his guerrilla fighters in Cuba. Dad's enthusiasm for visiting such places was unwavering, although the historical significance was sometimes lost on us as young children. I have many memories of Dad enticing us with the promise of a medieval castle or a Roman fort, only for the grand reveal to be some grassy 'humps and bumps' in an obscure sheep field.

Although Neil's public persona was a hugely well-read and charismatic academic, there was a quirkier side to him. Neil didn't go anywhere without his rucksack. In it, always, were several books, his bursting-at-the-seams Filofax, an umbrella, a water bottle and various miscellaneous items. We once discovered that he had been carrying a *London A-to-Z* around Barcelona; on another occasion, a heavy chunk of the Hijaz railway track from Jordan was found lurking at the bottom, which he'd forgotten to remove after a lecture several weeks earlier.

As I have said, Neil always had numerous projects on the go – one he was particularly enthusiastic about in recent years was The Archaeology of Cinema, which he set up with his close colleague and friend, Gary Rossin. This involved several field trips to

famous film locations to investigate what had been left behind, including Almeria, southern Spain for *Lawrence of Arabia* and western Ireland for *Ryan's Daughter*. We're delighted to hear that Gary will be continuing this project and seeing it through to completion. We are also immensely grateful to both Gary and Nadia who have, at Neil's suggestion, agreed to complete various publications that Neil was unable to finish. It's heartening to know that his legacy will continue both through the people he influenced and the many books he published.

And now, all I have left to say is this: Dad, as you said as the three of us stood around your hospital bed reminiscing: 'So many memories. So many memories and so little time to remember them.' The brutal unfairness of losing you too early will never get easier, but I am so grateful for the time we had and the memories we made together. You taught us so much and while you may never have been a conventional father, I wouldn't have changed you. I am proud to call you my Dad, and I will love you always.

Having first joined SHARP as a teenager, Eleanor Blakelock is now the Director of Excavations for the project. In her tribute, she reminisced about excavating with Neil and the influence he had on her career:

Like many, I first attended SHARP when I was 16. It was my first long period away from the parents and my first excavation. I loved it, and the ethos of SHARP and its aim to make archaeology accessible to all has stayed with me ever since. Throughout my time I had multiple encounters with Neil. One memorable occasion was when I was drawing a section of a post-hole, and he came over, sat down next to me and had a look at the drawing. He noticed my pencil was blunt, so he borrowed my sharpener, but he must have decided it was broken and proceeded to chuck it into the Reeddam. I must have just looked at him in a state of pure shock, as when he turned back to me he just calmly said, 'It's now for future archaeologists to find'!

In those early days on site, I was a little scared of Neil or that's what I thought it was. I now realise I was actually in awe of him. Over the years we have worked together I have seen that same expression of awe on hundreds of volunteers' faces. Often the result of Neil asking them for their thoughts on the feature they were digging. Nervous at first, but gradually, after a short period, they were soon at ease and talking about the archaeology, knowing that they were not only made to feel included, but their view was also valued, no matter what their background.

Neil had bags of charisma. Every time he stood up to talk, within seconds he would have captured the audience's imagination. For me he managed to bring history to life, with his focus on thinking about the people and societies of the past, rather than focusing purely on ditches, features or finds, something I have always tried to do since. Even when talking to volunteers or supervisors, he had the amazing ability to convince them the sky was pink! The best example was the proposed remains of a mouse on the malting site. The entire site stopped work to look, some were sceptical, but all gathered around to hear the tragic tale of the Anglo-Saxon mouse crushed under the daub of the malthouse.

Neil Faulkner interpreting the Boneyard and Reeddam excavations for Richard Reece (left), Mick Aston (second from left) and Teresa Hall (right) during a site visit in 2001. (Photo: Richard Hoggett)

Neil was an amazing teacher. I learnt so much from him over the years and I know so many volunteers feel the same. His endless patience and genuine care and encouragement meant so much to me and many of the volunteers and supervisors at SHARP.

I had been working alongside Neil for many years, but in 2018 we started to work together much more closely on the malting site. On trench, we made a good team; we didn't always agree, especially when it came to identifying post-holes, but we worked to each other's strengths, and I particularly valued Neil's imagination and wider knowledge.

In recent years, I and the volunteers have seen the fun side of Neil. There was always plenty of banter and practical jokes on and off trench, often involving yellow flags and post-holes, imaginary contexts and even the odd clay mouse. When he revealed that he knew three jokes these became a regular feature of the trench each year – the favourite was his desert joke. Neil was also keen on his water fights, the most memorable being the Viking battle where he wore a helmet and wig, showing that archaeology, while a serious endeavour, should always be fun too!

I am extremely grateful to Neil for the opportunities he created at SHARP. Be you young, old, working class or upper class, you were welcomed to SHARP and into

> the community. He often talked about SHARP as his experiment in Democratic Archaeology. There have been bumps along the way, but the true values of his ethos have remained and continue to grow stronger. However, I feel the thing that Neil should be most proud of is the community he has created in a small field in Norfolk. That community now spreads across the UK and beyond, through the many SHARPies that have been and gone over the years. SHARP will continue to ensure archaeology is accessible to all and provide a voice to the community Neil created.
>
> On a personal note, Neil made such a huge impression on me and my career. Without him and SHARP, I would not be where I am today. I was incredibly honoured and humbled that Neil asked me to take on the responsibility of Director of Excavations, ensuring that SHARP remains true to Neil's original ethos of 'archaeology to all' and that we continue to excavate, record and publish to the best of our ability.

Gareth Davies first joined SHARP in the late 1990s and was instrumental in the excavation of the Boneyard and the early expansion of the project. Now the Director of Archaeology at York Archaeological Trust, his tribute focussed on the inspirational combination of archaeological theory and politics which Neil brought to every aspect of the project:

> Until last week, I had been struggling to decide what to say about Neil at this memorial event. Not because I have don't have numerous fond memories of him or that he wasn't an inspirational teacher and mentor to many young archaeologists and researchers, like me, during the early years of Sedgeford. Rather, I couldn't find a specific focus for narrating why the time and insight that Neil gave me was so important. There just seemed so many threads. But then, thinking around memories of Neil – from the fallout of machining through a burial (Neil's first acceptance of using a mechanical excavator on an archaeological site) to a face-to-face at the Curry House in Hunstanton, where I was sure I was going to be sacked from SHARP for methodological disagreements, until we both got really engrossed in an idea about looking for Roman evidence in the parish – I stumbled upon a memory that led me to the main point that I would like to make today about Neil and his influence on me and many others.
>
> Neil and I were walking from the campsite to the pub after work had finished on site. This was the late 1990s, when we still went to the King Willy every night because beer was affordable. This was the hey-day of New Labour and, to paraphrase D-Ream, things 'were getting better'. I could even afford to spend two months each summer on research digs within my student budget. I can't remember exactly how, but I was confiding in Neil that – in my Middle-Class comfort zone – I regretted how I was not more politically active and that I didn't really do anything to bring about change. Neil's answer, in his usual 'with-absolute-conviction' tone, was simply: 'that's just not true, Gareth; you are doing this project, for a start'. We then returned to our ongoing interpretation of the status of the Middle Anglo-Saxon settlement.

Neil Faulkner demonstrating the use of a mattock in 2003. (SHARP Archive)

What did Neil mean? Well, the democratic, inclusive nature of the SHARP project under Neil's steerage is a well-documented phenomenon. However, Neil was also thoroughly embedded in the conviction that Sedgeford shines a light on an alternative world, a way of doing things differently, and is an illustration of how things *can* be better. That is political. A fundamental lesson which Neil taught me is that thinking about and investigating the past and undertaking research can be politically active and can bring about change if you want it to. In order to do this you have to think big and place those small, human insights within much wider explanatory frameworks: the 'big picture', the 'longue durée'. Fundamentally, you need to have a model for explaining past societies.

It is hard to articulate now just how unusual Neil's approach to archaeology was in the late 1990s and early 2000s, which were very much dominated by 'Post-processual' approaches largely focussed on interpretation at the level of the household or the individual. Neil, very much embracing of earlier approaches utilised by processualists and culture-historians, always had those wider explanatory frameworks. Indeed, for Neil, engaging more directly with the material culture – a big driver behind him setting up SHARP – was simply a means to the end of producing more nuanced and robust grand narratives. In this regard, I would put Neil's archaeological approach in the same school as another famous member

Neil Faulkner discussing stratigraphy with volunteers on the Boneyard excavations in 2004. (SHARP Archive)

of University College London, Vere Gordon Childe, who created big Marxist models and had masterful command of the evidence within them at a European scale.

For a young archaeologist, learning his trade technically and based at a then very empirical and theory-free archaeology department in Nottingham, this was quite a revelation. I clearly remember the intellectual thrill of realising that as a researcher you could use the evidence you dig up to 'think big' about your model of what was going on in early medieval society. Neil encouraged this 'thinking big' through the lens of material culture in his young project directors – such as Anj, Sophie, Rik, Naomi and myself – through debate, through sending us to give conference papers and through engaging with the material. This worked to the extent where we frequently revolted against him!

So that, in a nutshell, is what Neil gave to me and many others. That it is vital, and always OK, to think big about the past, just like it is OK to think big about the world and the myriad future, hopeful, possibilities within it. That it is liberating, inspiring and stimulating just to be alone with your thoughts, because you are always free to think about whatever possibilities you like: past, present and future. You can build a society in your own image, you can use the evidence in front of you to do that. Who knows, those thoughts might one day even become reality. For that, thank you forever, Neil.

Neil Faulkner surveying the Boneyard excavations in 2004. (SHARP Archive)

Andrea Beckham (née Cox) was a member of the original SHARP team in 1996 and was responsible for much of the archaeological work undertaken at West Hall. Having been involved with SHARP throughout its history, she used her tribute to explain the personal impact which project had on her and many others:

> I came to Sedgeford in 1996 as an outsider. Unlike other team members, I had no connection with UCL or the excavations at Caerwent and I wasn't a local. To be honest, when I agreed to be on the team I hadn't even known where Norfolk was! I came for something to do when work was short during my first post-graduation summer and to get that all important supervisory experience for my CV. What I didn't expect to find at Sedgeford and SHARP was my second home, and something that would dominate the next eight years of my life, determining its direction and that of my career. Most importantly, SHARP gave me some amazing experiences, memories and a wonderful family of friends. I don't think it would be presumptuous to say that my story echoes many of the stories of those who have been and are part of SHARP. I, we, have Neil to thank for that.
>
> Things weren't always plain sailing between Neil and me. We often butted heads, particularly when it came to archaeological procedure and interpretation. Neil was a fan of single-context area excavation, while I argued for the merits of excavation by section or sondage. Neil could conjure a building from a couple of post-holes,

> while I would prefer to err on the side of caution. Debate could be heated, but ultimately this is part of the SHARP ethos: everyone can have an opinion, everyone can have a theory. This is where Neil and I firmly saw eye-to-eye and were always united. SHARP should be for everyone and be somewhere where everyone, including the team, can learn and develop. This, is where Neil excelled.
>
> Neil, your enthusiasm, quiet encouragement, support and friendship will be greatly missed!

John Jolleys is one of SHARP's longest-serving members and in that time has been an important part of the human remains team and, more recently, the landscape research group. In this written tribute, he offers some personal recollections of Neil and his legacy:

> During the 2019 excavation season at SHARP, Neil confided that that year had been one of the most constructive and productive years in SHARP's history and he was looking forward to the 25th season and the 25th-anniversary conference to be held after the 2020 season. Sadly, that season was lost to the Covid-19 pandemic, but the conference, which this monograph records was held as an online meeting in November 2020. This attracted over 220 attendees, who were able to hear a series of fascinating talks with questions and a plenary session to close, where all could put forward their views and opinions. Neil was looking forward to the 2021 season, when excavation could resume. It did so, but unfortunately by then Neil had been taken ill with a virulent form of lymphoma and was unable to be present on site.
>
> Many a professional career in archaeology began with attendance at SHARP. This in itself is a tribute to Neil's infectious enthusiasm for the subject, but perhaps an even greater tribute was that, through his concept of Democratic Archaeology, he realised that many non-professionals had much to offer to the progress of knowledge and were able to benefit massively from his experience.
>
> Neil, ever intellectually challenging, made one think and was always open to a range of different ideas, backed by convincing evidence. He would debate with vigour and his point usually was proven correct, but where a differing view was shown to have validity, then he would be more than happy to recognise the fact and take the idea on board.
>
> Much has been achieved at SHARP over its history, both in excavation, enthusing volunteers and educating the general public. None of this could have been possible without Neil. In his memory, it falls on all to offer work in progress for publication, so that the knowledge is not lost, but spread across the archaeological community for consideration and discussion.
>
> Neil will be most sadly missed.

Neil Faulkner excavating the Boneyard in 2001. (SHARP Archive)

Finally, the following tribute is offered by Jeffrey Bonas, chairman of the North West Norfolk History Society, who have supported SHARP in many ways during the last decade, including sponsoring the 25th-anniversary conference and these proceedings:

> Neil Faulkner was a distinguished scholar who brought archaeology and history together to form one discipline. This book is a tribute to Neil's approach. It is also a testament to the hundreds of young trainees who came to work at Sedgeford in their holidays and were inspired. He was a great teacher. He had strong views on many subjects, but he expressed them with patience and charm. To have known Neil was more than a pleasure, it was an experience!

Part I: Anglo-Saxon Sedgeford

An Archaeological and Archaeobotanical investigation into the Anglo-Saxon Malting complex at Sedgeford

Eleanor Blakelock and Hannah Caroe

Abstract

Continuing excavations at Sedgeford are exposing a large malting complex dating from the Middle Anglo-Saxon period. This paper explores the excavated archaeological remains and the archaeobotanical evidence recorded from the site, prior to further excavations taking place in 2021, to provide an insight into the Anglo-Saxon malting process which occured at Sedgeford. The archaeological evidence suggests that there were at least three malthouses, and possibly four or more, together with other features relating to water management. Each stage of the malting process – steeping, germination and kilning – is represented in the archaeological record. The archaeobotanical evidence indicates varying levels of germination at different locations and variation in the frequencies of cereal grains across the complex. This assessment is contextualised with an overview of the current understanding of beer consumption and methods of malting and brewing in Anglo-Saxon England, and of known archaeological sites where evidence for Anglo-Saxon malting and/or brewing has been claimed.

Introduction

At the time of writing, excavation and research by the Sedgeford Historical and Archaeological Research Project (SHARP) has been ongoing for 24 seasons at Sedgeford in Norfolk. The aim of the project is to investigate the entire history of the village, although SHARP's primary focus is the Middle Anglo-Saxon landscape, including the cemetery, settlement and, currently, a malting complex (Figure 1). The Middle Anglo-Saxon inhumation cemetery was excavated between 1996 and 2007 and revealed 291 burials, although the full extent of the cemetery is not known. Between 2007 and 2016 excavations focused on the associated settlement (see Faulkner *et al.* 2014). The early phases of the settlement date from *c.* AD 650/700, however there is evidence for reorganisation of the settlement and construction of larger 'hall' buildings which is likely to have occurred between AD 775/825–900/950, corresponding to wider changes in the landscape as discussed by Jolleys *et al.* in this volume.

The present focus of excavation and research, and the subject of this paper, is a set of features, including a clay-lined pit, several kilns, clay floors and post-holes, located to the south-east of the settlement. The complex is located in a natural gully, and this has filled with colluvial in-wash which has protected the features and the Anglo-Saxon ploughsoil which sealed them. The site was visible as several highly magnetic anomalies on the geophysical survey plot of Chalkpit Field, and the signatures indicated that features had been heated (Figure 2). Archaeobotanical evidence has shown that a high proportion of the cereal grains recovered here are germinated (Wolff 2017; Caroe forthcoming). These pieces of evidence initially underpinned our hypothesis that this part of the site is, in fact, a malting complex. This paper provides

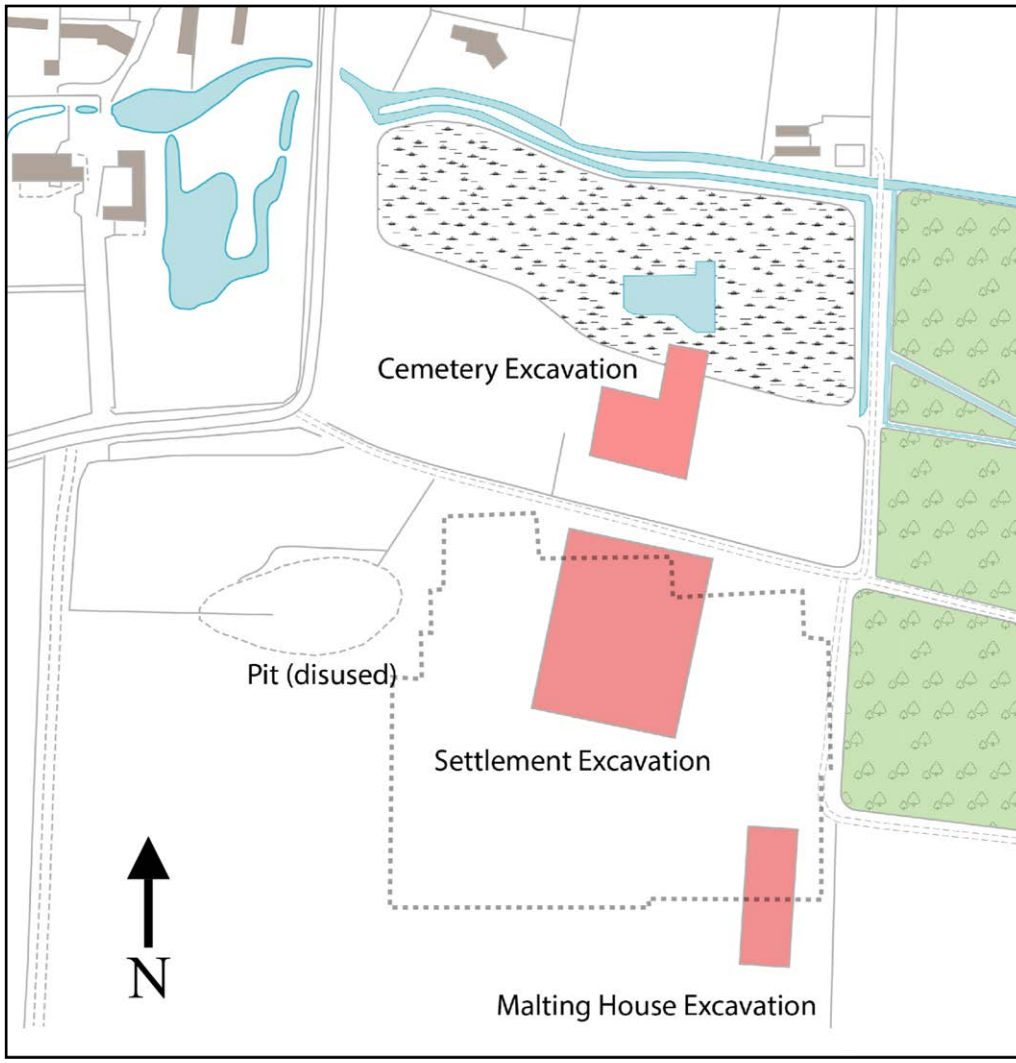


Figure 1. Map showing the areas of excavation at Sedgeford, with the cemetery, settlement and malthouses located in the natural gully.

a description of the malting process at Sedgeford, drawing upon a combination of archaeological and archaeobotanical remains. First, the evidence for each stage of the malting process is presented, followed by archaeobotanical evidence for the same. Finally, the Sedgeford malting site is discussed alongside other evidence for malting in Anglo-Saxon England.

Beer in Anglo-Saxon England: Consumption and Production

The first stage of beer production is malting, conducted to create the main ingredient required for brewing: malt. In the later stages of beer manufacture, the malt is boiled

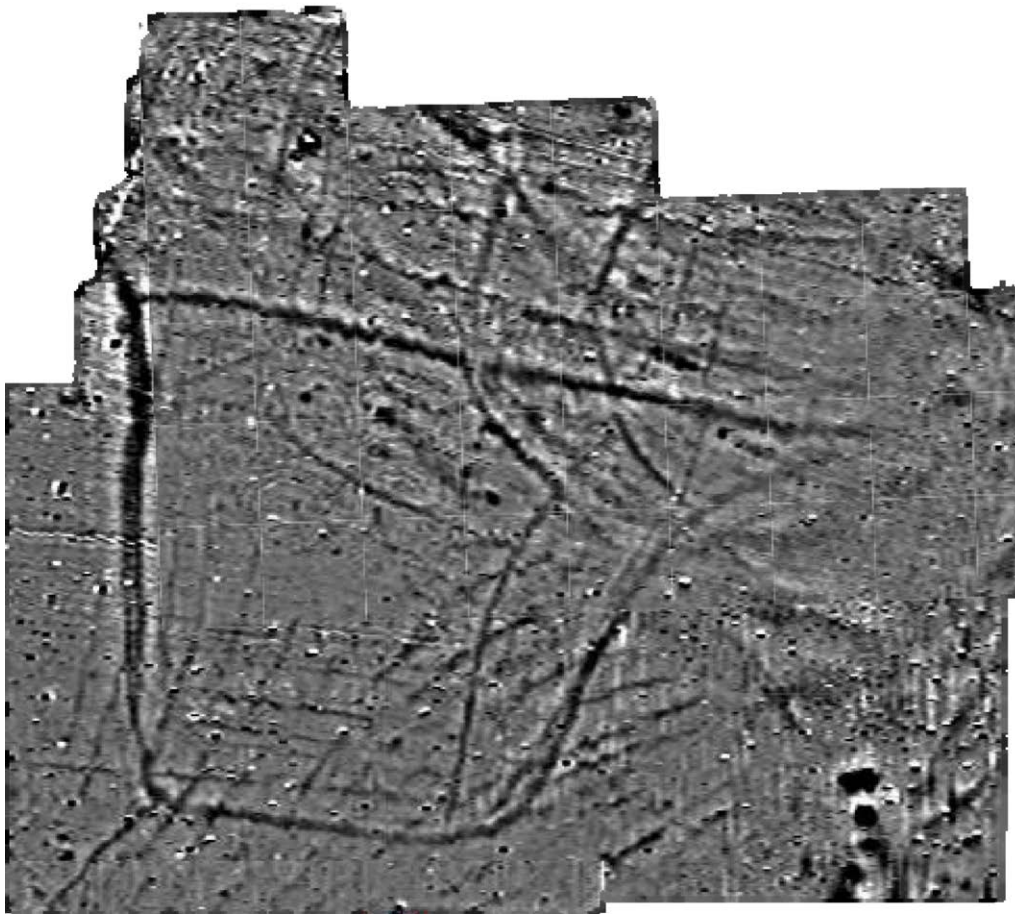


Figure 2. The corresponding magnetometry survey of the settlement excavation area; the series of kilns is clearly visible in the bottom right.

in water, before being fermented using yeast. Although malt can be used as a source of food, for instance for weaning, by far its most predominant use, both historically and today, has been in brewing (Heiss *pers. comm.* 2021). This section sets the malting complex at Sedgeford in its context by describing the place of beer and brewing in Anglo-Saxon society.

It has been claimed that the Anglo-Saxons drank beer on an 'oceanic scale' (Finberg 1972: 422) and certainly there is a rich body of primary textural evidence for recurrent lavish feasts held by secular elites in this period, when ample quantities of beer were consumed (Finberg 1972: 422; Hagen 2006: 409). Such feasts were crucial for maintaining the loyalty of tenants and retainers. Literature from the time records the multiple edicts issued by the Church to control drunkenness amongst peoples of the cloth (Hornsey 2003: 237). Further, there is abundant evidence for the exchange

of malt and beer as tributes and dues in the Anglo-Saxon period (Finberg 1972: 49–50; Loyn 1970: 304; Robertson 1939: 59). Beer was both symbolically significant and a staple part of the diet of the peoples of Anglo-Saxon England: in the 10th-century *Ælfric's Colloquy*, Abbot Ælfric is recorded as asking his charge, Ælfric Bata, what he drinks; the latter responds, 'Ale if I have it, or water if I have no ale' (Garmonsway 1939: 47). It seems that brewing was conducted at monasteries (Horn and Born 1979: 261), at royal tribute sites (Hardy *et al.* 2007) and, above all, in the domestic sphere (Smith 2016: 8; Unger 2007: 34), with ethnological data suggesting domestic beer production uses on average 15–30% of household grain supply (Dietler 2006: 238). However, in contrast to the wealth of evidence from primary sources for the great importance of beer to the Anglo-Saxons, corresponding archaeological and archaeobotanical evidence for beer-production, distribution and consumption is conspicuously lacking (Carruthers and Hunter Dowse 2019: 107). This makes the archaeological and archaeobotanical research currently being conducted at Sedgeford particularly significant.

In addition to water, the three main ingredients involved in virtually all forms of brewing are a starch source (almost always cereal grains), a flavouring and/or preservative, and yeast, for the final stage of fermentation. Modern and Anglo-Saxon beer-making differ in terms of each of these key ingredients.

First, whilst modern brewing relies almost invariably on two-row hulled barley (*Hordeum vulgare* subsp. *distichum* L) for its starch source, both literary (Corran 1975: 48–9; Tusser 1812: 46) and archaeobotanical evidence (Campbell 1994; Moffett 1991; 1994) attest that the peoples of Anglo-Saxon England utilised a range of cereals for brewing, including wheat, rye and oats. For example, the *Domesday of St Paul's* (1222) refers to the clergy of St Paul's Cathedral, London, brewing 67,814 gallons of ale from 175 quarters each of wheat and barley and 708 quarters of oats (Hale 1858: 160–4).

Secondly, modern brewing depends almost exclusively on hops (*Humulus lupulus* L.) as both a source of flavouring and a preservative. Although the timing of hops' first cultivation for brewing in England is a vexed question, there seems to be no clear evidence for widespread English use until at least the 10th century (McKerracher 2018: 115). The first well-recognised evidence for the use of hops comes from the remains of a 10th-century boat discovered at Graveney in Kent, which was apparently packed with hop inflorescences (Wilson 1975). During the Anglo-Saxon period, a range of herbal and other flavourings and preservatives were used in beer-making (Hagen 2006: 212; Unger 2007; Wilson 1991: 373), with the most common combination, comprising primarily Myrica gale L. or bog myrtle, known as gruit (Unger 2007: 31).

Finally, early medieval peoples would have known nothing about yeast, though they are likely to have been aware of the need to scrape foam (containing yeast) from the top of one fermentation to add to the next (Shellhammer 2014: 42).

Excavation and Sampling Methodologies

The excavations at Sedgeford are carried out by volunteers who are trained and organised by a small, independent, professional team. Since the malting complex was first uncovered, the size of trench has varied: the initial trenches were relatively small scale (10m x 10m and 20 x 20m). In 2013, the first kiln – Kiln 1 – was found, associated with a clay floor and the remains of Kiln 2. In 2014, the trench was enlarged to include the full extent of the clay surface and this revealed a clay-lined pit with *in situ* wattle and daub. A further extension was made to the south of the site in 2015 and, in 2016, the trench was extended again to its current length. This decision was made when we realised that we had preserved Anglo-Saxon surfaces, with clear horizontal relationships, as well as the more typical vertical stratigraphy. Open-area excavation allows for a more comprehensive interpretation of the relationships between features. Finally, in 2017, an extension box was cut to the west to investigate a layer of burning observed in 2016 and there was a change in excavation style towards excavating in plan as opposed to sections. In 2019, the excavation revealed a floor associated with Kiln 3. Excavations are still ongoing, therefore this paper – alongside the summary of Malthouse 1 (Faulkner and Blakelock 2020) – presents our preliminary findings.

The entire malting complex is securely dated to the Middle Anglo-Saxon period. The layer overlying the complex, sealed by colluvium, contains predominately Ipswich ware and occasional pieces of residual Roman and Iron Age pottery, but nothing later. Our interpretation is that the site was no longer used for malting by the end of the Middle Anglo-Saxon period, after which it was likely to have been given over to grazing.

During the excavation, soil samples of 5–70 litres of sediment were taken for environmental analysis from most features on the site. In some cases burnt grains could be seen with the naked eye. When Kiln 3 and the associated floor were revealed in 2019, it was decided to create a 1m-square grid for environmental sampling to investigate differences in grain densities, the relative abundance of charred plant taxa (taxonomic groups such as species or family) and germination levels across the area. Each square was excavated by one individual, with up to 20 litres of sediment removed to be processed. Every square was sampled before any remaining sediment from the layer was removed.

All of the samples taken for environmental analysis were processed on site using manual flotation. The flot (the part of the sample that floats in water) was collected in a mesh with a size of 300 microns. The flot was dried on site and then scanned at the University of Oxford using a stereoscopic light microscope. The heavy (non-floating) residue was collected in a sieve with mesh size of 500 microns. The full amount of the residue was sorted by trained members of the SHARP team and plant remains encountered set aside to be amalgamated with the flot for archaeobotanical analysis. All of the plant material in the samples was charred. All flots were initially assessed and recorded and 60 samples were selected for further analysis. This comprised

15 samples from the Kiln 3 gridded area, 40 samples from across other areas of the malting complex and five samples from the 'settlement' part of the site, which were included for comparative purposes.

Cereal grains and other plant remains in the samples were identified using textbooks and the reference collection at the University of Oxford (Cappers *et al.* 2013; Jacomet 2006; Stace 2010). Nomenclature follows Stace (2010). The plant material was quantified using a 'minimum number of items' (MNI) method (Jones 1991), with each item counted only when a specified 'diagnostic zone' was present. For example, detached sprouts (see below) were included in the count only where these had a recognisable 'base' (Jones 1991: 65–6).

Crucial to determining whether malting was taking place at Sedgeford is recognising whether cereal grains showed signs of germination, with differences in levels of germination between areas of the site, e.g. the settlement and malting complex, being of particular significance. Germination in cereal grains involves the growth of a sprout (coleoptile) and rootlets and is a key part of the malting process. The signs of germination may be preserved and discernible in charred grains under light microscopy and also using scanning electron microscopy (SEM) (Cordes *et al.* 2021; Heiss *et al.* 2020).

The morphology of rye and free-threshing wheat grains, both of which are abundant at Sedgeford, compared with that of hulled grains means that germination of rye and free-threshing wheat is more difficult to detect under light microscopy. A new methodology has been developed for discerning germination in these so-called 'naked' grains, based on morphology as visible under light microscopy (Caroe forthcoming). Results obtained using this methodology are summarised below. The use of scanning electron microscopy to further investigate evidence for germination in some grains from Middle Anglo-Saxon Sedgeford is also planned, and the results presented here are preliminary.

The Sedgeford Malting Complex

This section presents the archaeological evidence from Sedgeford for each stage of the malting process, followed by the plant-remains evidence.

The Archaeological Evidence

Steeping Tank

The first stage of the malting process is to take threshed grains and place these in a tank of water. In 16th- and 17th-century malthouses these were often lead vessels, but were replaced with cast-iron tanks by the 19th century (Patrick 2004). The water in the tank ideally needs to be kept at around 13° Celsius and should be replaced several times during the process, although this may have occurred less frequently in the past (Dineley 2015: 66). The grains are usually alternated between wet and dry sessions, providing aeration. In modern malthouses, more oxygen is provided by bubbling air though the

Figure 3. Drone photograph of the pit feature showing the in-situ *wattle-and-daub structure and post-holes. The red lines indicate where we assume the two wattle-and-daub walls were originally positioned.*

water and grains, however this could have been done in the past, albeit less efficiently, by stirring. The purpose of wetting grains through steeping is to trigger the beginning of germination, a process which continues in the wetted grains once these are couched onto the germination floor in the next stage of malting. The entire steeping process in modern or historic malthouses lasts between two and three days, *c.* 60 hours (Patrick 2004), although with limited aeration it can take slightly longer (Crease pers. comm.). Different grains require different steeping times, for example wheat requires less time than barley (Hornsey 2012: 290). It is estimated that Anglo-Saxon steeping, with less aeration and a mixture of grains, may have taken up to *c.* 72 hours.

One of the most unusual features of the excavation site was the presence of a large (4.0m x 2.2m) semi-circular, clay-lined pit to the south of the clay floor associated with what is now known as Malthouse 1. On the straight south side, excavations revealed an *in situ* wattle-and-daub wall, 2m long and standing to a height of 0.4m (Figure 3). Within the clay-lined pit were three fills: the primary deposit was a loosely mixed infill deposit; the secondary fill comprised the remains of collapsed daub debris, with the largest pieces found closest to the wattle-and-daub wall (Figure 4); the upper fill was a silty charcoal-rich deposit, containing Ipswich ware, animal bones and small fragments of daub. This suggests the wall was originally much higher. The surviving

Figure 4. Photograph of the east-facing section from within the pit, showing the layers of daub and part of the in-situ daub wall (scale 2m).

pit was 0.41m deep with slopes of variable gradients, and the possible remains of another retaining wall, 0.85m long, were present on the north side. Part of this wall appears to be missing on the eastern side of the pit. The east and west sides of the pit had the steepest gradient. The combination of these features suggests a rectangular, clay-lined tank. There were several post-holes around the pit, indicating that this feature was inside a structure, which would have protected the grain being steeped and the clay-lined tank itself from the elements.

This pit feature could have functioned as a steeping tank and would have been large enough to contain about one cubic metre of grain (based on a length of 2m and depth of 0.5m), such that the tank could have contained at most around 790kg of grain. It is highly likely that this steeping tank was used from above, as anyone entering the water would have disturbed the clay layer. An iron hook was found within the pit and a second was discovered in the overlying ploughsoil, suggesting that the grain was suspended in the tank within a cloth hanging on one or more hooks. This would have allowed the grain to be alternated easily between wet and dry, with the excess water drained through the cloth back into the tank below. The use of a cloth would have slightly reduced the quantity of grain that could be soaked at any one time to 0.7–0.8m^3.

At this stage of the excavation, only a single steeping tank has been identified and this is clearly associated with Malthouse 1. It is likely that the steeping tanks for

Malthouses 2 and 3 have not yet been revealed, as these could be located beyond the current limits of the excavation. Alternatively, unlike the Malthouse 1 steeping tank which is 'sunk' into the ground, the steeping tanks associated with Malthouses 2 and 3 may have been above-ground features and hence were not preserved archaeologically. However, if this was the case, the tank was constructed using organic materials which could be easily dismantled, rather than wattle and daub, as the foundations would have been preserved by the colluvium layer above. Finally, it remains possible that all of the malthouses used the same steeping tank.

Clay Germinating Floor

Germination triggered by wetting, which in malting takes place during steeping, involves both physical and biochemical changes in the grain. Practically, the 'germination' stage of traditional malting proceeded as follows: the grains, once removed from the steeping tank, were placed on a germinating floor – initially in a pile to generate heat – in a process known as 'couching', which could last for up to three nights. After this, the grain would be spread more thinly into a 0.1–0.3m-thick layer across the floor (Dineley 1999; Bamforth 2009: 114). The time required for this process varies depending on conditions, climate and season. There are historical records of this process taking up to three weeks during the 16th century and two weeks in the 18th century (Patrick 2004), presumably through a combination of wetting and raking to ensure that the grain did not dry out or rot (Dineley 1999). Modern maltsters have reduced the germination period to four to six days (Patrick 2004). A description of malting from 9th-century Ireland suggests that the grain would be drained for one-and-a-half days, before being left undercover for four-and-a-half days and followed by three days on the germinating flour (Dineley 1999). Therefore, it is likely that the germinating process in Anglo-Saxon Sedgeford could have be anywhere between 9 to 14 days.

In a modern malthouse, the floor is slotted to allow air to be forced through the grain in order to keep the grains separated and aerated, whereas traditional malthouses have a solid, tiled or slate floor or screed/tamped chalk surface and would have used a metal rake to perform the same process. Early tools used for this purpose were made from wood. The germination process produces a large amount of heat and in modern and historic malthouses the temperature for this process is kept constant, ideally between 13–22°C, with a regular supply of fresh air (Patrick 2004).

Several clay surfaces have been revealed at Sedgeford's malting complex, however only three were clearly associated with kilns. The first, and most complete, clay floor is associated with Kiln 1 and consists of a grey, fine, puddled clay (Figure 5). This surface is orientated north–south and measures 4.0m long from the edge of the tank and is 3.8m at its widest point. The surface is 0.1m deep and laid on top of the subsoil. There is some lipping along the eastern and western edges, possibly where it rested against walls indicated by the presence of post-holes on the eastern and western sides.

Figure 5. Clay floor associated with Kiln 1 (scale 2m).

Figure 6. Clay floor associated with Kiln 2 (scale 2m).

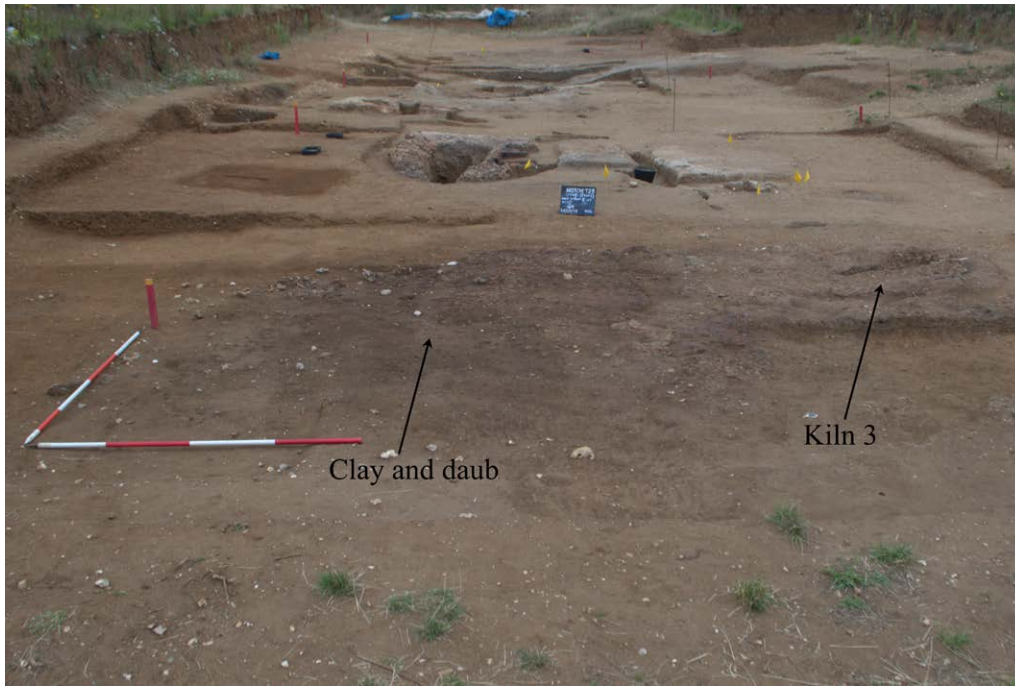


Figure 7. Debris on top of the clay floor associated with Kiln 3 (scale 2m).

Figure 8. Several clay layers to the south of the steeping tank (scale 2m).

The second clay floor is associated with Kiln 2, has an east–west orientation, is heavily truncated and its western limits are currently unknown (Figure 6). The width of the clay surface is *c.* 4.6m and it is 0.1–0.2m thick. It is likely that the length of this floor was similar to the previous clay surface. The majority of the clay is a grey colour, however the clay closest to the kiln has been exposed to heat and has turned orange, red and black. The 2019 excavations revealed several post-holes associated with the northern and southern edges of this clay floor.

The third clay floor is still in the process of being excavated at the time of writing (Figure 7). A layer of daub rubble appears to lie on top of this floor and is seemingly associated with Kiln 3. It is not yet possible to give the exact measurements for this surface, although it appears to be roughly the same size as the other two floors.

Two other clay surfaces have been identified to the south of the site, one formed from yellow clay located directly to the south of the steeping tank (Figure 8) and the second a grey clay with a thin layer of ash located to the south-west of the malthouse. This appears to have been laid on a slope, creating what seems to be a ramp, and it is possible that this clay surface may be related to another kiln not yet identified. Alternatively, these clay surfaces could have been used for other stages of crop-processing, such as threshing.

Each of these three clay surfaces is flat and would have made a suitable germination floor. If the grain was spread at a thickness of 0.1m across the floor of Malthouse 1 there would be space for *c.* 1.5m^3 of grain. Therefore, the floor space would have certainly been large enough to easily spread one, or even two, *c.* 0.7–0.8m^3 batches of steeped grain at any one time. This potential capacity suggests that multiple batches were being germinated at a time, enabling a larger quantity of malt to be produced. It is unknown whether the grain was laid directly on the floor surface or whether a cloth was used to prevent it mixing with the clay below.

Drying Area and Kiln

The final stage of malting is to dry the grain in a kiln, which reduces the moisture content and stops the germination process in the cereal grains (Hornsey 2003). The temperature has to be controlled: too high and the grains are burned or the enzymes required for beer-making affected (Patrick 2004) and this can contaminate the taste of the beer produced (Hornsey 2012). This means the kilning process cannot happen inside the kiln itself. In modern malthouses the kiln heats the air which rises through the grain (Patrick 2004). Since the 18th century, perforated tiles or woven-wire floors were used as drying floors; prior to this, the malt was dried on hair cloths. Modern and historic kilning took between 20 hours and three to four days (Patrick 2004).

Three kilns have been identified on the site, and the 2019 season revealed that there may be a further one, or even two, kilns. Neither of these potential kilns has been

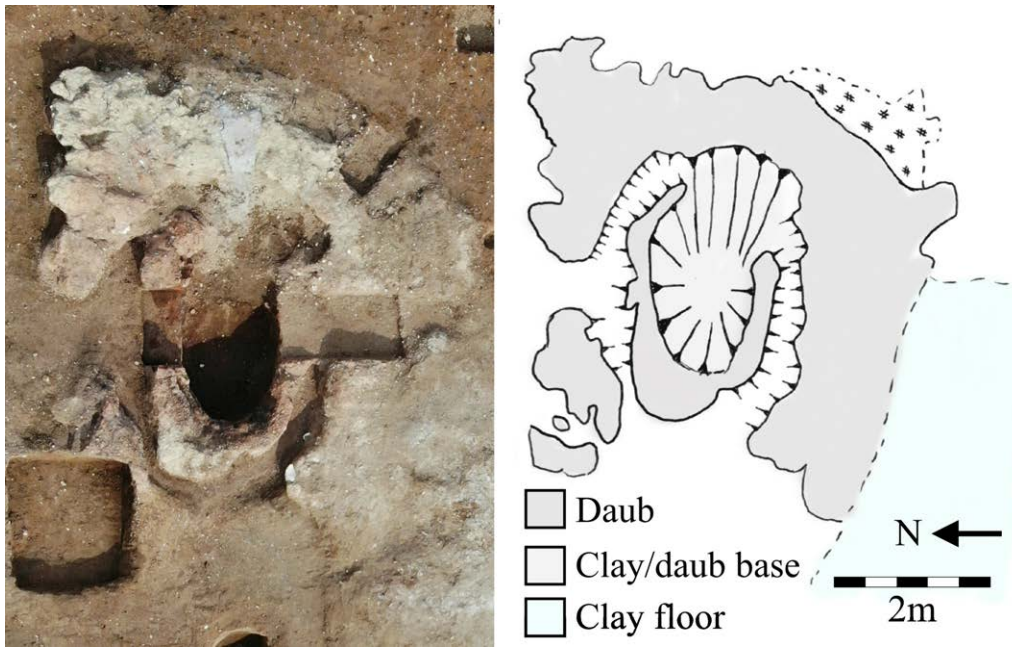


Figure 9. Photograph and plan drawing of Kiln 1.

fully excavated and both are located to the south of Malthouse 1. The first appears to be much larger than the other kilns found to date, with an interior measuring 2m x 2m, and the daub here is red and blackened with heat. Another potential kiln was only uncovered in 2019; this was seen in the baulk section of the Anglo-Saxon ploughsoil and may be associated with the yellow-clay layer.

Kiln 1 is located in Malthouse 1. This has a sub-rectangular base (3m x 2.1m), but the central chamber is oval, measing 2.1m x 1.9m and 0.46m deep (Figure 9). The structure and daub remains found within the kiln suggest the daub was attached to a wattle frame, which was curved to form a dome. There is an opening to the west side and charcoal deposits suggest this was the side from which it was stoked. Within the central chamber, there is a low, narrow curve of clay. It is not known whether this was a deliberate feature; our current working hypothesis is that this was collapse of daub from the dome above when the kiln fell out of use. This is strongly supported by the presence of burnt charcoal and a small amount of burnt grain recovered from the soil under this curve of clay, neither of which was found in the soil beneath the outside daub structure. The charcoal and grain were likely to have been trapped when the roof of the kiln collapsed.

Kiln 2 is longer, with an interior measuring *c.* 1.2m wide and 2.4m long and is deeper than the first at *c.* 0.7m. Again, the base is sub-rectangular with an oval fire-chamber (Figure 10). The daub used is very similar to Kiln 1 and there is also evidence for the re-use of old pieces of daub. The orientation of this kiln is different, with the opening

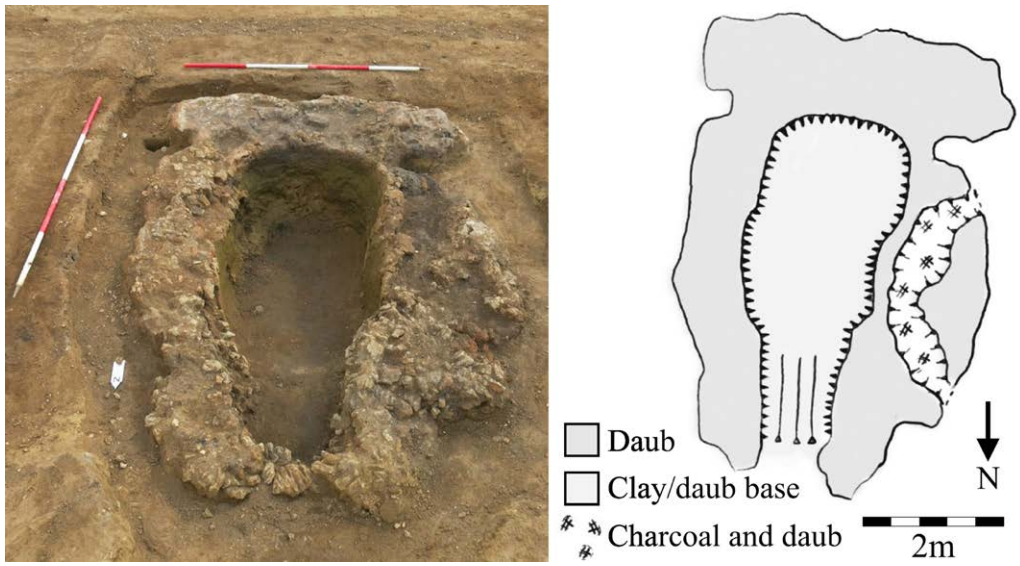


Figure 10. Photograph and plan drawing of Kiln 2.

and stoking area to the north rather than west. The kiln construction around the stoking area appears to be made up of large pieces of daub, and it is suggested that this may have been a repair or alteration to the kiln. The layout of this daub and its fragmentary nature suggest that this is again collapsed daub from the superstructure, perhaps representing the stoking arch that has fallen northwards.

Kiln 3 is still being excavated at the time of writing. It currently appears to be smaller than the other two kilns, but its full extent has not yet been revealed (Figure 7). To the north of the kiln there is a layer of daub rubble, potentially the collapse from the wattle-and-daub dome superstructure.

The grain in modern and historic malthouses is not placed within the kiln, instead the kiln is used as a radiator to heat and dry the grain at a constant temperature. Kilns 1 and 2 would have both been ideal for radiating heat from the fire within. The daub structure would have soaked up the heat from the inside and released it in a controlled manner. While some grain was found within the kilns, the majority has been found outside them. Indeed, behind Kiln 1, on the opposite side to the stoking hole, there was a thick deposit of burnt grain. It is hard to imagine such a deposit could occur here if the grain was being placed inside the kiln. Rather, it is likely that when the malthouse burnt down, any grain in the drying area above fell onto the kiln and slipped down the domed surface. Other deposits of burnt grain have been found close to Kiln 2, forming a clear line against post-holes and wall panels. Finally, the large and deep post-holes surrounding the kiln area are likely to indicate a taller structure. We have, therefore, proposed that the germinated grain would have been located on a drying floor above the kiln (Faulkner and Blakelock 2020).

Kiln	Context	Material	Lab no.	Age BP	Calibrated years AD	Modelled years AD
1	17026	3 rye grains	OxA-40485	1318 ± 18	657-703 @ 51.8% 740-774 @ 43.7%	748-770 @ 68.3%
2	19061	3 rye grains	OxA-40414	1269 ± 18	672-777 @ 95.4%	734-775 @ 68.3%
3	23372	3 rye grains	OxA-40415	1225 ± 18	772-880 @ 83.7%	772-819 @ 68.3%

Table 1. Radiocarbon dates for burnt grain from within the kilns in the malting complex. The modelled dates are based on Ipswich ware pottery, which gives a terminus post quem *of* c. AD 725 *and a* terminus ante quem *of* c. AD 850.

Water Management

To both the east and west of the malthouses there is a north–south aligned ditch, which was filled with a primary deposit of charcoal and burnt grain and a secondary deposit of daub pieces. Originally, these ditches may have provided drainage and protection from in-wash during heavy rain. There is, as yet, no evidence to suggest that the steeping tank was filled via any sluices or other water-management techniques. The working hypothesis is that the tank would have been filled and emptied using buckets, possibly into the drainage ditches.

Dating the Malting Complex

Until recently, the site has been dated on ceramic evidence. The only Anglo-Saxon pottery identified at the site is Ipswich ware, suggesting malting had been discontinued at the site by AD 850. Radiocarbon dating has been carried out on burnt grain deposits from within the three kilns (Table 1). These deposits are likely to represent the final firing or burning event in each malthouse, rather than their construction. The dates for Kilns 1 and 2 were roughly similar, suggesting that they were in use at the same time or perhaps within a single generation, if one burnt down and was replaced; Kiln 3 was significantly later. These results imply that there are at least two phases in the malting complex, with new buildings constructed as old buildings fell out of use or were accidentally burnt down.

Archaeobotanical Remains

On average, samples of charred plant material collected from the malting complex comprise 78% grains, that is, the samples are grain-rich, compared with most archaeobotanical samples from other sites. Chaff – the by-products of crop processing – is very rare, with 20 of 55 samples being entirely without chaff, and the average proportion per sample is only 3%. The mean proportion of weeds per sample is 16%. In other words, samples from the malting complex are very 'clean', perhaps implying that the grain was being prepared elsewhere. However, chaff burns very easily and, therefore, the low frequency of chaff recovered across the trench is likely not to be representative of the original abundance (Boardman and Jones 1990: 1). In addition

*Figure 11. Middle Anglo-Saxon grains from Sedgeford's malting complex: a) rye (*Secale cereale*); b) bread wheat (*Triticum aestivum*); c) six-row hulled barley (*Hordeum vulgare *subsp.* distichum*); d) Oat (*Avena *sp(p)).*

there is uneven distribution of chaff across the site; for example, the clay slope to the south-west of the steeping tank has a relatively raised proportion of chaff (11%) and its use as a threshing floor cannot currently be ruled out.

Grains from the combined malting complex comprise 63% rye (*Secale cereale* L.), 28% free-threshing wheat (with the chaff suggesting this is *Triticum aestivum* L.), 7% barley (almost certainly six-row hulled barley, *Hordeum vulgare* L., as suggested by co-occurring chaff and further implied by the relative proportions of 'straight' and 'twisted' grains) and 2% oats (*Avena* sp(p), likely to be a weedy contaminant) (Figure 11). Results, in terms of relative cereal taxa frequencies across the malting complex, are summarised in Figure 12.

Where preserved in charred grains, the presence of a visible sprout (coleoptile), either attached to or detached from the grain, or a groove in the grain body caused by a since-detached coleoptile, are discernible physical signs of germination (Figure 13; Stika 1996: 83). The average proportions of germinated, ungerminated and undiagnostic grains across all samples from the malting complex are 17%, 64% and 19% respectively. Where figures for undiagnostic grains are excluded and the remaining results normalised, 46% of the grains across the site are germinated (Figure 14). Further, on average, 3% of each sample comprised detached coleoptiles and these are broadly distributed across the site, occurring in 45 of 55 samples

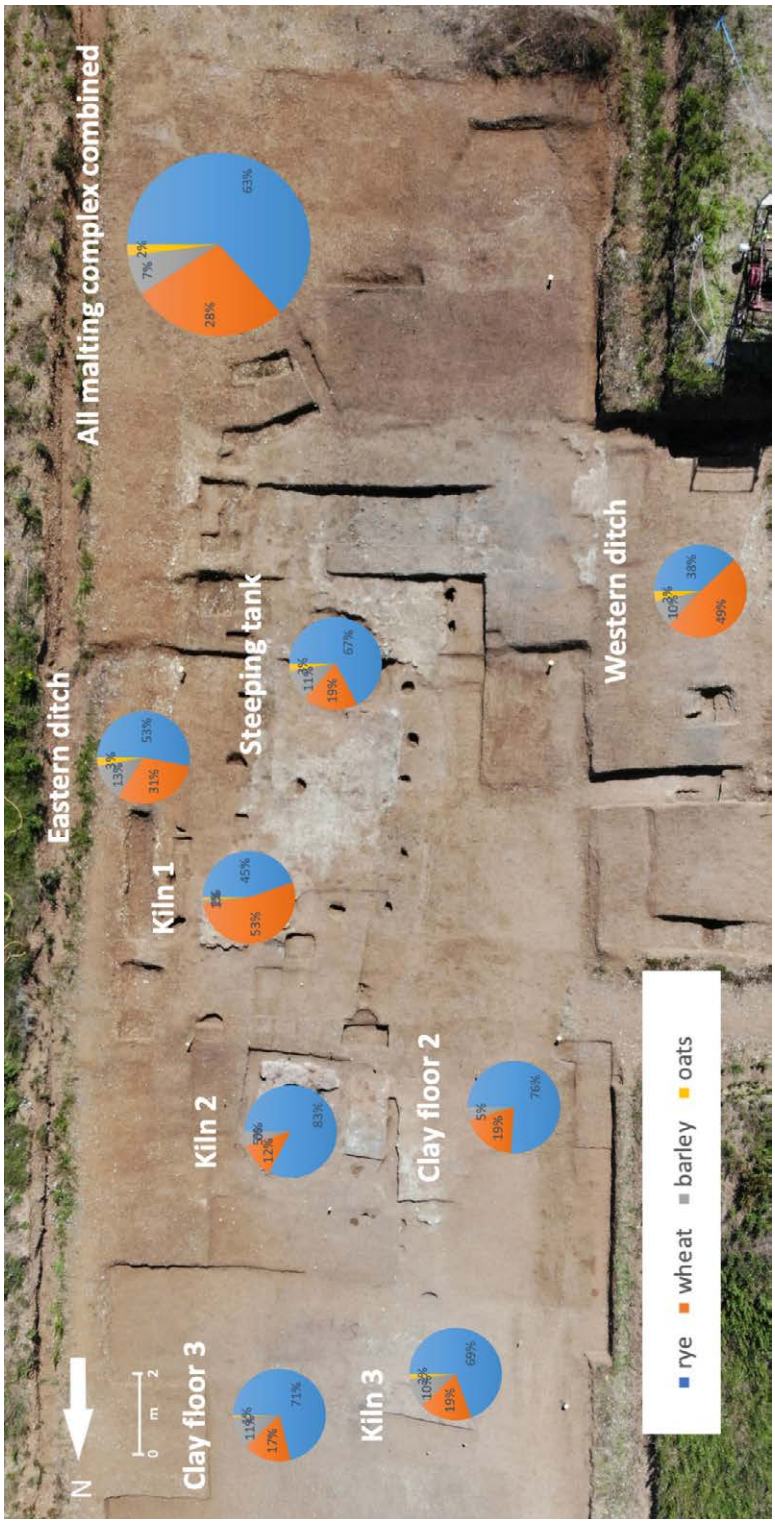


Figure 12. Aerial photograph of the malting complex in 2019 with pie-charts summarising the proportions of four cereal taxa in key areas of the trench. (Photo: Ian Drummond, SHARP)

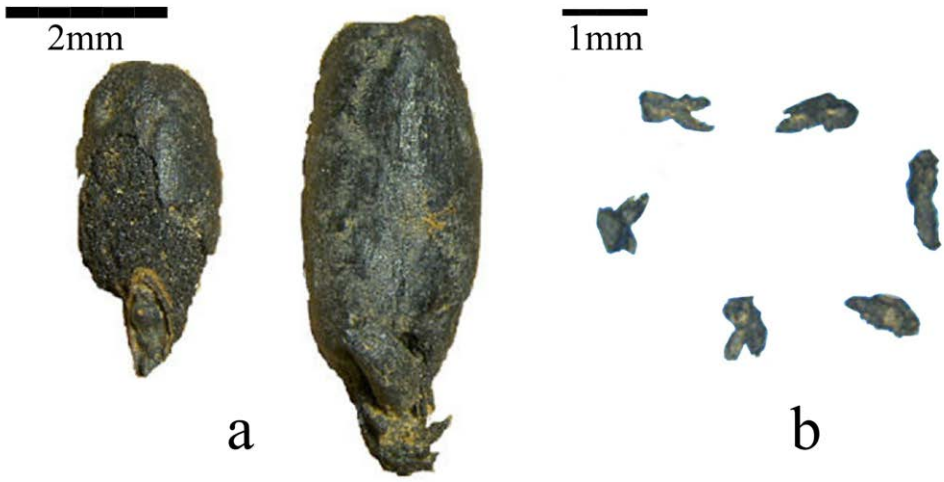


Figure 13. Germinated grains from Sedgeford's Middle Anglo-Saxon malting complex, showing a sprout growing from the embryo end (bottom) of the grains: a) wheat (left) and rye (right); b) detached sprouts (coleoptiles).

(Figure 13). However, it is important to note that due to the quantification methods applied for detached coleoptiles, and the fragility of these 'sprouts', this is likely to be an underestimation of their true frequency. Results from the assessment of germination levels in grains from different areas of the malting complex are summarised in Figure 14.

The most ubiquitous 'weedy/wild' seed taxa from the malting complex are seeds of *Bromus* grasses, *Fallopia convolvulus* (black bindweed) and *Agrostemma githago* (corncockle) (Figure 15). There are, however, clear differences in the distribution of weed types across the three areas, with Kiln 1 having a considerably higher proportion of black bindweed than Kilns 2 or 3. The density of black bindweed seeds is 16.3 seeds/litre for Kiln 1, compared with 3.3 seeds/litre for samples from Kiln 2 and 0.7 seeds/litre from Kiln 3 samples.

As with the archaeological evidence presented above, evidence from plant remains will next be described in terms of the three key stages of malting: steeping, germination and kilning.

Steeping

It is not generally possible from examining charred grain to discern whether or not these were wet when burning occurred. Hence the process of steeping itself is essentially 'invisible' to archaeobotanists.[1] However, the relatively small proportion of germinated grains occurring in the tank compared with other areas of the trench (21%, compared with an average of 46%) suggests that this feature contained grain that had not fully

[1] Moffett (1997: 80) does suggests that grains burnt when damp are more likely to be internally vesicular, however internal grain structure was not examined in the Sedgeford assemblage due to time constraints.

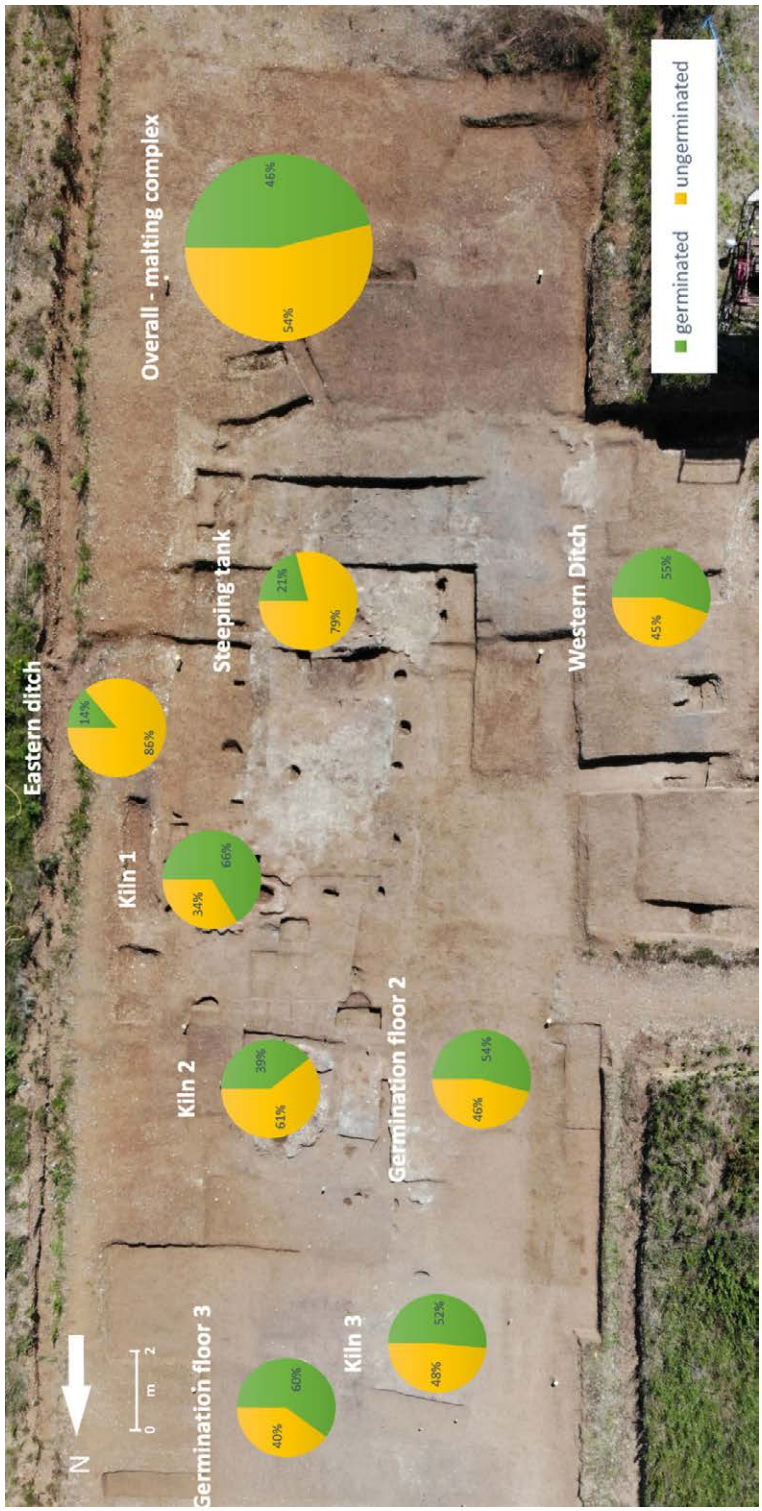


Figure 14. Aerial photograph of the malting complex in 2019 with pie-charts summarising proportions of germinated and ungerminated grains in key areas. (Photo: Ian Drummond, SHARP)

Figure 15. Charred weed seeds from Sedgeford: a) Brome grass(es); b) Corncockle; c) Black Bindweed.

begun to germinate (Figure 10). This supports the suggestion that this feature was used as a steeping tank. Analysis of the types of cereal grains present in samples from the steeping tank revealed the following proportions: *c.* 67% rye, *c.* 19% wheat, *c.* 11% barley and *c.* 3% oats (see Figure 12 and Table 2).

Germination

As noted above, the growth of a coleoptile (or sprout) and rootlets from the embryo-end of the grain are signs of germination in cereal grains. However, it is the biochemical transformation of the grain which is of concern for maltsters and brewers. Germination involves the mobilisation of enzymes inside the grain (those which degrade starch are collectively known to brewers as *diastase* (Briggs 1998: 154)), which act to degrade starchy cell walls and the protein matrix in the grain body or endosperm (Hornsey 2003). Ultimately, during later stages of brewing, these enzymes act to degrade starches in the endosperm to sugars, which are an energy source for the creation of alcohol by yeasts during fermentation (Romano and Conway 1996: 449). Enzymatic attack on starches in the endosperm during germination may be visible under SEM as 'pitting' in starch granules or thinning of cell walls in the grain's *aleurone* layer (Cordes *et al.* 2021; Palmer 1995; Samuel 1996: 488; Heiss *et al.* 2020).

As described above, in traditional malting, following steeping, grains are laid out on a germination floor, of which at least three have been tentatively identified at Sedgeford. During the initial excavation of Malthouse 1, the significance of the

	Cereal taxa (%)				Germination (%)			Normalised Germination (%)	
Feature	Rye	Bread wheat	Barley	Oats	Germinated	Undiagnostic	Ungerminated	Germinated	Ungerminated
Steeping tank	67	19	11	3	9	53	38	21	79

Table 2. Types of cereal grains present in and surrounding the hypothesised steeping tank, with the normalised totals calculated after excluding the undiagnostic grains.

	Cereal taxa (%)				Germination (%)			Normalised Germination (%)	
Feature	Rye	Bread wheat	Barley	Oats	Germinated	Undiagnostic	Ungerminated	Germinated	Ungerminated
Floor 2	76	19	5	0	14	74	12	54	46
Floor 3	71	17	11	1	17	73	10	60	40
Combined	72	18	10	1	16	73	11	59	41

Table 3. Types of cereal grain present on the hypothesised germination floors, with the normalised totals calculated after excluding the undiagnostic grains.

clay floor was not determined and therefore only a limited number of samples was taken, not enough to provide a representative picture of what was occurring here. Four samples were collected from the clay floor associated with Kiln 2: the average frequencies of cereal taxa here were 76% rye, 19% bread wheat, 5% barley, and no oats (Figure 12 and Table 3).

A grid for environmental analysis was set up over Kiln 3 and its associated floor (see above). Analysis of plant remains from samples in the grid clearly shows that there are subtle changes in proportions of cereal grains dependent on where the sample was taken (Figure 16). The proportions of cereal taxa in samples from this hypothesised germination floor are compared with the floor of Malthouse 2, revealing a slightly

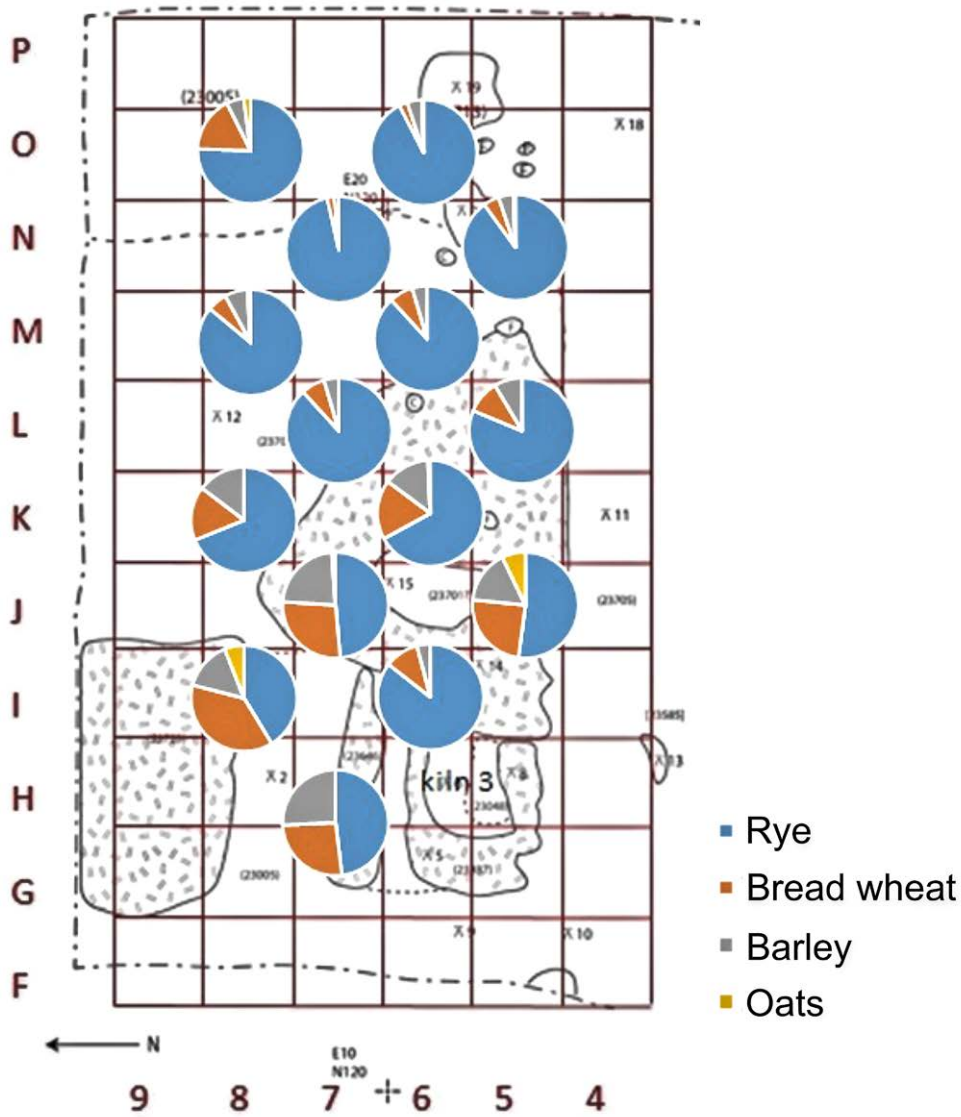


Figure 16. Proportions of cereal taxa in samples taken from the gridded area across Malthouse 3.

lower proportion of rye (71%) and bread wheat (17%), with a raised proportion of 6-row hulled barley (11%) and oats (1%) (Figure 12 and Table 3).

It is interesting to note, as shown in Figure 14, that the proportions of cereal grains on hypothesised Germination Floor 2 closely resemble those of Kiln 2. This is equally true of the grains found on the floor and in the kiln of Malthouse 3, supporting the hypothesis that clay floors were used to germinate grains later dried in the associated kilns.

	Cereal taxa (%)				Germination (%)			Normalised Germination (%)	
Feature	Rye	Bread wheat	Barley	Oats	Germinated	Undiagnostic	Ungerminated	Germinated	Ungerminated
Kiln 1	45	53	1	1	17	74	9	66	34
Kiln 2	83	12	5	0	18	54	28	39	61
Kiln 3	69	19	11	2	20	62	18	52	48
Combined	61	34	4	1	18	63	19	52	48

Table 4. Types of cereal grains associated with the kilns, with the normalised totals calculated after excluding the undiagnostic grains.

Further, the samples from the floors of Malthouses 2 and 3 reveal that there was more than twice the proportion of germinated grains in these areas than in the hypothesised steeping tank (59% compared with 21%; Figure 14 and Table 3). This supports the claim that these clay surfaces were being used as germination floors.

Kilning

It is generally not possible to tell from the morphology of charred grains whether these were dried (or kilned) prior to being charred, hence, as with steeping, kilning is effectively 'invisible' to the archaeobotanist.

Analysis of samples associated with the kilns (see Table 4) reveal that only 39% of grains from Kiln 2 are germinated, compared with 66% from Kiln 1 and 52% from Kiln 3 (Figure 14). Again, from examining the proportions of different types of grain it is clear that there are significantly more free-threshing wheat grains associated with Kiln 1 (53%) than Kilns 2 and 3 (12% and 19% respectively). Kiln 2 is particularly dominated by rye grains (83%), whilst Kiln 3 has a slightly raised proportion of barley (11% compared with 1% and 5% from Kilns 1 and 2 respectively) (Figure 12 and Table 4).

Discussion

A Middle Anglo-Saxon Malting Complex at Sedgeford

The combination of archaeological and archaeobotanical evidence, with (after normalisation) 46% of grains showing signs of germination, strongly supports the

hypothesis that the site houses a Middle Anglo-Saxon malting complex. Excavations have revealed the presence of at least two malting houses, each with post-holes, a kiln and a clay germinating floor. In Malthouse 1 the excavations also revealed a steeping tank. Further work is ongoing on Malthouse 3, although we are confident that there is a kiln and an associated clay surface. In addition, there are clay surfaces and potentially other kilns to the south of Malthouse 1.

Evidence from charred plant remains suggests that the level of germination is considerably higher (more than double) for samples from the supposed malting kilns (52%) than from the hypothesised steeping tank (21%), supporting the designation of these structures as malting kilns. The analysis also revealed that the overall average proportion of germinated grains in samples from the kilns (52%) is slightly lower than that of those from the clay germination floors (59%) (Figure 14). Further, Kilns 2 and 3 each had a lower proportion of germinated grain than their respective floors. One potential explanation for this trend is that the kilns were also being used as 'standard' grain dryers, to dry ungerminated grains prior to storage or baking. This would perhaps have taken place between drying batches of grain for malting, as there could be several days of down-time whilst the germination floor was full and it would have been beneficial to keep the daub kiln warm.

The abundance of rye at Sedgeford is unusual, as this cereal was almost unknown in Roman Britain (Lodwick 2017: 20) and although rye was increasingly cultivated through the Anglo-Saxon era, it remained a minor crop throughout this period (McKerracher 2018: 97). There is, however, a suggestion that rye is more frequent in East Anglia (Banham 1990: 34). Rye's prevalence at Sedgeford may represent an adaptation by farmers to local environmental conditions, since rye is drought tolerant and would grow well on the local sandy soils (Moffett 2006: 48). However, Rye was a frequently cultivated crop in northern continental Europe in this period (Behre 1992) and an ongoing connection between East Anglia and the north-west Europe littoral zone has been long hypothesised (Hines 1984) and is increasingly being recognised (Blair 2018: 44). Can we tentatively posit that the prevalence of rye at Sedgeford may be a feature of ongoing cultural and economic connectivity between the east of England and parts of continental Europe in this period (Wolff 2017: 10)?

Examination of the relative frequencies of various plant remains demonstrates that Kiln 1 has a distinct signature compared with the other two kilns excavated, including significantly higher proportions of wheat grains and of black bindweed seeds (Figure 12). There are multiple potential explanations for this: the maltsters may have been experimenting with mixes or recipes of the various cereal grains, adapting to changes in preference over time, or there could have been seasonal differences, for instance in timing of the harvest for each crop. Alternatively, the observations could represent the effects of floods or drought on the crops and resultant crop failures.

Each of the three most common 'weedy/wild' taxa occurring at Sedgeford's malting complex –brome grasses, black bindweed and corncockle – is a common crop-weed, however, it is argued elsewhere (Caroe forthcoming) that both black bindweed and corncockle seeds may have been deliberately added – or, more likely, tolerated – amongst grains being malted at Sedgeford because of known desirable properties as beer flavourings.

Finally, the 'cleanness' of the plant-remains assemblage from the malting complex, with very little chaff and few weed seeds, implies that cereals being utilised in the malting complex had been processed – threshed, winnowed and, potentially, sieved – elsewhere. This has implications for the role of Sedgeford in the local economy. One possibility is that Sedgeford could have been a 'collection centre' for cereals cultivated and processed by farmers in the surrounding area, such as is hypothesised for Middle Anglo-Saxon Higham Ferrers (Hardy *et al.* 2007: 203). It is hoped that the results of stable-nitrogen and carbon-isotope analyses currently being conducted on samples of grain from the malting complex will allow us to test this hypothesis.

Evidence for Malting in the Anglo-Saxon Period

This is the first Anglo-Saxon malting complex found in the UK where all three stages of the malting process are represented. There are other known examples of Anglo-Saxon grain dryers with features that seemingly suggest wooden structures surrounding the kilns, for example at Chantry Fields, Cottam, Feltham, Higham Ferrers, Hoddom, Springhead and Stafford. Most of these sites have kilns which have been dated to the Middle Anglo-Saxon period. There are a number of published geographical and chronological overviews of the evidence for grain-drying kilns in the UK, which may include kilns that were also used for malting (Morris 1979; McKerracher 2014: 296–325; Monk and Kelleher 2005; Comeau and Burrow forthcoming; Faulkner and Blakelock 2020). Therefore, this paper will not revisit this work, instead only three contemporaneous sites: Hoddom (Lowe 2006), Stafford (Moffett 1989) and Higham Ferrers (Hardy *et al.* 2007) are compared with the archaeological evidence found at Sedgeford.

The Anglo-Saxon malting complex at Sedgeford is unique in that it has features suitable for all three stages of malting, i.e. steeping tank, germination floor and kiln contained within a single building. Only a single steeping tank has been excavated so far, and no evidence yet excavated for the presence of any others associated with the other floors. There is no evidence at Stafford or Higham Ferrers for any features that could have acted as a tank, such as a clay- or stone-lined pit (Hardy *et al.* 2007; Moffett 1989). At Hoddom, the only structure that could have been used as a steeping tank is Structure 1, which was a large rectangular stone-lined pit measuring *c.* 6m x 3.75m, with a stone-lined gully with a narrow entrance to the south (Figure 17). There was evidence that clay had been used to line the structure, which would have made

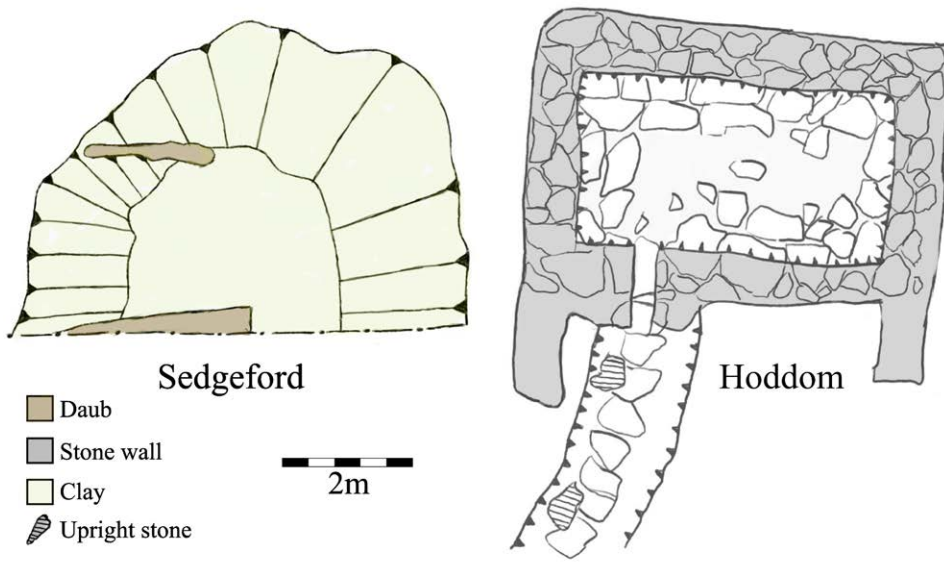


Figure 17. Simplified plan drawing of the Sedgeford steeping tank compared with the potential steeping-tank feature at Hoddom (after Lowe 2006).

it watertight. The excavators suggested that it could have been used for tanning, however the presence of oats and barley within the structure, but absent from the gully, and its presence on a site with kilns, could indicate that it was used as a steeping tank (Lowe 2006).

Floors associated with kilns were found at both Hoddom and Stafford. At Hoddom two structures (Structures 6 and 10) were excavated and these had a clay-and-daub surface in the opposite half of the building to the kiln. In Structure 10, a gravel subsoil layer was also identified (Lowe 2006). The remaining buildings (Buildings 2, 7, 8 and 9) with potential kilns or ovens had no evidence for floor surfaces. In each case the floor was approximately 5–6m wide and 7–10m long. Charred grain was found in the majority of these structures, and in Structure 10 it is suggested that some of this grain had signs of germination, perhaps implying that malting was taking place (Lowe 2006). The authors, however, argue the germinated grain here is more likely due to grain spoilage after a wet harvest (Holden 2006: 152). At Stafford, the kilns were grouped in pairs around a cobbled surface, however there is no indication that these were inside a structure (Moffett 1989).

All three sites had kilns (Figure 18), and Stafford and Hoddom each had more than one type of kiln (Moffett 1989; Lowe 2006). The most distinctive kiln is the single stone-lined, rectangular kiln from Higham Ferrers, with a stone-lined flue on its north-eastern edge (Hardy *et al.* 2007). There were no post-holes or other indications around the kiln to suggest there was a building, without which the authors concluded that the grain

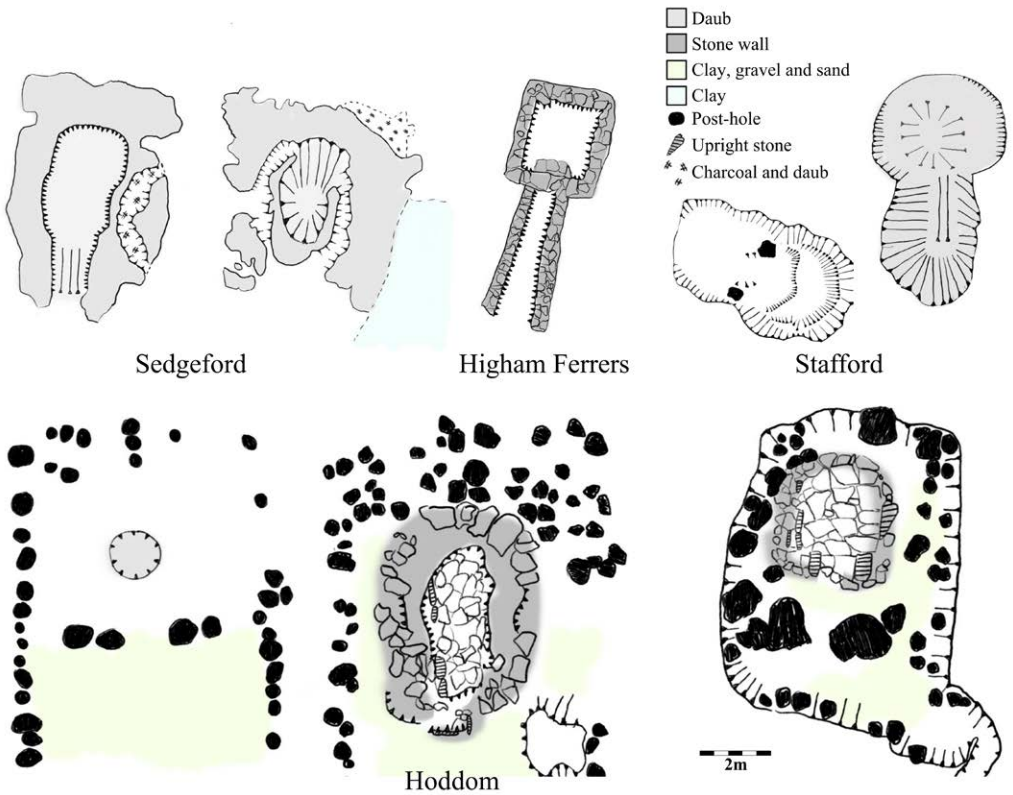


Figure 18. Plan drawings of Sedgeford's Kilns 1 and 2 compared with those from Hoddom (after Lowe 2006), Stafford (after Moffett 1989) and Higham Ferrers (after Hardy et al. *2007).*

was dried inside a daub superstructure. However, another possibility is that a timber drying area could have been built and positioned on top of the stone walls, which may have acted as foundations. Large quantities of charred germinated grains were found associated with this kiln. At Stafford and Hoddom, the kilns more closely approximate those excavated at Sedgeford (Moffett 1989; Lowe 2006). Two types of kilns found at Stafford were keyhole-shaped, one had the remains of clay inside, possibly indicating the superstructure was clay, whereas the other contained no clay. One of each was associated with the cobbled surface, perhaps suggesting they may have had different functions, but were in use at the same time (Hardy *et al.* 2007). Finally, there were several types of kilns found at Hoddom (Lowe 2006), but only two types that are contemporaneous with those found at Sedgeford and both were found within buildings. The first, potentially earlier type (AD *c.* 650–850) was a pit, with a wattle-and-daub superstructure. The other, potentially later, kilns (AD *c.* 750–850) had stone foundations with daub fragments inside, suggesting they had once had a wattle-and-daub superstructure.

Of these three sites, archaeobotanical evidence for malting/brewing is claimed only at Higham Ferrers. In addition, the authors have reviewed a further 26 sites known to them

in the UK, dating from the Anglo-Saxon and medieval periods at which archaeological and/or archaeobotanical evidence for malting or brewing is claimed. The vast majority of these sites (23) post-date Sedgeford's malting complex. Germinated grains have been recorded at only three roughly contemporaneous sites: Higham Ferrers, South Hook (Pembrokeshire) and Ipswich's Buttermarket (Hardy *et al.* 2007; McKerracher 2014; Moffett 2007: 163; Murphy 1991: 7; Crane and Murphy 2019: 132–6; Carruthers 2019: 164, 174–5). Kilns were identified at each of these sites, although that at Ipswich is considered likely to have been a pottery kiln (Murphy 1991: 1). Sedgeford is unique in that is has a series of kilns complete with a likely steeping tank and germination floors, and, further, displaying convincing archaeobotanical evidence for malting.

Conclusion

The excavations at Sedgeford have revealed a unique site located in a gully to the south-east of the settlement. There is a sequence of structures and features dating from the Middle Anglo-Saxon period, however radiocarbon dating suggests that there are at least two phases of activity within this period. Analysis of archaeological and archaeobotanical evidence and comparisons with modern and historic malting processes strongly suggests that the site was a malting complex.

At Sedgeford a single building (Malthouse 1) has all three stages of the malting process represented within it: steeping, germination and kilning. This would have permitted better control of temperatures and conditions for the grain. However, there is as yet no evidence for a tank associated with Malthouses 2 and 3. Comparison with three contemporary Anglo-Saxon sites with evidence for grain drying and possibly malting reveals that, of those examined, none are exactly like Sedgeford. Only Hoddom had features that could represent the three stages of malting, although a potential steeping tank is not located in the same building and is some distance from many of the buildings with floor surfaces and kilns.

The evidence from charred plant remains reveals spatial variation in levels of gemination amongst cereal grains recovered. These distributions are as expected for a malting complex, with relatively fewer germinated grains in the steeping tank, and higher concentrations on the floors and around the kilns. There is also potential evidence that some of the kilns were being used for both grain-drying and malting, as Kiln 2 and Kiln 3 each had a lower proportion of germinated grain than their respective floors. Further, variations in cereal taxa frequencies across the trench may indicate differences in use of respective areas of the malting complex.

The scale and size of the malting complex at Sedgeford, and the investment of time required to produce the cereal for malting, would have required a significant workforce. There appears to be little evidence for experimentation, which suggests that the technology came to Sedgeford ready-made and that it perhaps represents new influences

from lordly estates or the Church. This was not the only change occurring in Sedgeford at this time, as is described more fully in this volume by Jolleys *et al*., while potential reasons for these changes are also discussed here in more detail by Faulkner.

Acknowledgments

Our first thanks must go to the many volunteers and supervisors who have excavated Trench 23 since it was first opened in 2013. Without these volunteers, the many members of SHARP that work on and off site, the Friends of SHARP, and the general public who continue making donations, the excavations could not continue. However, there are a few special mentions that the authors would like to include: Neil Faulkner, for interesting insights; site photographer Yvonne; drone photographer Ian Drummond; Ann Smith and Naomi Payne in finds; and Tom Cross, our current environmental supervisor.

We are also grateful to Hannah Caroe's PhD supervisors, Professors Amy Bogaard and Michael Charles, and to all current archaeobotanists at Oxford University's School of Archaeology for their valuable assistance, in particular Mark McKerracher.

Finally, we would like to thank the Oxford University *FeedSax* project for generously facilitating radiocarbon dating for grain samples from Sedgeford.

References

Bamforth, C. 2009. *Beer: Tap into the Art and Science of Brewing.* Oxford: Oxford University Press.

Banham, D. 1990. The Knowledge and Uses of Food Plants in Anglo-Saxon England. Unpublished PhD dissertation, University of Cambridge.

Behre, K-E. 1992. The history of rye cultivation in Europe. *Vegetation History and Archaeobotany* 1**:** 141–56.

Blair, J. 2018. *Building Anglo-Saxon England.* Oxford: Princeton University Press.

Boardman, S. and G. Jones. 1990. Experiments on the effects of charring on cereal plant components. *Journal of Archaeological Science* 17**:** 1–11.

Briggs, D.E. 1998. *Malts and malting.* London: Blackie Academic & Professional.

Campbell, G. 1994. The preliminary archaeobotanical results from Anglo-Saxon West Cotton and Raunds, in J. Rackham (ed.) *Environment and Economy in Anglo-Saxon England*: 65–82. York: Council for British Archaeology.

Caroe, H. Forthcoming. For a quart of ale is a dish for a king! Malting, brewing and beer in the mid Anglo-Saxon period. Unpublished PhD dissertation, University of Oxford.

Carruthers, W. 2019. Charred plant remains, in P. Crane and K. Murphy. An early medieval settlement, iron smelting site and crop-processing complex at South Hook, Herbranston, Pembrokeshire. *Archaeologia Cambrensis* 159**:** 117–95, at 163–81.

Carruthers, W. and K.L. Hunter Dowse. 2019. *A Review of Macroscopic Plant Remains from the Midland Counties. Research Department Reports. No. 47/2019.* Swindon: Historic England.

Comeau, R. and S. Burrow. Forthcoming. Corn-drying kilns in Wales: a review of the evidence. *Archaeologia Cambrensis* 170.

Cordes, A., P.S. Henriksen, M.M. Hald, L. Sørensen, P.O. Nielsen, J. Xu, J. Lund, N.A. Møller, F.O.S. Nielsen, T. Sarauw, J. Simonsen, L.R. Sparrevohn, J. Westphal, A. Blennow and K.H. Hebelstrup. 2021. Identification of prehistoric malting and partial grain germination from starch granules in charred barley grains. *Journal of Archaeological Science* 125**:** 1–12.

Corran, H.S. 1975. *A History of Brewing.* Newton Abbot: David & Charles.

Crane, P. and K. Murphy. 2019. An early medieval settlement, iron smelting site and crop-processing complex at South Hook, Herbranston, Pembrokeshire. *Archaeologia Cambrensis* 159**:** 117–95.

Dietler, M. 2006. Alcohol: anthropological/archaeological perspectives. *Annual Review of Anthropology* 35**:** 229–49.

Dineley, M. 1999. Barley, Malt and Ale in the Neolithic. Unpublished MPhil dissertation, University of Manchester.

Dineley, M. 2015. The Craft of the Maltster, in W. Howard, K. Bedigan and B. Jervis (eds) *Food and Drink in Archaeology 4*: 63–71. London: Prospect Books.

Faulkner, N. and E. Blakelock. 2020. The Excavation of a Mid Anglo-Saxon malthouse at Sedgeford, Norfolk: An interim report. *Anglo-Saxon Studies in Archaeology and History* 22: 68–95.

Faulkner, N., K. Robinson and G. Rossin. 2014. *Digging Sedgeford: A People's Archaeology.* Cromer: Poppyland Press.

Finberg, H. 1972. *The early charters of the West Midlands.* Leicester: Leicester University Press.

Garmonsway, G.N. 1939. *Aelfric's Colloquy.* London: Methuen and Co.

Hagen, A. 2006. *Anglo-Saxon Food and Drink: Production, Processing, Distribution and Consumption.* Little Downham: Anglo-Saxon Books.

Hale, W.H. 1858. *The Domesday of St. Paul's of the Year M.CC.XXII.: Or, Registrum de Visitatione Maneriorum Per Robertum Decanum, and Other Original Documents Relating to the Manors and Churches Belonging to the Dean and Chapter of St. Paul's, London, in the Twelfth and Thirteenth Centuries.* London: Camden Society.

Hardy, A., B.M. Charles and R.J. Williams. 2007. *Death and Taxes: The Archaeology of a Middle Saxon Estate Centre at Higham Ferrers, Northamptonshire.* Oxford: Oxford Archaeology.

Heiss, A.G., M.B. Azorín, F. Antolín, L. Kubiak-Martens, E. Marinova, E.K. Arendt, C.G. Biliaderis, H. Kretschmer, A. Lazaridou, H-P. Stika, M. Zarnkow, M. Baba, N. Bleicher, K.M Ciałowicz, M. Chłodnicki and Matuschik. 2020. Mashes to Mashes, Crust to Crust: Presenting a novel microstructural marker for malting in the archaeological record. *Public Library of Science One* 15**:** 1-40.

Hines, J. 1984. *The Scandinavian character of Anglian England in the pre-Viking period.* Oxford: British Archaeological Reports.

Holden, T. 2006. The botanical evidence, in C. Lowe (ed.) *Excavations at Hoddom, Dumfriesshire: An Early Ecclesiastical Site in South-west Scotland*: 150–55. Edinburgh: Society of Antiquaries of Scotland.

Horn, W.W. and E. Born. 1979. *The Plan of St. Gall: a study of the architecture and economy of and life in a paradigmatic Carolingian monastery, California studies in the history of art,* Berkeley: University of California Press.

Hornsey, I.S. 2003. *A History of Beer and Brewing.* Cambridge: Royal Society of Chemistry.
Hornsey, I.S. 2012. *Alcohol and its Role in the Evolution of Human.* London: Royal Society of Chemistry.
Jones, G. 1991. Numerical analysis in archaeobotany, in W. Van Zeist, K. Wasylikowa and K-E. Behre (eds) *Progress in Old World Palaeoethnobotany*: 63–80. Rotterdam: A.A. Balkema.
Lodwick, L. 2017. Arable farming, plant foods and resources, in M. Allen, M. Fulford, A. Smith and L. Lodwick (eds) *The Rural Economy of Roman Britain*: 11–84. London: Society for the Promotion of Roman Studies.
Lowe, C. 2006. *Excavations at Hoddom, Dumfriesshire: An Early Ecclesiastical Site in South-west Scotland.* Edinburgh: Society of Antiquaries of Scotland.
Loyn, H.R. 1970. *Anglo-Saxon England and the Norman conquest.* London: Longman.
McKerracher, M. 2014. Landscapes of production in Mid Saxon England: the monumental grain ovens. *Medieval Settlement Research* 29**:** 82–5.
McKerracher, M. 2018. *Farming transformed in Anglo-Saxon England: Agriculture in the Long Eighth Century.* Oxford: Oxbow Books.
Moffett, L. 1989. Charred cereals from some ovens/kilns in late Saxon Stafford and the botanical evidence for the pre-burh economy, in J. Rackham (ed.) *Environment and Economy in Anglo-Saxon England: A review of recent work on the environmental archaeology of rural and urban Anglo-Saxon settlements in England*: 55–64. York: Council for British Archaeology.
Moffett, L. 1991. *Plant economy at Burton Dassett, a deserted Medieval village in south Warwickshire. English Heritage AML Report No. 111/91.* London: English Heritage.
Moffett, L. 1994. Charred plant remains, in T. Allen. A Medieval grange of Abingdon Abbey at Dean Court Farm, Cumnor, Oxon. *Oxoniensa* 59**:** 398–406.
Moffett, L. 1997. Plant remains, in G. Eyre-Morgan, C. Jones, N. Palmer and S. Palmer (eds) *Excavation in the outer enclosure at Boteler's Castle, Oversley, Alcester, 1992–3*: 74–85. Birmingham: Birmingham & Warwickshire Archaeological Society.
Moffett, L. 2006. The archaeology of Medieval plant foods, in C.M. Woolgar, D. Sargeanston and T. Waldron (eds) *Food in Medieval England: Diet and Nutrition*: 41–55. Oxford: Oxford University Press.
Moffett, L. 2007. Crop Economy and other plant remains, in A. Hardy, B.M. Charles and R.J. Williams (eds) *Death and Taxes: The Archaeology of a Middle Saxon Estate Centre at Higham Ferrers, Northamptonshire*: 158–78. Oxford: Oxford Archaeology.
Monk, M. and E. Kelleher. 2005. An assessment of the archaeological evidence for Irish corn-drying kilns in the light of the results of archaeological experiments and archaeobotanical studies. *Journal of Irish Archaeology* 14**:** 77–114.
Morris, P. 1979. *Agricultural Buildings in Roman Britain.* Oxford: British Archaeological Reports.
Murphy, P. 1991. *Ipswich, Suffolk: Plant macrofossils from sites IAS 3104 (Buttermarket), IAS 3201 (ABC Cinema) and IAS 5203 (Greyfriars Road). AML Report No. 33/1991.* London: English Heritage.
Palmer, G.H. 1995. Structure of ancient cereal grains. *Journal of the Institute of Brewing* 101**:** 103–12.
Patrick, A. 2004. *Maltings in England*. Swindon: English Heritage.
Robertson, A.J. 1939. *Anglo-Saxon Charters.* Cambridge: Cambridge University Press.

Romano, A.H. and T. Conway. 1996. Evolution of carbohydrate metabolic pathways. *Research in Microbiology* 147**:** 448–55.
Samuel, D. 1996. Investigation of Ancient Egyptian Baking and Brewing Methods by Correlative Microscopy. *Science* 273: 488–90.
Shellhammer, T.H. 2014. Beer Fermentations, in C.W. Bamforth and R.E. Ward (eds) *The Oxford Handbook of Food Fermentations*: 3–53. Oxford: Oxford University Press.
Smith, K. 2016. *Brewing in Britain: An Illustrated History.* Stroud: Amberley Publishing Limited.
Stace, C.A. 2010. *New flora of the British Isles.* Cambridge: Cambridge University Press.
Stika, H.P. 1996. Traces of a possible Celtic brewery in Eberdingen-Hochdorf, Kreis Ludwigsburg, southwest Germany. *Vegetation History and Archaeobotany* 5**:** 81–8.
Tusser, T. 1812. *Five hundred points of good husbandry...a new ed.* London: Lackington, Allen, and Co.
Unger, R.W. 2007. *Beer in the Middle Ages and the Renaissance.* Philadelphia: University of Pennsylvania Press.
Wilson, C.A. 1991. *Food and Drink in Britain: from the Stone Age to Recent Times.* London: Constable.
Wilson, D.G. 1975. Plant remains from the Graveney boat and the early history of *Humulus lupulus* L. in W. Europe. *New Phytol* 75**:** 627–48.
Wolff, A.C. 2017. The Sedgeford ovens: An Anglo-Saxon cereal processing case study. Unpublished MPhil dissertation, University of Cambridge.

The Sedgeford Landscape in the 'Long 8th Century'

John Jolleys, Brian Fraser, David Wood and Kathryn Oliana

Abstract

In addition to the excavations undertaken by SHARP since 1996, landscape studies, geophysical surveys and historical research have been carried out to place these excavated sites into their wider context. This work has shown that the Heacham river and its valley were modified to facilitate navigation compatible with the use of mills and also that other large-scale construction projects took place during the Anglo-Saxon period. These included the laying of a calcareous clay deposit in the Reeddam area, creating a reed-bed, fishpond and possible head of water for mills. An earlier, Roman water-transport system linking Fring to the Wash at Heacham, via Sedgeford, may also have been modified and brought back into use during this period.

This research points to significant changes and developments taking place in the Sedgeford landscape during the later 7th, 8th and first half of the 9th centuries AD, a period dubbed the 'long 8th century'. This paper introduces the evidence for these changes and discusses how these large construction projects may have impacted on the local population, by calculating the amount of food needed to sustain them and the labour and time commitments such projects required. Finally, we discuss how emerging secular and religious powers potentially interacted with the population at Sedgeford to bring about these changes.

Introduction

In addition to SHARP's volunteer-run training excavations, other research including smaller evaluation trenches, geophysical surveys, landscape studies and desk-based historical research have been undertaken to provide more information to determine how the wider landscape of Sedgeford has been utilised and adapted over time. Investigations at Sedgeford are ongoing and, in addition to excavation, further evidence has been gained from remote-sensing techniques, such as aerial photography, Lidar, and magnetometry and resistivity surveys, as well as from the study of surviving documents and maps. Technological advances, radiocarbon dating, stable-isotope studies and, more recently, the analysis of ancient DNA have all added to our understanding of Sedgeford's past and are helping to address questions which cannot be answered with more traditional historical or archaeological study.

The parish of Sedgeford is located in a valley in north-west Norfolk, around 9 km from the sea on the eastern side of the Wash. The coastline in Anglo-Saxon times would have been about 1.5km inland from that of today. Little is known of the, Early Anglo-Saxon settlement around Sedgeford. The only artefacts from the period so far discovered are a small number of cremation urns found during the 19th century. These urns are preserved in Norwich Castle Museum and, although the locations of the findspots are imprecise, they are believed to have been discovered in the river valley in the vicinity of Sedgeford Hall.

The Middle and Late Anglo-Saxon settlement phases are much better understood. The cemetery in Boneyard field contains an estimated 800–1,600 burials, of which just over 400 have been excavated. The settlement site in Chalkpit Field is located immediately to the south of the cemetery, higher up the valley side. The discovery in 2019 of an unexpected Anglo-Saxon burial close to the edge of the nearby woods and the presence of large numbers of Middle Anglo-Saxon pottery sherds further into the woods raises the possibility that both the cemetery and the settlement extended further to the east, into an area which has remained wooded since the early 19th century.

During the Late Anglo-Saxon period, the settlement was relocated to the northern side of the river valley, where the medieval church and medieval settlement core are located, perhaps because the artesian water supply on the southern side of the valley had become unreliable. The late 10th and early 11th centuries were also times of military instability, with repeated Danish raiding occurring, and matters deteriorated significantly following the St Brice's Day Massacre of 1002, when the king ordered the slaughter of all those of Danish descent in England. The result was to provoke King Swein of Denmark to renewed fury and the *Anglo-Saxon Chronicle* records how he and his henchman, Thorkill the Tall, raided East Anglia, sacking Norwich and Thetford. This threat and resultant political instability might also have been factors in the relocation of the settlement across the valley, where perhaps the northern side of the valley was felt to be more secure.

The dynamic landscape changes reported on here started during the first half of the 7th century, with the conversion to Christianity of the Anglo-Saxon ruling-elite and the mass conversion of the wider population. The Church worked closely and symbiotically with those rulers who gave it their support and protection, forming an additional level of society between the mass population and the elite beyond that engendered by a culture of feasting in the mead hall. By the later 7th century, the inter-relationship had become established and customary, resulting in a stable situation that enabled the changes evident in the 'long 8th century' to unfold. On a local level, this process may have emanated from monastic sites and from the secular elite, although it is likely that co-operation between different social institutions would be required. In addition, the establsihment of trading links with early medieval Europe around this time opened up the Anglo-Saxon kingdoms to knowledge from both the late Classical world and the Frankish confederation.

This paper presents the evidence gathered from landscape studies carried out by SHARP and uses it to provide a better understanding of how the excavated cemetery and settlement evidence sit within in the wider Middle Anglo-Saxon landscape. In particular, this paper uses output calculations to estimate the effort and resources required to facilitate these landscape changes, and these are compared with the estimated population size and farming methods. Finally, this paper aims to increase our understanding of how the local people at Sedgeford were impacted by such projects and their place in wider Anglo-Saxon society.

Aspects of Sedgeford's Anglo-Saxon Landscape

Settlement

Sedgeford's Middle Anglo-Saxon settlement was located along the southern slope of the river valley. A geophysical survey carried out in 2006–7 revealed the presence of a large D-shaped enclosure ditch, which appears to have been cut relatively late in the history of the settlement (Figures 1 and 2). Geophysical surveys have also been carried out across the parish, often prior to excavations, but more recently larger surveys have been undertaken to investigate the wider landscape.

SHARP's excavations between 2007–16 uncovered a settlement of rectangular buildings laid out in a linear fashion along the southern side of the valley at the northern end of Chalkpit Field (Faulkner *et al.* 2014: 79–136). The majority of these buildings were identified by patterns of post-holes, although several buildings appeared to have been built off more substantial beam-slots. These buildings were a consistent size, being 4.6m in width and twice or three times as long. These dimensions correspond well with the short perch measurement of 4.6m (15 feet) which was in common usage in eastern England during the Anglo-Saxon period (Blair *et al.* 2020).

On excavation, each building plot was found to be separated from its neighbour by a linear ditch, which formed a boundary with the neighbouring plot and would have carried storm-water and debris to the bottom of the river valley. The full extent of the settlement area has not been excavated and it may have extended to the east into land now covered by woods, and to the west, where it was potentially truncated by later chalk quarrying.

Artefacts from the settlement, such as loom-weights, spindle-whorls and heckle pins indicate that textile production took place. There is also evidence, in the form of smithing-hearth bottoms, to indicate that blacksmiths were working iron within or near to the settlement. No evidence for the smelting of iron or non-ferrous metals has been found, suggesting that bloomery-produced iron was brought from other sites for smithing at Sedgeford and that non-ferrous objects were also manufactured elsewhere.

Large midden pits were excavated on the settlement's northern side. These contained typical Anglo-Saxon occupation debris, including oyster shells, mussel shells and butchered animal bone. A ditch full of mussel shells, associated with Ipswich ware containers, was evidence for the large-scale preservation of shellfish. None of the finds suggest a high-status settlement, although discoveries such as a mid-8th-century silver denier of the Frankish king Pepin III and two styli point to the, potentially transitory, presence of a literate elite.

The settlement has primarily been dated based on the ceramic evidence. The pottery assemblage from the settlement included some earlier grass-tempered ware, dating between the late 7th to the early 8th centuries, as well as Ipswich ware and Thetford

Figure 1. Magnetometry survey results for Chalkpit Field and surrounding fields.

ware. The absence of Grimston ware suggests that the site was abandoned before 1100, probably in the mid-11th century, pointing to the site being occupied between the late 7th and mid-11th centuries.

Figure 2. Features from the settlement area excavation superimposed on magnetometer survey results.

Cemetery

The Middle Anglo-Saxon cemetery is located to the north-east of the settlement in Boneyard field and extends northwards into the now-flooded area of the Reeddam. Excavations were first carried out by Dr Peter Jewell during the late 1950s, followed by Professor Don Brothwell in the 1960s and then by SHARP between 1996 and 2007 (Faulkner *et al.* 2014: 79–136).

Some 400 Christian burials have been excavated, all aligned west–east, buried without grave-goods and with their heads at the western end of their graves. The western limit of the cemetery was identified during excavations, but the eastern limit has not been

identified. An inhumation, radiocarbon-dated to *c.* AD 675, has been identified close to the eastern boundary of Boneyard field, but further excavation is needed as this burial might be an outlier and, for some reason, buried beyond the limits of usual burials.

Although burials in the southern part of the cemetery were in single grave-cuts, those graves in the northern part were found to be five or six burials deep, with much evidence for intercutting burials. SHARP's estimate is that the cemetery contained between 800 and 1600 inhumations. Most burials appear to have been wrapped in shrouds, but some were interred in coffins. Radiocarbon dating shows that the cemetery was in use between *c.* AD 675 and AD 850, with the latest possible date being AD 875. In addition, a west–east orientated structure measuring 17m by 4.5m was identified by Jewell in 1959 and re-excavated by SHARP in the 2000s. It has been suggested that this could have been an ecclesiastical building relating to the cemetery (Blair 2018: 303).

Malting Complex

To the south-east of the settlement, situated in a narrow valley on a relatively steep downslope, a series of malthouses is being excavated. This complex apparently dates from between AD 725–850 based on radiocarbon dates from burnt grain deposits within the kilns, as well as ceramic evidence, with only Ipswich ware occurring within the context. The malthouse complex has been discussed in more detail in Blakelock and Caroe (this volume) and it is clear that the time, materials and skills required to construct and manage the site were considerable.

Once the complex was abandoned, presumably after one of many fires, the entire site was buried under a colluvial layer in a matter of a few years and the area reverted to arable cultivation. This has preserved the site as a whole. A number of Anglo-Saxon plough-scars cut into clay floors of the malting complex. These can be dated on the ceramic evidence to the Middle Anglo-Saxon period since the ploughsoil contains sherds of Ipswich ware, but despite the close proximity of the Thetford ware-rich settlement to the north-west, no Thetford ware has been retrieved from the ploughsoil (Faulkner and Blakelock 2020).

Long-distance Routeways

Two long-distance routeways pass through or close to Sedgeford. The first is the prehistoric Icknield Way, which runs from the south-west along the higher ground of the chalk ridge east of the Fens. The second is the Peddars Way, a road of Roman origin, running for some 74km from the Suffolk border to the Norfolk coast at Holme-next-the-Sea. This road crosses the river at Fring Cross, located between Fring and Sedgeford.

In addition to these two long-distance routes, evidence such as that recorded on the 1631 Le Strange estate map of Sedgeford indicates that tracks between Sedgeford and other local settlements had been in use for many centuries (Figure 3).

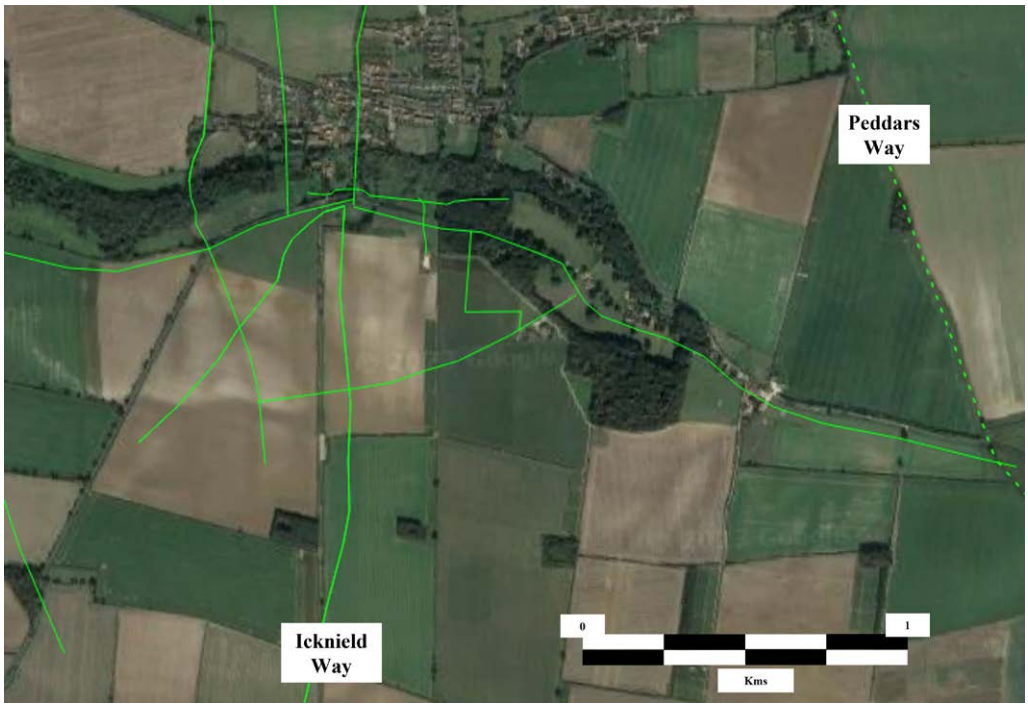


Figure 3. Ancient routes through Sedgeford, including those showns on the 1631 Le Strange estate map.

Heacham River

The Heacham river rises at Bircham Newton in the low chalk hills of north-west Norfolk (Figure 4). From its source, it runs a course of 15km by way of Fring, Sedgeford and Eaton until it empties into the Wash at Heacham. Along its course, the river is fed by aquifers emerging from the chalk on the valley sides. In recent years, the river has been depleted by water abstraction and during summer months the stream-bed upstream from Sedgeford is often dry, but in the past the flow and the depth of the river would have been significantly greater.

The idea that the river had been exploited in the past was proposed by Hammond and Barnett (1996). Documentary evidence that the river was used for navigation in the period around the Norman conquest is provided by an early 12th-century document detailing that one of the duties of the bonded peasantry of the manor at Heacham was to maintain the river for navigation (Beauroy 1984). Ann Cole, writing in 2007, described the Heacham River as 'a small stream, which cannot have been navigable for far and yet, if kept open for just 3–4 miles would provide a useful link between the Wash and the Icknield and Peddars Ways'.

At Fring the headwaters of the river feed into a 3-acre pond, known locally as 'Fring Harbour', a title which suggests that the river was indeed navigable up to that point

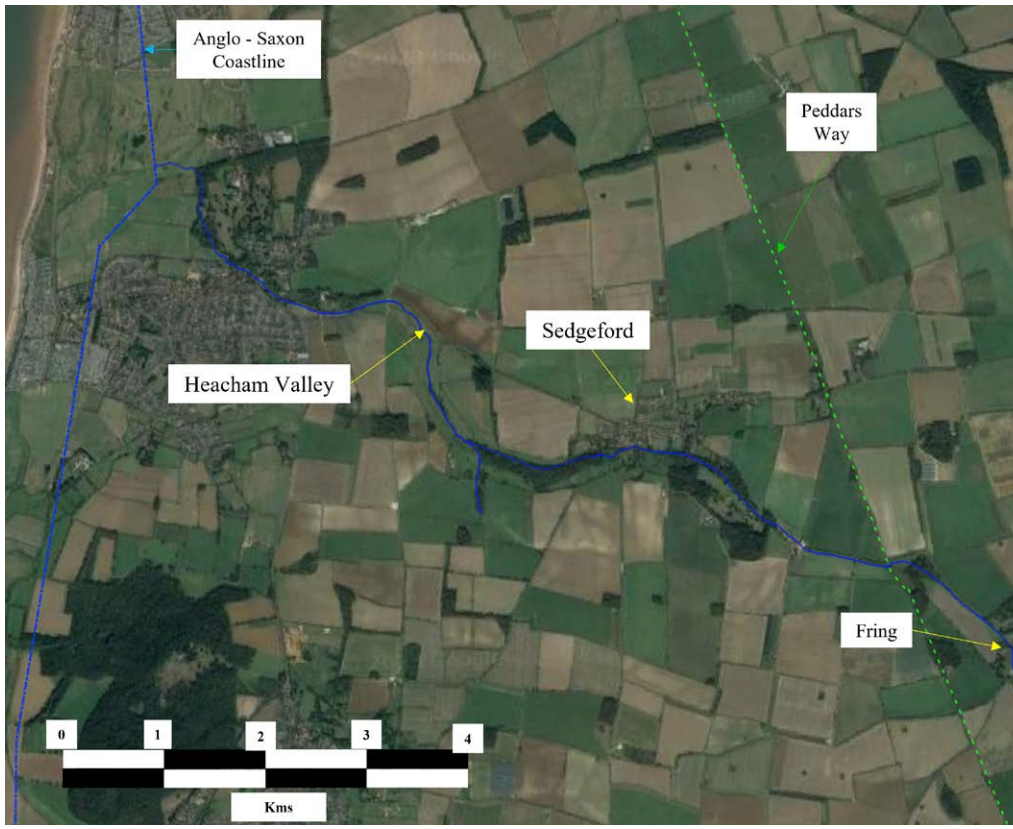


Figure 4. The course of the Heacham river from Fring to the Wash.

Figure 5. Fring Harbour. (Photo: Mike Walsh)

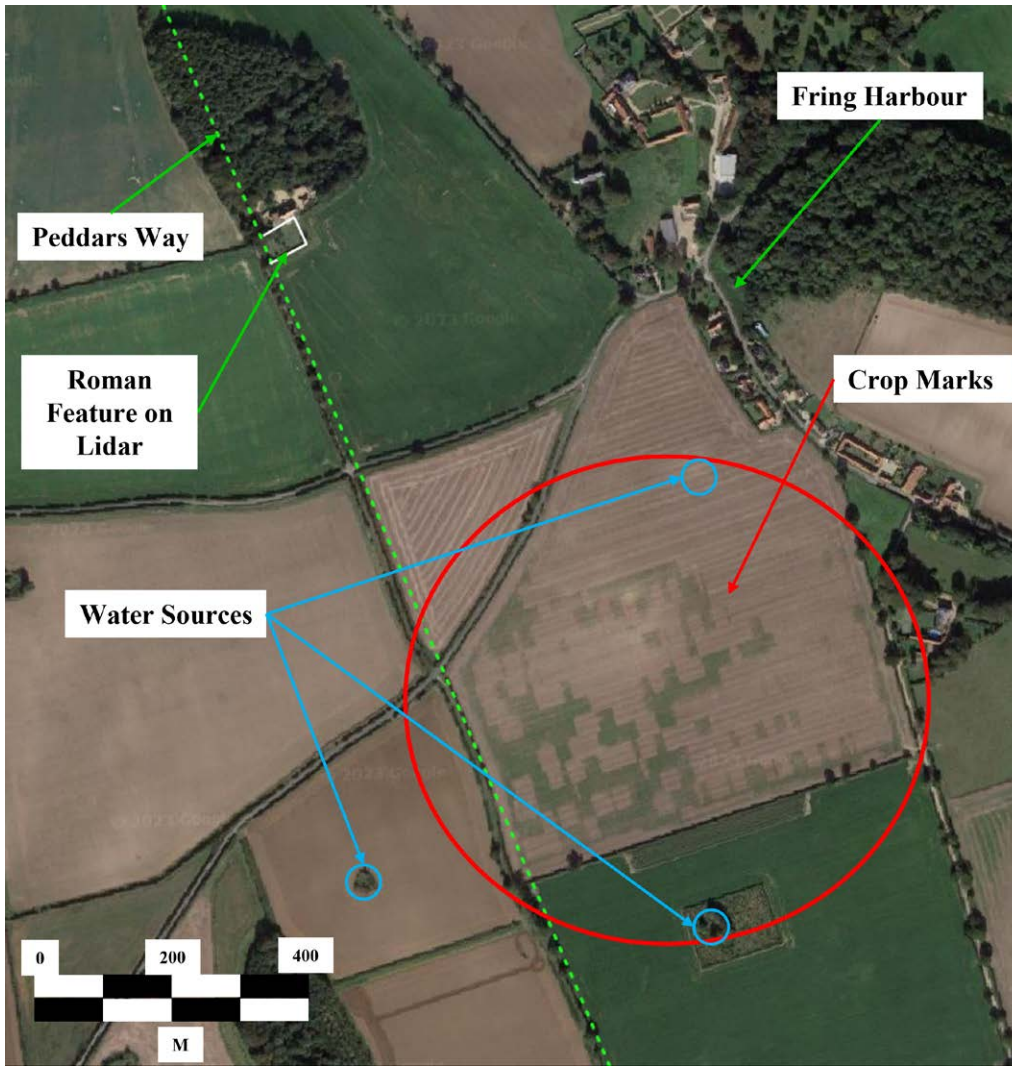


Figure 6. Satellite image of cropmarks and the course of the Peddars Way at Fring.

(Figure 5). During the 2021 SHARP season, a series of three auger cores was cut at 20m intervals some 4m into the pond along its western edge. A further five were cut at 20m intervals along its central long axis in 2022. All revealed a clay deposit 0.1m thick, beneath a layer of dark pond-silt and overlying granular chalk. A complex of Romano-British cropmarks, thought to represent a villa, has been identified in the field immediately west of Fring harbour, between it and the Roman Peddars Way running further to the west (Figure 6).

There is clear evidence that the river has been modified and, in canalised form, exits Fring Harbour, crossing the Peddars Way at Fring Cross (Figure 4). The present-day course runs alongside the Fring to Sedgeford road, but this is a 19th-century cut and

Figure 7. The remains of the canal , as seen in Sedgeford Woods to the east of Boneyard.

Lidar reveals the original course lying some 50m to the west. Running under the later 19th-century buildings of Glover's Farm, it then ran to the north-east of Sedgeford Hall, where this stretch of the waterway can be seen clearly as it enters the eastern end of the Reeddam pond (Figure 7).

As part of SHARP's investigations, a series of measurements was taken of this canal at six locations between Fring and Eaton. All showed an upper width of 6m, tapering to 3.5m–4m wide at the base, with a flat bottom of granular chalk and clay at a depth of 1.4–1.5m. The thin clay layer rendered the feature watertight and the chalky gravel

Figure 8. The course of the canals in relation to the Boneyard cemetery.

would have acted as a bed for leverage using a punt-pole. The uniformity of the dimensions and the nature of the bottom all point to an artificial navigation canal. Our working hypothesis is that the canal was originally constructed during the Roman period, to allow bulk transport of grain to the Wash at Heacham, avoiding the steep inclines on the Peddars Way beyond Fring.

It seems that the canal silted up over time before it was re-excavated and used in the Middle and Late Anglo-Saxon periods, continuing into the medieval period. Excavations of the Middle Anglo-Saxon cemetery in Boneyard Field revealed the presence of this canal (Figure 8), where it cut through the burials, indicating that this part of the canal had been cut after the cemetery had fallen out of use (Faulkner *et al.* 2014: 79–136).

Two further SHARP excavations confirmed that this large ditch extended to the west along the valley, one in 2001–02 in the Reeddam (Calow 2002) and the other in 2003 to the west in West Hall Long Meadow, colloquially referred to as 'Saggy Horse Field'. Further excavations were carried out on the latter site in 2019 and 2022, revealing a sherd of unabraded glazed Grimston ware (AD 1150–1500) in the gravel layer at the bottom of the cut, rather than in the alluvial fill. This suggests that the feature was in use for navigation, rather than just drainage, well into the high medieval period.

Further examination of the landscape using a combination of aerial photography, Lidar and ground-based surveys revealed that the ditch could be traced through Sedgeford and Eaton to Heacham. The feature often ran parallel to and on the south-western side

of the river. In some locations, such as the site of the now-demolished Kyme Bridge, they merged, the river having been straightened between here and a natural carstone outcrop across the riverbed at the site of the former Clowson Bridge. From Kyme Bridge to Eaton, an artificial cut ran into Eaton Pond and from there downstream to the south-west of the river to Heacham. The river and this canal were linked by a connection running from the river, 50m upstream from the outcrop at Clowson Bridge.

Research has shown that there is an apparent concentration of Roman canals around the shores of the Wash (Bond 2007). Many of these Roman canals appear to have been re-opened during the 8th and 9th centuries, including the Foss Dyke in Lincolnshire. It is considered possible that the canal at Sedgeford was a Roman canal that was reopened in the Middle Anglo-Saxon period. There are also examples of *de novo* Anglo-Saxon canals, such as an example identified at Glastonbury in Somerset, which had a width of 5m and 45-degree sides resulting in a flat bottom at a depth of 1m (Hollinrake and Hollinrake 2007). Radiocarbon dating gave a date range between AD 830 and AD 990.

Reeddam

To the north of the Anglo-Saxon cemetery lies the Reeddam, which is a 16-acre (6.47-hectare) low-lying area of marshland along the floor of the river valley. The Reeddam is triangular, with the apex at the eastern end, where the river flows in. At its western end, the valley floor has been dammed by an earthen causeway, which carries the road to Snettisham (Figure 8). The Reeddam is mentioned in numerous medieval documents and identified on 17th-century maps as a *stagnum* (pond) and the *Arundinetum Domini* (Lord's reedbed). It was clearly an important resource to the medieval holder of the manor of Sedgeford, Norwich Cathedral Priory, whose inventories also record its use as a fishpond and reedbed. There is documentary evidence for modifications in the 13th century to create a leet for the 'great mill of the manor' (Yaxley 1988). This documentary evidence had led to a view that the Reeddam dated from the 12th or 13th centuries, but the archaeological evidence pointed to an earlier construction.

During SHARP's first season in 1996, a series of five test-pits was excavated in the middle third of the Reeddam (Figure 9; Thomas 1996). Four of these revealed a substantial calcareous clay deposit, similar to that seen in the canal discussed above. This layer was between 0.1m–0.15m thick and lay at a depth of 0.3m–0.4m. Further excavations in 2001–02 at the western end of the Reeddam confirmed the same calcareous clay deposit (Calow 2002). Both excavations showed that the clay overlaid a silty layer, containing occupation and probably midden debris: animal bone, oyster shell and Ipswich ware, but there were no sherds of Thetford ware in this layer (Thomas 1996; Calow 2002). This securely dates this debris layer to the Middle Anglo-Saxon period and suggests that the layer of calcareous clay was laid before *c.* AD 875, when Thetford ware came into use.

Figure 9. The 1996 test-pit section of the calcareous clay layer in the Reeddam.

Figure 10. Comparative diagrams of the auger cores from the mid-point of Fring Harbour and the Reeddam.

Further investigations of the Reeddam were carried out in 2019 and 2021 with a hand-driven coring auger. In total, 21 cores were taken in 2019 of which 16 penetrated more than 1m. Two artificially laid deposits were identified: the first a deposit of calcareous chalky clay between 0.1m–0.15m thick, which was located under 0.3m–0.4m of dark silt and root material from the growing reeds and corresponded to the layer identified in 1996 and 2002 (Figure 10). A lower clay layer was also identified, being a homogeneous whitish-grey, inclusion-free and *c.* 0.1m–0.2m thick. Between these two clays layers the auger confirmed a silty layer between 0.4m–0.5m thick. Under the lower of the two clay layers there was a further layer of dark silt. No finds were recovered during augering, so it is not possible to ascribe a specific date to the lower layer of clay, other than to observe that it is earlier than the layer containing Middle Anglo-Saxon pottery. Eight further cores were cut at the western end of the Reeddam during the 2021 season. All revealed the same lower clay deposit between 0.6m–0.85m beneath the surface, its thickness being between 0.12m–0.3m.

There is evidence from Lewton-Brain's 1953 excavations in the Reeddam that Romano-British pottery was identified in the lower layers of the silt above the lower clay layer, which raises the possibility that this layer was deposited in the Roman period or possibly earlier (Lewton-Brain 1967). Unfortunately, neither Lewton-Brain or Thomas were able to reach the lower clay layer because of the height of the water-table in the Reeddam area resulted in significant water ingress into their excavation trenches. The level of the water table is even higher today, since a weir was installed downstream to create ornamental ponds in 2001, so that excavation in the Reeddam area is no longer feasible.

Soil samples from the auger cores were subjected to phosphate analysis. This simple chemical test provides evidence for human activity and animal husbandry. Phosphates are released from animal manure or human activity, such as burning, and become fixed in the ground. The higher the level, the more likely it is associated with human activity. Levels of over 200 are generally associated with human activity, whereas readings of 70 are more likely to be from natural sources (Craddock *et al.* 1985). Significantly, the results revealed that the phosphate levels from the silts immediately above and below the lower clay were around 300, whereas the clay layer itself recorded a level of 70. The low reading from the clay would suggest an unmodified natural source. By comparison, clay which had been mixed with organic material to make the daub retrieved from the nearby malting complex excavations was rich in phosphate.

The identification of similar deposits of homogeneous clay at Fring and in the Reeddam at Sedgeford suggests that a puddling layer was applied to create watertight areas as part of a water-transport system. Initially, this is likely to have been constructed for the loading and transport of bulk goods, such as grain, during the Roman period and re-opened, possibly during the Middle Anglo-Saxon period, when the Reeddam was remodelled for the growing of reeds and the rearing of fish, necessitating the digging of a new section of canal as a bypass.

Figure 11. Map of medieval mills along the River Heacham, all potential Anglo-Saxon mill sites.

Mills

Mills on a river as narrow as the Heacham would have obstructed navigation and a canal would have allowed craft to proceed without hindrance. SHARP has carried out landscape studies using a combination of historical documents and maps, previous archaeological records, aerial views and Lidar, with the aim of identifying the position of mills along the river. So far, all of the sites identified date from the post-Conquest period, but it is logical to propose that a site suitable for the construction of a mill in the 13th century might also have been suitable in the 8th or 9th centuries (Figure 11).

The Domesday survey of 1086 recorded four watermills at Sedgeford in 1066, with a further one at Fring and three at Heacham. The mill at Fring also has a note that 'Anund, predecessor to Peter de Valognes had (it) taken away'. This might be taken to suggest that mills could be dismantled and removed, possibly for reconstruction elsewhere, or simply that the mill was no longer required. Regarding design, Anglo-Saxon watermills could comprise either a horizontal axle and vertical wheel within a wheel-pit (Figure 12), such as at West Cotton, Raunds (Windell *et al.* 1990) or a vertical axle and horizontal wheel set in the river (Figure 13), such as the 9th-century mills at Tamworth (Rahtz 1992) and Old Windsor (Wikander 1985). The observations from Tamworth demonstrated that a vertical-axle watermill would be able to function with a fall of no more than 0.5m in water level, and water held back by a simple wooden palisade was diverted through a sluice down a narrowing wooden conduit, which increased its velocity and power (Rahtz 1992). Such a design would have been well suited to Norfolk's muted topography.

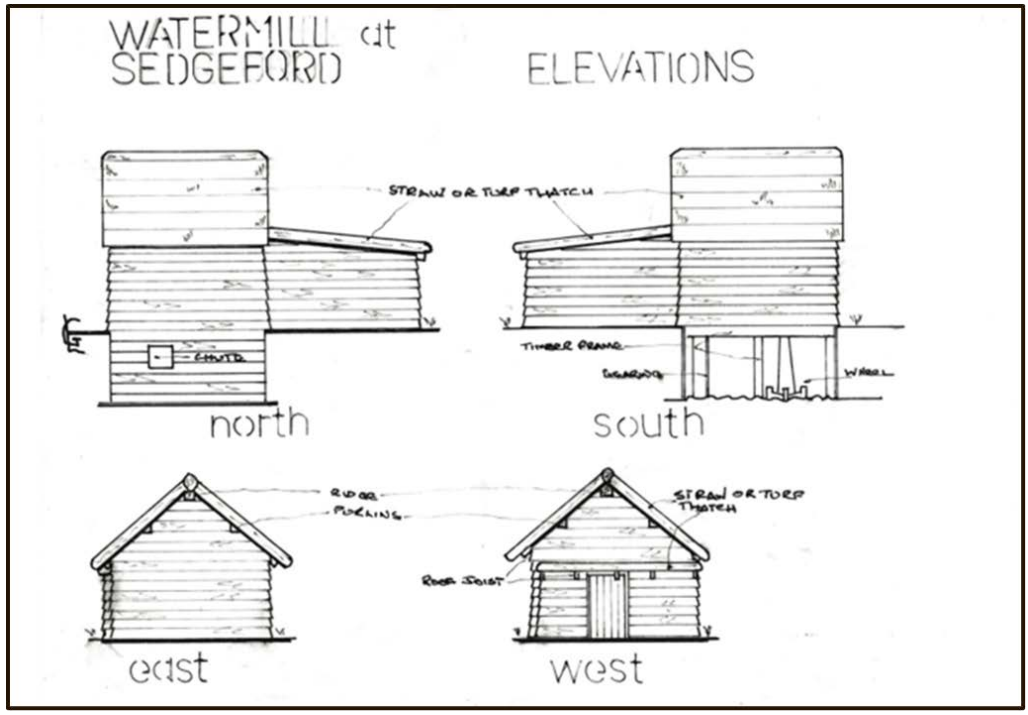


Figure 12. Construction of the vertical-axle and horizontal-wheel watermill.

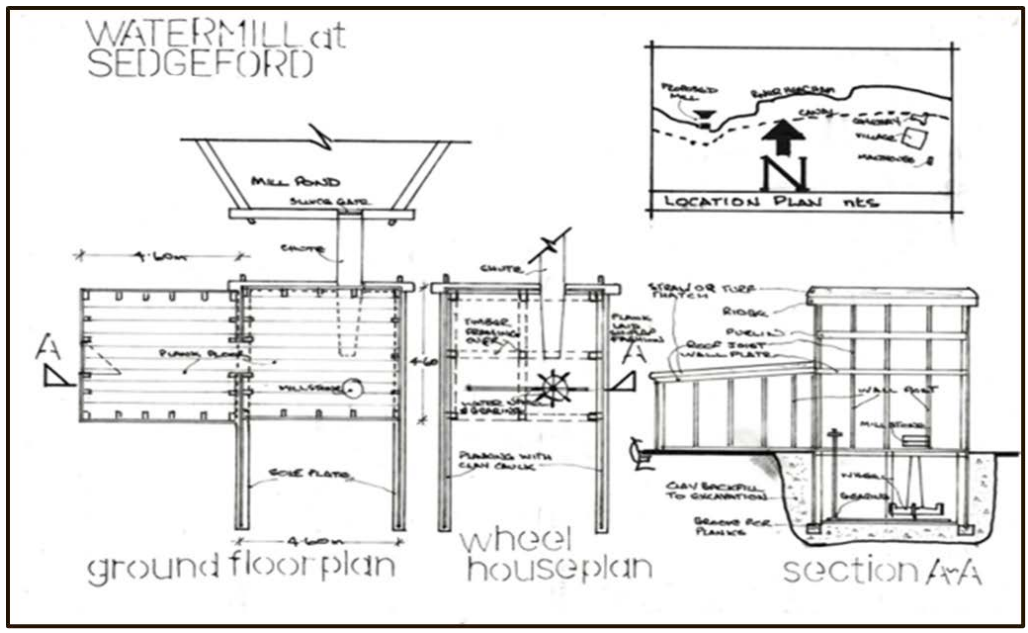


Figure 13. Construction of the vertical-axle and horizontal-wheel watermill.

Landscape Changes in the 'Long 8th-Century'

As has been described above, the evidence suggests that during the Middle Anglo-Saxon period dramatic changes occurred in the landscape around Sedgeford. These involved large construction projects, including the re-establishment of the Roman canal, depositing a chalky clay layer in the Reeddam, creating a malting complex, and constructing mills along the river. In addition, there was a reorganisation within the settlement and wider agricultural changes, including the adoption of the mouldboard plough. This discussion examines how these changes reflect other changes in Anglo-Saxon society, the scale of these projects and what they can tell us about the local population.

Building Standardisation and Planned Layouts

The evidence suggests that the settlement at Sedgeford became increasingly organised and regulated during the 'long 8th century'. There is evidence that the later buildings within the settlement at Sedgeford were constructed using standard units of measurement based on multiples of the Anglo-Saxon short perch (4.6m/15 feet). The short perch was a standard measurement in central and eastern Anglo-Saxon England and implies an organised system of planning (Blair *et al.* 2020). Likewise, the overall orientation, shape and nucleation of the settlement is also suggestive of an overarching plan.

As discussed above, the buildings in the settlement had a width of one short perch and their lengths were multiples of that (Figure 14). The exception was 'Structure O', which has a perpendicular alignment to the other buildings, although even this had an east–west long axis of 9.2m (two short perches) and width of 4.6m. The malthouse complex also seemed to use some perch measurements: the width of the grain-drying part of Malthouse 1 was 4.6m and the structure around the kiln was also 4.6m wide, although other dimensions did not accord with the short-perch system.

Building Orientation

Regarding building orientation, the long axis of Structure O is aligned on 115 degrees True, while those of the other settlement buildings are set at 90 degrees to this, i.e. at 025 degrees True. By overlaying a grid using short-perch measurements of 4.6m onto a 3D model of the settlement it was clear that the structures, enclosure ditches and foundation slots of buildings all fitted into a grid with an axis of 115 degrees True, including the larger Structure O, with the long axis of each building lying perpendicular to the track at 025 degrees True (Figure 15). Magnetometry surveys of the Chalkpit Field site show that east–west boundary ditches were also aligned on 115 degrees True, with the north–south boundary ditches aligned 025 degrees True. By contrast, Malthouse 1 was constrained by its construction within a side valley and did not fit with this orientation.

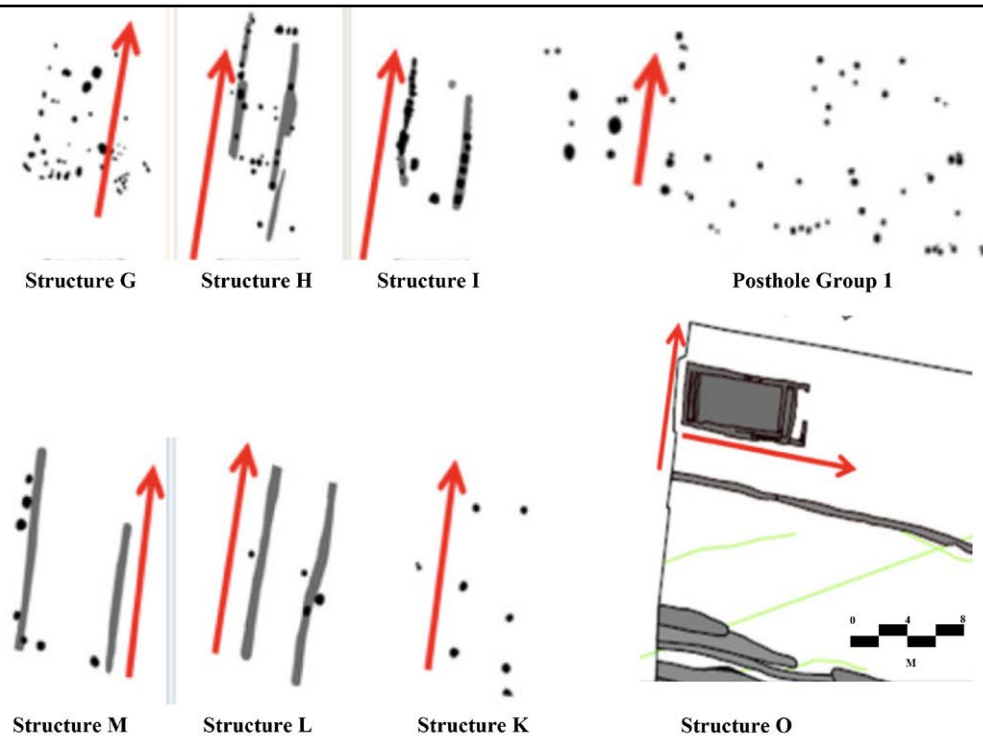


Figure 14. Plan showing the alignment of buildings in the settlement site and Structure O.

The geophysical survey of the settlement and surrounding landscape clearly showed that there is a different orientation to the Middle Anglo-Saxon settlement compared to Roman activity elsewhere in the parish. Overall, these observations suggest rigorous planning and surveying of the Anglo-Saxon settlement. By comparison, the ditches on the Romano-British farmstead at the junction of Chalkpit Field, Hall Field, Shernbourne and Polar Breck were aligned either due east–west or due north–south. Clearly, the Roman surveyors and the Anglo-Saxon surveyors used different reference points when setting out their settlement grids.

Research into grid-planning is ongoing and it has been observed that a number of field boundaries in the wider Sedgeford landscape, including some of those recorded on the 1631 Le Strange estate map and those which survive to the present day, respect the 115 degrees True alignment. Applying a grid based on the 'short-perch furlong' – which at 184m represented 40 short perches – using the same orientation as the settlement reveals a remarkable similarity to remnant field boundaries. This was particularly the case to the south of Sedgeford, where it accounted for nearly 40% of the current visible landscape features and a further 20% of the field boundaries from 17th-, 18th- and 19th-century maps, as well as the field boundaries identified through magnetometry (Figure 16).

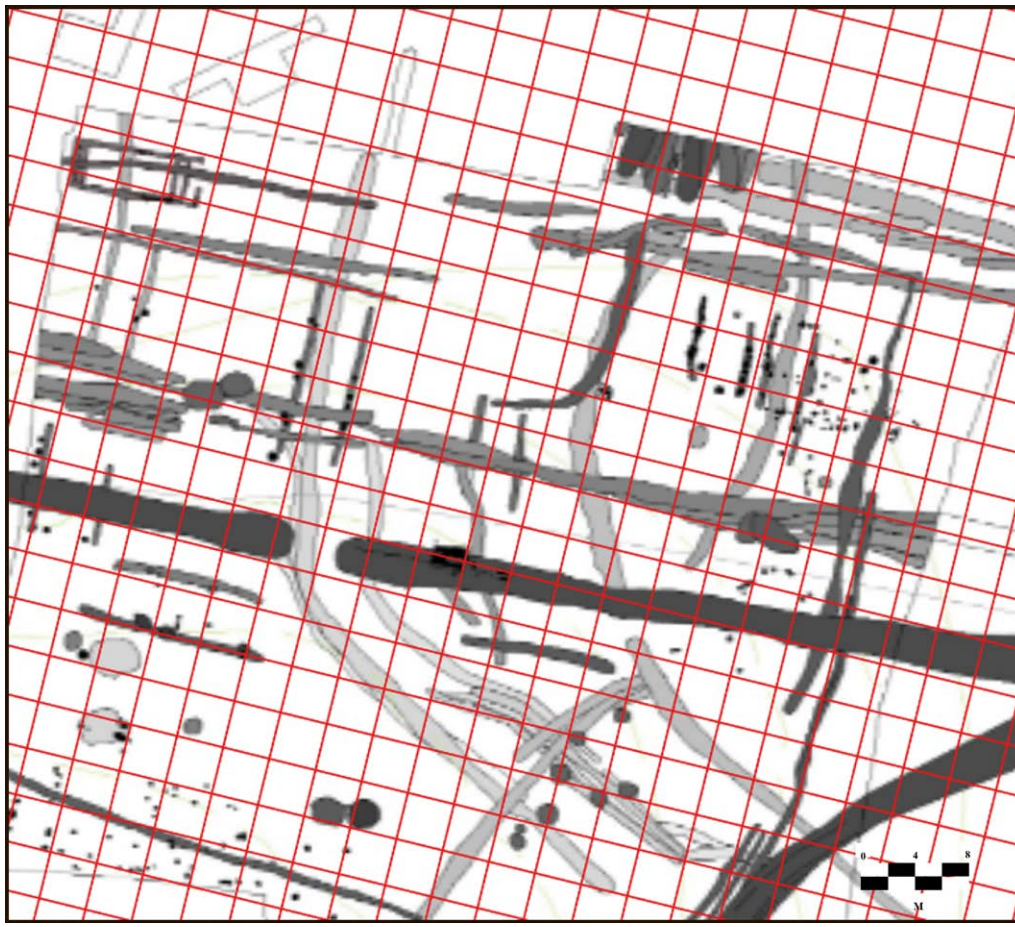


Figure 15. Plan showing the alignment of buildings in the settlement site overlaid with a short-perch grid.

It is notable that the axis at Sedgeford differs compared to other neighbouring parishes which have evidence of medieval grid-planning, including Flitcham, Shipdham and Rudham. At Watlington, south of King's Lynn, and at Shernbourne, immediately to the south of Sedgeford, the grid was laid out north–south, as were the Roman villas at Sedgeford and Shernbourne (Figure 17). By contrast, the settlement at Fring respects the line of the Peddars Way (Figure 18).

There have been a number of other 8th-century sites which have shown evidence of grid-planning, along with a degree of nucleation. This includes the settlement at West Fen Road in Ely, which was deliberately laid out between AD 730 and AD 750, as well as Quarrington in Lincolnshire, Stratton in Bedfordshire and Brandon in Suffolk (Blair 2018). Previous researchers have suggested that there was limited evidence for grid-planning at Sedgeford (Blair *et al.* 2020), however it is now clear that the Middle Anglo-Saxon settlement and malthouse complex at Sedgeford were subjected to some form of grid-planning.

Figure 16. The Sedgeford landscape overlain with a 115 degrees True grid, highlighting field boundaries recorded on the 1631 Le Strange estate map, Ordnance Survey maps, aerial photography, Lidar and many other sources.

Population Size and Agricultural Production

In the Domesday survey of 1086, the adult male population of the Sedgeford in 1066 was recorded to be 59, including 15 villeins, 39 bordars and five slaves. This total does not include any women or children present in the settlement, and it is generally accepted that by using a multiplier of 4.7 it is possible to calculate the total rural population, in which case there would have been about 280 individuals living in Sedgeford in 1066 (Wood 1986). The evidence to support this population multiplier comes from two principal sources: 9th-century Carolingian charters and, with more relevance to Anglo-Saxon England, from 12th- to 13th-century records from rural Lincolnshire (Wood 1986). The figure of 280 corresponds well with the estimates calculated on the presumed number of burials in the cemetery (i.e. between 800 to 1600) and the duration the cemetery was used (*c.* AD 675–850/875), which it taken to indicate a population of *c.* 280–300 individuals.

Using the lower estimated population of 280, it is possible to calculate the amount of food that would need to be produced for the settlement. At least 75% of the population's

Figure 17. Surviving north–south field boundaries following the orientation of local Roman villas.

calorific intake was derived from cereals during the medieval period (Broadberry 2008) and this was likely to also be the case in the Anglo-Saxon period. Based on a small family unit, of two adults and 2.7 children, the estimated calorific need per day for a family,

Figure 18. Surviving field boundaries following the orientation of the Peddars Way.

based mostly on cereal grains, is 8,370 Kcal, which would mean over 3 million Kcals per family unit per year. This value is relatively high, compared to modern intake, but is based on the values for a population that was likely to be involved in manual labour. We cannot be sure of the average size of Sedgeford's Anglo-Saxon family, but larger families would obviously require a proportionally larger calorific intake.

Cereal Type	Bushels per acre	kcal per bushel	kcal per acre	Acres per family per year	Acres for population of 280
Wheat	12.26	80,600	989,000	3.1	185
Oats	5.70	60,300	343,700	8.9	530
Rye	5.72	443,400	443,400	7.0	420
Barley	11.20	66,800	748,000	4.1	250

Table 1. Crop yields and acres required for different types of cereal grain.

Records from the bailiff's accounts supplied to Norwich Cathedral Priory between 1290–1300 can be used to calculate roughly how many acres of land were needed to produce enough food for the population at Sedgeford during the medieval period (Table 1; Slavin 2008). In 13th-century Sedgeford, 92% of the cereal-based nutrition was derived from barley or rye, with only 8% from wheat and no evidence for oats (Dyer 1988). Archaeological evidence has shown that the cereals cultivated by the Anglo-Saxons included three varieties of wheat (bread wheat, club wheat and spelt), two varieties of barley (six-row and two-row), rye and oats. The most common cereal crops in Anglo-Saxon England were wheat and barley (Banham and Faith 2014).

Long-staple grain crops, such as wheat and barley, were vulnerable to being laid flat by adverse weather and the Anglo-Saxons sometimes sowed them in mixed cultivation with the more robust rye, the mix being referred to as 'maslin'. There would also have been losses due to climate-related crop spoilage and rodent activity. Evidence from the developing world suggests that this value could be as high as 10% of the harvest, essentially meaning that around 10% of the cultivated area was unproductive (McClosky and Nash 1984).

The use of the mouldboard plough would have increased the acreage it was possible to cultivate (Banham and Faith 2014). During the excavation of the Sedgeford malting complex several Middle Anglo-Saxon plough-scars were identified cut into the clay features. These all ran parallel in a north–south direction and suggest that a heavy, mouldboard plough was in use, rather than an ard-type plough. This supposition is further supported by the identification of stinking mayweed seeds from the site, which are often associated with heavier soils and sometimes their cultivation using the mouldboard plough (McKerracher 2019).

While plough technology would have increased the potential cultivatable acreage, this would be limited by the availability of plough-teams. The Domesday survey of 1086 recorded that there were five plough-teams at Sedgeford by this date. A plough-

Activity		Reeddam	Canal
	Clay and chalk	c. 9750m^3 = 14040 tonnes	c. 8050m^3 = 11592 tonnes
	Time	30 men 49 weeks	27 men 10 weeks
	Excavating silt	N/A	c. 2375m^3 = 4110 tonnes
	Excavating earth	N/A	c. 5625m^3 = 9937 tonnes
	Time	N/A	35 men 40 weeks
	Compacting surface	30 men 8 weeks	N/A
	Mix and lay clay	30 men 23 weeks	30 men 15 weeks

Figure 19. Raw materials required and timescales for creating the Reeddam and re-establishing the canal.

team in this period consisted of two people – a man and ploughboy – with two or four oxen to pull the plough. It is estimated that each team would have been able to plough between 60 to 120 acres a season (Banham and Faith 2014). Although the soil at Sedgeford is a light, sandy loam, the presence of flint inclusions and some patches of clay in the ploughsoil might have reduced the productive output of the five Sedgeford plough-teams from a theoretical maximum of 600 acres *per annum* to perhaps 500–550 acres *per annum*.

Making a backward extrapolation that five plough teams were similarly available in Sedgeford during the Middle Anglo-Saxon period, it is clear that after the local population had been fed there would still have been a grain surplus, even allowing for a spoilage rate of 10%, and this would have been available to supply the malting complex. The theoretical capacities of the Sedgeford malthouses are discussed by Blakelock and Caroe (this volume), with a full year's production at Malthouse 1 being calculated to require 25 acres of barley, with this requirement increasing *pro rata* for each additional malthouse. In addition to locally cultivated crops, it is possible that some grain was also being brought in from other settlements to supplement the local grain supply for the production of malted grain. This may particularly have been the case with rye, which produces poor yields at Sedgeford.

Construction Projects and Human Resources

The large construction projects taking place in Sedgeford during the Middle Anglo-Saxon period, discussed above, would have required resources and a large workforce, as well as a significant amount of time to complete. To get an overall impression of the resources required and the timescales involved, calculations have been carried out based

Activity		Single Malthouse	Malthouse Complex	River Mill
	Clay	c.7m^3 = 12 tonnes	c. 21m^3 = 36 tonnes	N/A
	Timber	c. 8m^3	c. 24m^3	c. 7m^3
	Time	4 men 4 weeks	4 men 12 weeks	4 men 4 weeks
	Time	6 men 6 weeks	6 men 18 weeks	4 men 9 weeks
	Excavate earth (ditches or ponds)		c. 105m^3 = 180 tonnes	c. 350m^3 = 600 tonnes
	Time		6 men 1 week	5 men 4 weeks

Figure 20. Raw materials required and timescales for creating a single malthouse, the malthouse complex and a single river mill.

on our current understanding of these Middle Anglo-Saxon projects: the lining of the Reeddam, the reinstatement of the canal, the construction of the malthouse complex, and the construction of a water mill. These data regarding work output are based upon present-day calculations made by a Qualified Certified Surveyor, Brian Fraser.

The types of activities and resources needed for each project differed, but in most cases either timber or clay was required. The largest project by far was the construction of the Reeddam, which would have required vast amounts of materials and time to excavate the area and lay the clay to hold the water (Figure 19). This was closely followed by the canal, which required similar skills and materials (Figure 19). The malting complex would have required clay to be laid for the germinating floors and daub to be mixed to construct the tank and kiln, as well as the construction of timber buildings (Figure 20). A watermill would have been predominately timber built, however the necessary changes to the watercourse would have required significant labour (Figure 20). The combined amount of materials and worker-hours for these projects are detailed in Table 2.

Regarding resources, in making these calculations the required quantities of clay, chalk and timber were calculated in cubic metres and in the case of the clay or chalk also in tonnage. However, a certain amount of estimation was required as there is much we don't know about these construction projects, such as how consistently the layers of clay were applied to the Reeddam, whether the canal was a consistent depth and the size of the river mills.

Project	Resources			Excavation (person days)	Construction (person days)	Total (person days)
	Clay (m^3)	Timber (m^3)	Collection (person days)			
Malthouse Complex	21	24	288	36	216	540
Mill	n/a	7	96	120	216	432
Reeddam	9,750	n/a	8,820	n/a	8,460	17,280
Canal	8,050	n/a	1,620	8,400	2,700	12,720
Total	17,821	31	10,824	8,556	11,592	30,972

Table 2. Total quantities of raw materials and timescales required for each project.

Based upon these analyses, it is clear that a large and local source of clay was necessary, although there is no obvious quarry location in the vicinity of Sedgeford. So, in order to make the calculations two possible locations have been assumed, each approximately 0.25km from the site of the work. These sites were originally near ground level and as the chalk was extracted their depth increased. Our calculations allowed for gangs of three people, two working on the face and one loading onto ox-drawn carts, transporting to site and unloading. It is estimated that a person will quarry $1m^3$ in 5 hours, so in a working day they would quarry $1.8m^3$. It is thought likely that each cart had a capacity of *c.* $2m^3$ and could complete eight round trips per day.

Regarding work-rates, these totals are roughly based on the current known output for a modern labourer. They include some allowance for variance in working conditions, such as weather, landscape and local geology, as well as more general considerations, such as sourcing raw materials, access restraints, quarrying depth restrictions and tool breakages. It is also considered that tools used in the past may not have been as efficient as their modern counterparts, for example the modern shovel is specifically shaped to hold material whereas the Anglo-Saxon spade would not hold as much and there would be spillage due to its shape. The working day and week would also have been different and it is assumed that, unlike today, working hours were based on the amount of daylight, which would mean that the average maximum working day would be around 10 hours, but taking into account for breaks it is likely that only a 9-hour day could be achieved. In addition, as the Middle Anglo-Saxon population was clearly Christian, we have assumed that they would work a 6-day week.

As can be seen, the total number of person days required for the completion of these major landscape projects is calculated to be in excess of 30,000 days. If this figure is split between the proposed male population of *c.* 60 individuals at Sedgeford, the work

would take around 511 days, without calculating the time required for the other daily activities required to sustain the settlement. Once completed, the Reeddam and the canal would need constant maintenance involving dredging and securing the banks. In addition, any mills and the malthouse complex would require a regular workforce involved in production, but also needed periodic servicing and repair.

Clearly, these projects would have taken several years to complete, but if women and children were also involved in some of the work, the time taken would have been reduced. Some of the pieces of daub structure from inside the malting kilns had hand prints too small to be those of an adult, suggesting that children assisted with tasks such as mixing and preparing clay or daub. In addition, it is possible that individuals from nearby settlements were also enlisted, which would be another indicator for organisation of the wider landscape.

Conclusion

There are several important factors that influenced where a settlement was sited in the landscape: geology, a reliable water supply, well-draining land which could be tilled easily and had reasonable soil fertility, as well as equable local climate (Williamson 2013). There is extensive evidence in Sedgeford for intensive use of the land in the Iron Age and Romano-British periods, and subsequently in the Anglo-Saxon period (Faulkner *et al.* 2014). Sedgeford also enjoyed good long-distance, land-transport links as well as inland waterways and the sea, all of which made it a particularly desirable place to settle.

The large number of construction projects and the planned layout of the settlement all point to some form of organisation in the Anglo-Saxon period. Although the cemetery suggests that there was a population of around 280 people, the workforce must also have relied on labour arriving from outside the settlement. The engineering of the Reeddam, re-establishment of the canal and the digging of boundary/drainage ditches later in the Middle Anglo-Saxon period is suggestive of a community being organised and planned by an authority with the power and skills so to do. The technical knowledge needed to construct the malthouses is powerful evidence that skills beyond those of local people were imported into the area. Other technological advances, such as the mouldboard plough, improved agricultural productivity. This would necessitate the sharing of resources, ploughs and plough-teams, and it has been suggested that this collective need further encouraged nucleated instead of dispersed settlements.

The reconstruction and maintenance of the canal permitted navigation up and down the valley, unimpeded by mills and weirs and also by-passed the unnavigable stone outcrop and rapids at Clowson Bridge. This, along with the construction of the Reeddam and changes to the river, created a transport system which is likely to have integrated with the Peddars Way and Icknield Way. This new network would allow for

goods, including malted grain, to be more easily transported to and from Sedgeford, significant factors in explaining why Sedgeford was chosen as the site of such an important complex. We know that during the medieval period Heacham traded as a port for both coastal shipping and also trade across the North Sea to and from Scandinavia and the Low Countries (Beauroy 1984). The Reeddam in Sedgeford and Fring Harbour are proposed as places where inland watercraft could load and unload goods that were transported along the canal to and from the sea.

Throughout this period major construction projects were taking place elsewhere. For example, the construction of the Devil's Dyke, running for 11km between the fen edge and the chalk uplands south of Newmarket, demonstrated that labour, resources and engineering skills could be brought together for major construction works within the kingdom of East Anglia. It is likely that the activity seen at Sedgeford was led by a ruling elite, presumably working closely with the Church, drawing upon technical knowledge from the late classical world and from mainland Europe, and driving forward the wider changes seen in the landscape of the 'long 8th century'. These themes and their implications are discussed further by Faulkner later in this volume.

Acknowledgements

The authors would like to thank all those that have contributed to this paper, including the many volunteers and supervisors who have worked on the sites mentioned. We would particularly like to thank Perry Gardner for arranging the loan of and operating the auger and the Department of Archaeology at Durham University for their kind loan of the auger used during the 2018 and 2019 seasons. Thanks are also due to Phil Hill for measuring phosphate levels in samples taken from the Reeddam. Finally, SHARP is also grateful to Andrew and Katherine Ramsay of West Hall, the Ken Hill Estate and the Sedgeford Hall Estate for permission to work on their land.

References

Banham, D. and R. Faith. 2014. *Anglo-Saxon Farms and Farming*. Oxford: Oxford University Press.

Beauroy, J. 1984. Social roles and status of women a Norfolk small market town, Heacham, 1276–1324, in C. Higounet (ed.) *Les communautés villageoises: En Europe occidentale, du Moyen Âge aux Temps modernes*: 237–44. Toulouse: Presses universitaires du Midi, Comité départemental du tourisme du Gers.

Blair, J. (ed.) 2007. *Waterways and Canal-Building in Medieval England*. Oxford: Oxford University Press.

Blair, J. 2018. *Building Anglo-Saxon England*. Princeton: Princeton University Press.

Blair, J., S. Rippon and C. Smart. 2020. *Planning in the Early Medieval Landscape*. Liverpool: Liverpool University Press.

Blinkhorn, P. 2012. *The Ipswich Ware Project: Ceramics, Trade and Society in Middle Saxon England*. London: Medieval Pottery Research Group.

Bond, J. 2007. Canal Construction in the Early Middle Ages: An Introductory review, in J. Blair (ed.) *Waterways and Canal-Building in Medieval England*: 153–206. Oxford: Oxford University Press.

Broadberry, S., B. Campbell and B. van Leeuwen. 2008. *English Agricultural Output, 1250–1450: Some Preliminary Estimates*. https://www.basvanleeuwen.net/bestanden/agricenglandpre1500.pdf

Calow, S. 2002. The Reeddam II Evaluation Trench 2001 and 2002. *SHARP Interim Report 2002*.

Campbell, B. 2000. *English Seigneurial Agriculture 1240–1400*. Cambridge: Cambridge University Press.

Cole, A. 2007. The Place-Name Evidence for Water Transport in Early Medieval England, in J. Blair (ed.) *Waterways and Canal-Building in Medieval England:* 55–84. Oxford: OUP.

Craddock, P.T., D. Gurney, F. Pryor and M. Hughes. 1985. The Application of Phosphate Analysis to the Location and Interpretation of Archaeological Sites. *Archaeological Journal* 142: 361–76.

Dyer, C. 1988. Changes in diet in the late Middle Ages: the case of the harvest workers. *Agricultural History Review* 36(1): 21–37.

Faulkner, N. and E. Blakelock. 2020. The Excavation of a Mid Anglo-Saxon malthouse at Sedgeford, Norfolk: An interim report. *Anglo-Saxon Studies in Archaeology and History* 22: 68–95.

Faulkner, N., K. Robinson and G. Rossin. 2014. *Digging Sedgeford: A People's Archaeology*. Cromer: Poppyland Press.

Hammond, J. and S. Barnett. 1996. From Fring to Heacham: the exploitation of a small medieval waterway. *SHARP Interim Report 1996*.

Hollinrake, C. and N. Hollinrake. 2007. Glastonbury's Anglo-Saxon Canal and Dunstan's Dyke, in J. Blair (ed.) *Waterways and Canal-Building in Medieval England*: 235–43. Oxford: Oxford University Press.

Lewton-Brain, C.H. 1967. *The Archaeology of Heacham and the Adjoining Areas*. King's Lynn: East Midland Printing Company Ltd.

McClosky, D. and J. Nash. 1984. Corn at interest: the extent and cost of grain storage in medieval England. *American Economic Review* 74: 174–87.

McKerracher, M. 2019. *Anglo-Saxon Crops and Weeds: A Case Study in Quantitative Archaeobotany*. Oxford: Archaeopress.

Rahtz, P. and R. Meeson. 1992. *An Anglo-Saxon watermill at Tamworth*. London: Council for British Archaeology.

Slavin, P. 2008. Feeding the Brethren: Grain Provisioning of Norwich Cathedral Priory 1280–1370. Unpublished PhD dissertation, University of Toronto.

Thomas, G. 1996. Report of test pits dug in the Reeddam at Sedgeford. *SHARP Interim Report 1996*.

Wickander, O. 1985. Archaeological Evidence for Early Water Mills: An Interim Report. *History of Technology* 10: 151–79.

Williamson, T. 2013. *Environment, Society and Landscape in Early Medieval England: Time and Topography*. Woodbridge: Boydell Press.

Windell, D., A. Chapman and J. Woodiwiss. 1990. *From Barrows to Bypass*. Northampton: Northamptonshire County Council.

Wood, M. 1986. *Domesday: A Search for the Roots of England*. London: BBC Books.

Yaxley, D. 1988. *The Prior's Manor Houses: Inventories of eleven manor houses of the Prior of Norwich made in the year 1352 AD*. Dereham: Lark's Press.

Part II: Anglo-Saxon East Anglia

West Norfolk in the Middle Anglo-Saxon Period: 25 Years of Changing Approaches and Perceptions

Gareth Davies

Abstract

Detailed investigation of settlement sequences is now revealing evidence for contrasting lifestyles in the rural landscape of Middle Anglo-Saxon west Norfolk, which may be a factor contributing to the region remaining unurbanised well into the 11th century. This paper provides an overview of changing interpretative methods utilised to understand Anglo-Saxon rural settlements over the last 25 years, seen through the lens of Sedgeford. After highlighting some preferred explanatory models for understanding the organisation of rural settlements between AD 650 and AD 850, the paper sets out the wider evidence for settlement in West Norfolk, based on the author's own research. A key theme is the important contrasts in the type of questions and answers that archaeologists can achieve when working at the spatial scale of the individual site on the one hand and wider landscapes on the other. After considering the evidence for Middle Anglo-Saxon settlement at a landscape scale, the detailed observations derived from systematic survey and targeted excavation at some important west Norfolk sites, like Sedgeford, are presented and future research directions suggested. The paper concludes by highlighting that our new-found and welcome focus on the importance of agricultural production at inland estate centres should not come at the expense of an appreciation of the diversity and complexity of non-agriculturally focussed tiers of society, including merchants, specialised producers and free proprietors, particularly those living and operating in coastal zones.

Introduction

I first came to Sedgeford as an undergraduate in 1998 and stayed as an active researcher with SHARP until 2008. In many ways, my own interests have developed out of trying to understand Sedgeford, so I was very pleased to be asked to draw my experience together for SHARP's 25th anniversary.

I want to start by looking at changing interpretative methods for Anglo-Saxon rural settlements used over the last 25 years. Then I will set out some ideas generated by my own research, and highlight what have become my own preferred models for the organisation of rural settlements *c.* AD 650–850. My explanatory models place more emphasis on the evidence for trade and/or exchange as a driver for settlement evolution than is *de rigeur* in those models focussing on the role of agriculture (e.g. McKerracher 2018), but I also place less emphasis on the strict control of rural society by 'landed elites', such as in the model presented by Faulkner in this volume.

A challenge at all times is one of scale, with some archaeologists working on the individual site and others on wider landscapes. I hope to show that this necessarily affects what questions they can answer, and that for a meaningful 'answer' they must be combined. So, after considering the evidence for Middle Anglo-Saxon settlement at a landscape scale, I will return to detailed observations derived from systematic survey and targeted excavation. I believe that this reveals a variety of contrasting

lifestyles in Middle Anglo-Saxon West Norfolk, and that this variety may be a factor in the region remaining unurbanised well into the 11th century (Davies 2010). I conclude by highlighting my concern that the new focus on agricultural production, whilst welcome, should not come at the expense of an appreciation of the diversity and complexity of society visible in the archaeological record.

Sedgeford in the 1990s: The Weaknesses of Single-Site Interpretation

In the early years, SHARP – by consciously rejecting a rigid project design – took a 'site-centred' approach to research, focusing on obtaining a detailed understanding of Sedgeford's Middle to Late Anglo-Saxon settlement and cemetery by archaeological excavation and on narrating an observed shift in the settlement, from south to north of the River Heacham, presumed to have happened in the 11th century (Faulkner *et al.* 2014: 1).

This approach dictated the questions we could ask of the site and that generated a number of problems. We uncovered evidence for habitation (post-hole buildings) adjacent to an extensive Middle to Late Anglo-Saxon Christian cemetery, but also tentative evidence for trade and exchange in the form of 8th-century *sceatta* coinage and a penny of Eadwald (AD 796–8). We also revealed evidence for literacy, in the form of at least two styli (Davies 2000: 7). In the 1990s, the presence of styli at Middle Anglo-Saxon rural sites was still usually regarded as indicating a monastic site. However, taken with the other evidence, was the site best interpreted as being ecclesiastical or secular? It wasn't until a little later that scholars started talking about lay literacy and secular 'tally-keeping' as a way of resolving increasing numbers of this kind of find (Pestell 2004). This left us uncertain as to which narratives to emphasise.

Our challenges were compounded by a lack of comparative data. Founding traditions in medieval archaeology – where history overwhelmingly informed the interpretation of excavation, such as at the Northumbrian sites named by Bede, the monasteries at Jarrow and Monkwearmouth, or Yeavering (*Ad Gefrin*) (Cramp 2005; Hope-Taylor 1977) – created expectations on the part of excavators of what, for example, a 'typical' royal site might look like, i.e. like Yeavering. This left scholars struggling when undocumented sites produced abundant artefactual evidence (Blair 1996a: 97–121; Blair 1996b: 6–18). These seemed to be indicative of individuals with high social standing and *both* ecclesiastical and secular traits, who are hard to identify in the historical sources (Loveluck 2007a: 153–6). This approach also largely ignored regional distinctiveness, especially in those areas lacking in contemporary documents, such as materially wealthy, but documentarily poor East Anglia.

Commercial archaeology was also really just getting going in the mid-1990s and the excavation of Middle Anglo-Saxon settlements was still incredibly rare. This meant that any rural site that was materially wealthy appeared, quite artificially, to be 'high status'. This status inflation has, of course, been rebalanced in recent years. A number

of settlements with 7th-century origins and a range of material-culture profiles have now been excavated in East Anglia, such as at Carlton Colville, Suffolk (Lucy, Tipper and Dickens 2009), so that Sedgeford now appears at neither the top nor the bottom of the settlement hierarchy.

When SHARP did try to work at a landscape scale, our early theoretical models were based on the development of the later medieval village. The study of medieval villages is a sub-discipline with a long tradition, including in Norfolk, where Peter Wade-Martins had investigated deserted medieval villages (DMVs) and their origins from the 1960s (Wade-Martins 2017: 15–30). This influence can be seen quite strongly in an article written by the team for *Current Archaeology* in 2000, which used the well-established vocabulary of feudal models: 'peasant', 'village' and 'lord of the manor' (SHARP 2000: 122–6). The applicability of such terms in the Anglo-Saxon period is highly questionable, and it is now considered that they mask complexities evident in the archaeological record and present a barrier to rigorous interrogation of the material remains (Whyman 2002: 92–4).

Other theoretical influences were derived from processual models of the 'Middle Saxon Shuffle' (Arnold and Wardle 1981). This hypothesised that dispersed settlements on easily tilled soils, with no clear evidence for social differentiation – the classic type-site being Mucking, Essex (Hamerow 1993) – were replaced by *de novo* nucleated Middle Anglo-Saxon settlements, on heavier soils, often on the grounds of innovation in agricultural technologies, such as the introduction of the mouldboard plough. This is an argument that has more recently come full circle (Banham and Faith 2014: 50–7; Thomas *et al.* 2016).

However much these models of settlement shift were oversimplified, there clearly *were* observable changes taking place in many rural settlements by the 7th century. Sometimes, these included the installation of very large timber buildings (Hamerow 2010) and, importantly, new ditched boundaries and enclosures, perhaps reflective of the establishment of new forms of social relationship (Reynolds 2003: 130). These transformations still needed to be explained.

What Were Others Thinking? The Context in the Discipline

The late 1990s: Moving Beyond the Emporia

At the end of the 1990s, one of the most popular interpretative frameworks was that launched by Richard Hodges in his seminal book *Dark Age Economics* (1982). The central tenet of Hodges' work was that royal elites were the main driver of settlement transformation, achieved by control of trade and exchange of 'luxury goods' (Hodges 1982: 197). This model proposed that trade was monopolised at gateway settlements, which he called *emporia*. In East Anglia, the acknowledged *emporium* was Ipswich and the presence of coinage and diagnostic wheel-thrown pottery, Ipswich ware, found

outside Ipswich, such as at Sedgeford, was seen in terms of 'percolation' to lower order (producer) sites (Wade 1988). This percolation was explained as more evidence of highly structured relationships of elite taxation and 'food rent' (Hutcheson 2006; cf. Blinkhorn 1999).

As with the 'Middle Saxon Shuffle', the control of trade and exchange by royal elites was easier to argue when there was less data from rural sites. Where regional surveys had been undertaken, for example the East Anglia Kingdom Survey in south-east Suffolk, even though new Middle Anglo-Saxon sites had been identified, interpretation of their status and function was not really emphasised (Newman 1992; 1994).

The *Emporia* model, with peripheral rural zones, has now been significantly challenged. Nationally, scholars were starting to recognise numerous rural sites 'beyond the *emporia*', often discovered through the use of metal-detectors (Anderton 1999; Ulmschneider 2000; Naylor 2004). These new rural sites were frequently labelled 'productive sites', initially because they simply produced a lot of surface finds when surveyed with a metal-detector. At this time, the common characteristics of 'productive sites' were usually emphasised, including large quantities of non-ferrous metalwork and coins from the 8th to 9th centuries, as well as their riverine and elevated topographic settings. These 'productive sites' were often interpreted as the locations of markets or temporary fairs (Pestell and Ulmschnieder 2003: 2).

Norfolk was very much at the forefront of the discovery of 'productive sites', largely thanks to regional archaeologists like Andrew Rogerson and Tony Gregory, who saw the benefit of fostering positive relationships with metal-detectorists in order to get finds reported (Rogerson 2017). One of the first articles to discuss 'productive sites', placed them in a hierarchy of other site types such as 'monasteries' and 'cemeteries' (Andrews 1992). By the 2000s, positive relations had resulted in the reporting and recording of hundreds of Middle Anglo-Saxon metal finds in West Norfolk (Rogerson 2003: 110–21). The fruits of this work can be seen in the excellent and extensive distribution maps in the updated version of the *Historical Atlas of Norfolk* published in 2005 (Rogerson 2005: 32–3). Surely all of the sites apparently represented by these findspots could not be operating under direct royal control?

Although we were now blessed with a heavily occupied rural landscape, we only really understood these sites in a superficial way. The uncritical use of the 'productive site' label was soon challenged as masking the complexities of the rural settlement evidence. Scholars such as Julian D. Richards went as far as saying that this group of sites really just reflected a method of recovery (metal-detecting) and was not a coherent class of site (Richards 1999). In 2003, an important volume, *Markets in Early Medieval Europe*, discussed and interrogated the 'productive sites' issue in detail (Pestell and Ulmschneider 2003), but anachronistic applications of the label still occurred afterwards.

The 2000s: Developing Approaches

The awkwardness of the 'productive site' label is apparent in an article on Sedgeford I co-authored in 2004, based on a paper given to the 2001 Society for Medieval Archaeology conference *Land, Sea and Home* (Cabot, *et al.* 2004). Caught up in the relativist labelling of Sedgeford as a 'productive site', we tried to place it on a similar footing to the undocumented (and at that time unpublished) site at Brandon (Suffolk), which had produced styli, the remains of a timber church and an inscribed gold plaque, and was considered to probably be monastic (Carr *et al.* 1988: Tester *et al.* 2014), and the excavated high-status site at Flixborough, Humberside (Loveluck 1998). With hindsight, this was clearly unjustified, but we were caught in a trap where sites which appeared materially rich, in terms of quantity of recovered artefacts, were automatically labelled 'high status' or 'productive' without any real, individual, characterisation. We clearly needed alternative, more detailed, approaches to understanding this new abundance of materially wealthy rural sites.

By 2007, when the final volume of the Flixborough settlement project was published by Chris Loveluck, superficial approaches to site interpretation were being significantly challenged by a new analytical approach (Loveluck 2007b). At Flixborough, an exceptional rural settlement sequence spanning the Middle Anglo-Saxon period had been identified and excavated. The site, preserved in a small valley filled by wind-blown sand, had vertical stratigraphy of a quality only usually found in urban centres. Meticulous analysis of the 'material culture profile' (combined material classes) from the superimposed stratigraphic phases allowed for changing patterns of production and consumption to drive the narrative of the site, and move beyond the snapshot labels of 'monastery' or 'manor' and the anachronistic labels of 'high-status or 'productive site'. Instead, Loveluck painted a picture of a dynamic settlement sequence, where the character of the site changed over time, from a secular aristocratic consumer centre of the 7th/8th centuries, to a monastic settlement rooted in wool production during the 8th/9th centuries, and back to a secular site, perhaps a thegnly residence, in the 10th/11th centuries (Loveluck 2007b).

Taking these lessons to heart at Sedgeford, we realised that we needed to investigate the observed settlement sequence as fully as possible if we were to move beyond simple labelling and try to narrate such change over time, if it existed. We also realised that we could only understand the significance of Sedgeford, and characterise any elite group(s) who administered it, if we placed it in the wider context of the West Norfolk settlement hierarchy, despite the challenges of the available data (Davies 2002).

In 2006, I was fortunate enough to receive funding to undertake a PhD at the University of Nottingham. My research attempted to address the same issues by undertaking detailed (and comparable) field surveys at West Norfolk 'productive sites', with Sedgeford included as a comparative case-study in which the excavated

evidence could add precision to the 'fuzzier' observations derived from fieldwalking. In this way I wanted examine how 'exceptional' or otherwise individual sites like Sedgeford might be. This, of course, first required an assessment of the wider baseline data. Some of my results are summarised below (see Davies 2010 and 2011 for more detail).

The 2010s: New Models and New Approaches

The last ten years have seen much new thinking on the issue of the economy of early medieval Europe and social roles in relation to resource control, trade and exchange. Scholars have renewed interest in whether rural populations, rather than elites, triggered economic growth (Theuws, in preparation). This 'bottom-up' approach rests, to an extent, on archaeologists' ability to identify and characterise the 'material signature' of different emerging social groups at settlement sites. These are not just documented ecclesiastical and secular elites, but the more elusive strata often ignored by history, such as merchants/traders, the 'freemen' of Domesday Book and those tied to obligation, who were labelled peasants by the Normans (Loveluck 2013).

How did these different actors contribute to the evolution of early medieval settlement character? Coastal zones, such as West Norfolk, are increasingly seen as arenas for the negotiation of such identities (Loveluck and Tys 2006). Take, for example, imported pottery in West Norfolk, the presence of which suggests that coastal societies, with ready access to non-local goods, may have inhabited very different worlds to their inland neighbours (Loveluck 2013).

Another emerging theme during the last decade has been the recognition of polyfocal sites, which can be seen almost as an 'ecosystem' or a mini settlement hierarchy in their own right. In such models, there may be an allowance for interdependent settlement foci, elite controlled and otherwise, in the same vicinity. Where successful, this approach can produce an 'archaeological microhistory' (Davies 2017: 5). Here, description and synthesis are not restricted to one area of excavation and disconnected bits of specific information, but instead utilise all the available archaeological, documentary and cartographic evidence (Davies 2017: 4–5). Gabor Thomas, for example, has revealed a polyfocal settlement with a diverse settlement history at Lyminge (Kent), where ecclesiastical and secular influence took primacy at different times. In this case, an important royal settlement to the north preceded the foundation of a monastic site immediately to the south (Thomas 2013). Chris Scull's work at the 5th- to 7th-century royal site at Rendlesham (Suffolk) has used interpreted survey results (geophysics, metal-detecting, fieldwalking and trial excavation) over an area of 150 hectares to paint a convincing picture of an elite residence with associated metalworking and middens, positioned adjacent to a settlement with its own cemeteries, in between areas reserved for transactions and assemblies (Scull *et al.* 2016).

Yet this work is still mainly focussed on *elites*. What of the agricultural and industrial producers? How did they interact in landscapes and settlements? Were they initially free or were their activities carried out under strict elite control from the outset? Work by Verhulst (2002) on the documented Carolingian economy has demonstrated that there may have been a range of options for craft specialists, in relation to distribution of their products. In some instances, even if they were tenants of an estate, they may also have been able to engage in taxed and/or obligation-free transactions (Verhulst 2002: 74–8). A good example of this is the recognition of specialist production undertaken by an itinerant 'outsider', as reflected by the grave of the 9th-century 'Tattershall Smith' and his ironworking tools (Loveluck 2013). This case-study demonstrates that individuals and groups may have sometimes had the ability to change their role(s) during their life, or even on a seasonal basis, from farmer to smith to trader.

The above approaches, whilst exciting, have perhaps not yet been fully realised. They have also not been without criticism. Richard Hodges himself has noted that in an attempt to escape a historically-led narrative and focus on the diversity of the material culture, this approach has retreated into some common, historically derived, macro-economic narratives, for instance concerning the rise and fall of the Carolingians (Hodges 2014: 996–7). Could such analytical approaches nevertheless be usefully applied to a case-study like West Norfolk?

The Regional Evidence: West Norfolk in the Middle Anglo-Saxon Period

In West Norfolk, many years of detailed work by regional archaeologists, documented in the Norfolk Historic Environment Record, have built up considerable data for settlements and findspots. A drawback of working at this scale is the uncertainty of the context of individual finds, many of which derive from ploughsoil and cannot be used precisely to characterise sites. Nevertheless, some interesting patterns are evident.

Early Anglo-Saxon (c. AD 450–650/720)

Figure 1 shows Early Anglo-Saxon ceramic findspots plotted against Middle Anglo-Saxon ones. Early Anglo-Saxon pottery is generally indicative of cemeteries, but also sometimes buried settlements, such as at Congham and Snettisham (Davies 2010; Leah and Flitcroft 1993). The distribution can therefore be taken to broadly indicate areas inhabited, if not the actual settlements themselves. Notable concentrations of this material can be seen at the north–south interface between the greensand ridge, facing the fen-edge, and the chalk upland to the east. This central belt also contains the north–south routes, historically labelled the Icknield Way, but generally now regarded more as a communication corridor, which seem to persist from the Iron Age onwards (Gregory 1982). The long, thin, east–west-oriented parishes visible here bisect the topography, taking in a number of landscape zones, and these territorial units may have been laid out as early as the Roman period (Rogerson pers. comm.).

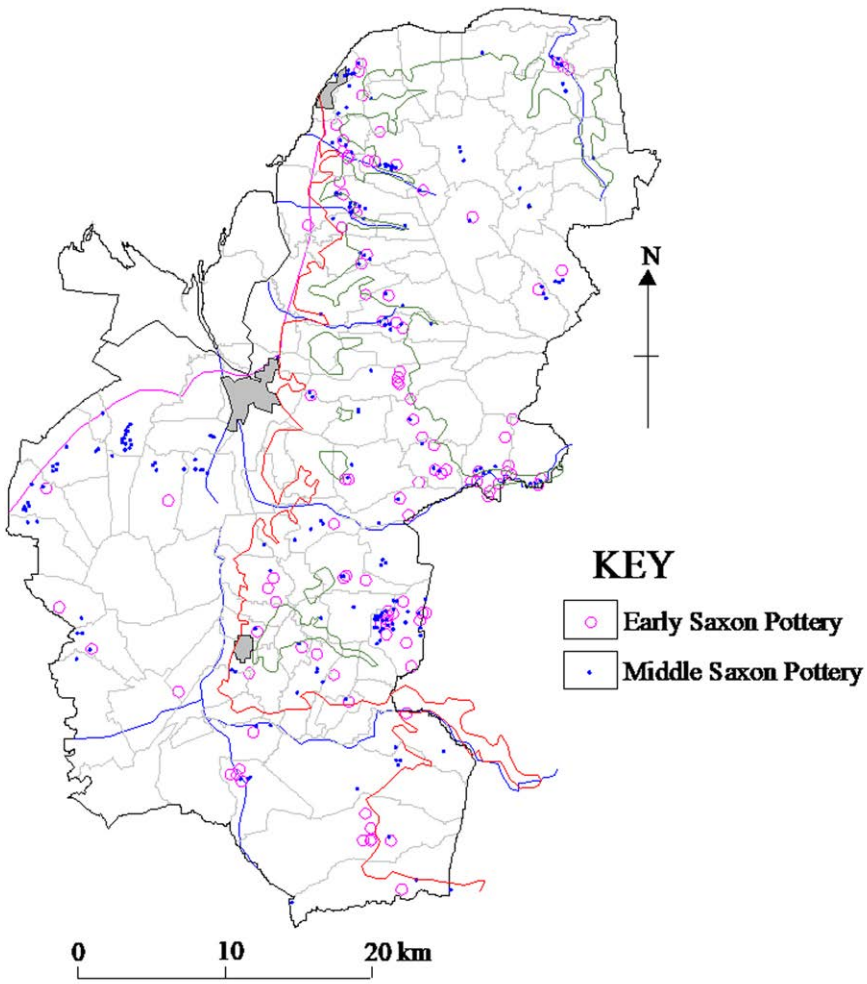


Figure 1. West Norfolk showing findspots of Early and Middle Anglo-Saxon pottery. Key: Blue = Rivers; Pink = Saxon Coast (5m contour); Grey= Parish Boundaries; Red = Modern Fen Edge; Green = Land over 33m AoD).

Middle Anglo-Saxon (c. AD 720–850)

Middle Anglo-Saxon pottery finds, dominated by Ipswich ware, also concentrate along the edge of the upland. It can be quite convincingly argued that by this time the central belt was the location of multiple well-established inland settlements, which we might label as 'rural centres' (Davies 2010) or 'estate centres' (Hamerow 2002). These sites were well positioned to take advantage of a wide range of landscape zones and pre-existing communication routes (Figure 2).

Other notable concentrations of Middle Anglo-Saxon finds, again dominated by Ipswich ware, include a collection of sites further west, in the low-lying marshland

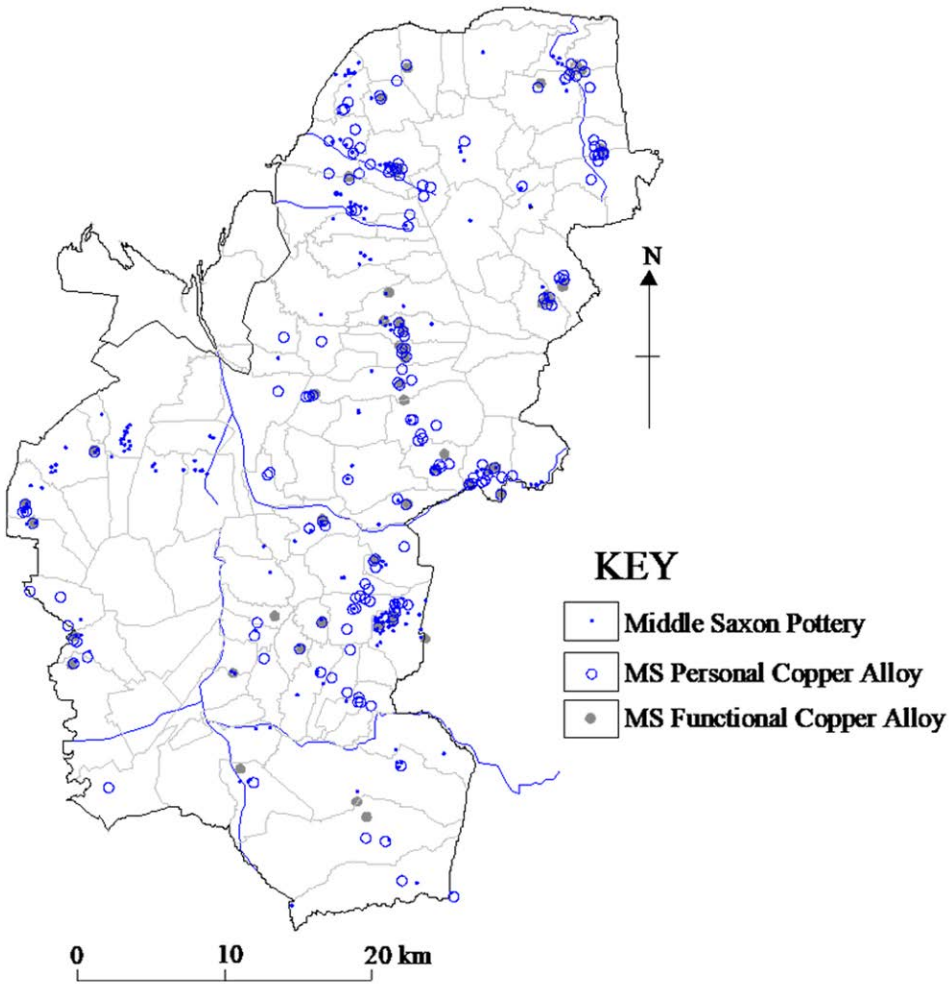


Figure 2. West Norfolk showing findspots of Middle Anglo-Saxon pottery and personal and functional copper-alloy artefacts.

fen-edge. These sites may be slightly overrepresented, because they were subject to systematic fieldwalking during the Fenland Survey (Silvester 1988). This type of recovery bias is also apparent at Barton Bendish, where comprehensive survey of the parish has overemphasised the density of settlement evidence considerably (Rogerson 1999). However, as 'pioneer' sites, i.e. with no Early Anglo-Saxon precedents, the marshland sites still require explanation. Why were new landscape zones, on heavy soils and in waterlogged areas, now being exploited and what types of settlement do they represent?

Smaller, but similar, concentrations can be observed around the north coast, in the area of the Burnhams, and possibly also at the southern tip of the greensand, in the

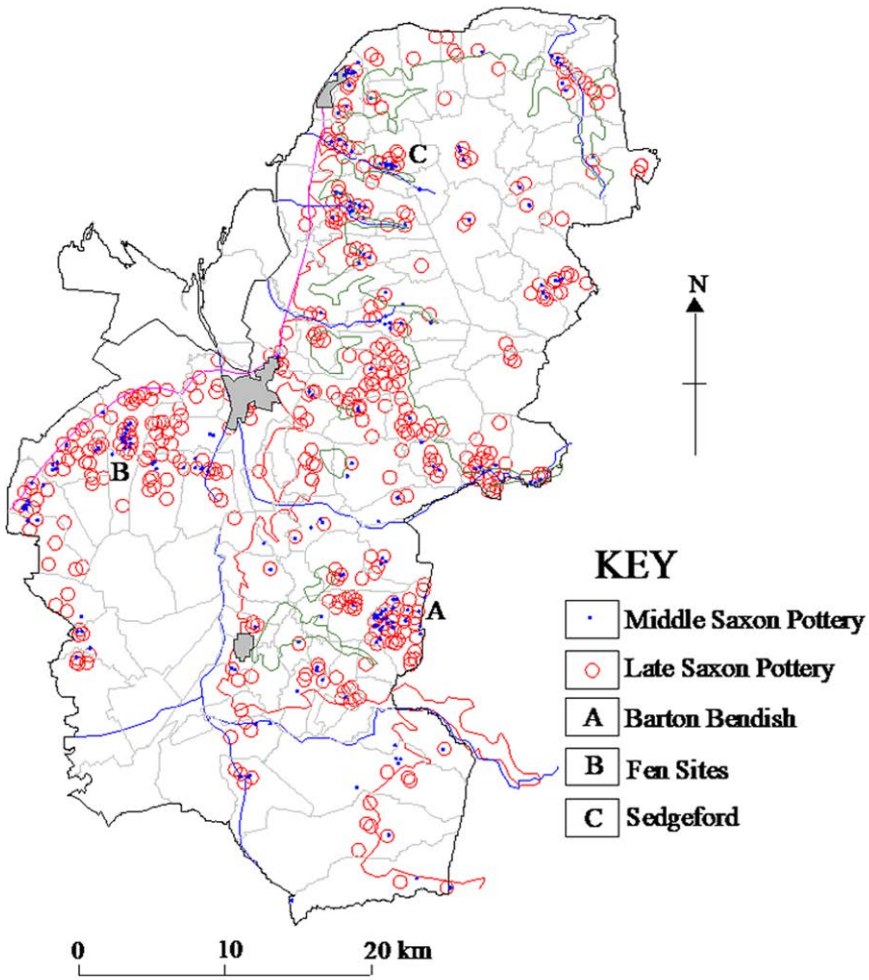


Figure 3. West Norfolk showing findspots of Middle and Late Anglo-Saxon pottery. Note: A to C denote areas of systematic field-survey.

Pentney–Narford–Gayton area. Both areas have easy access to watercourses and sit at the interface of different landscape zones.

Late Anglo-Saxon (c. AD 850+)

Late Anglo-Saxon finds are dominated by Thetford-type wares, generally dated to the 9th to 11th centuries (Figure 3). The overall distribution is similar to that of the Middle Anglo-Saxon finds, but with a general feel of expansion and consolidation, which might, as at Sedgeford, also demonstrate shifts in settlement location. There is an expansion of agricultural land, characterised by the first finds seen on the Chalk upland interior, towards the north coast.

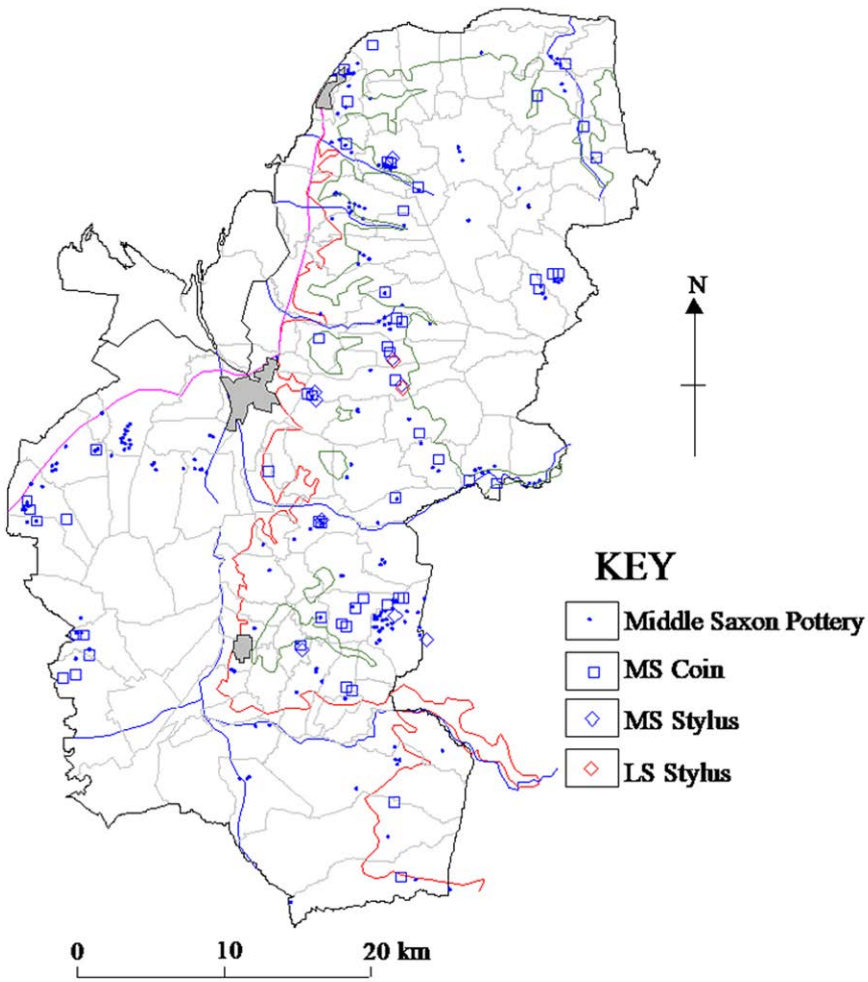


Figure 4. West Norfolk showing findspots of Middle Anglo-Saxon pottery, coinage and Middle to Late Anglo-Saxon styli.

Status, Trade and Exchange in the Landscape

Moving beyond simply locating settlements, towards differentiating site status, character and function is more difficult. If, for example, we plot all copper-alloy finds, including personal items, such as dress accessories, and functional objects, such as coins, ingots or balance scales, we still see quite a wide distribution, albeit with more loss in the 'estate centre' and less in the marshland (Figure 2). This approach might even be unhelpful, actually masking patterns within individual artefact classes or at individual sites. Take, for example, the case of Middle Anglo-Saxon dress pins: our earlier study of Sedgeford and Wormegay demonstrated that different types of pin might signal different social identities of the wearer or bearer (Davies and Payne 2011).

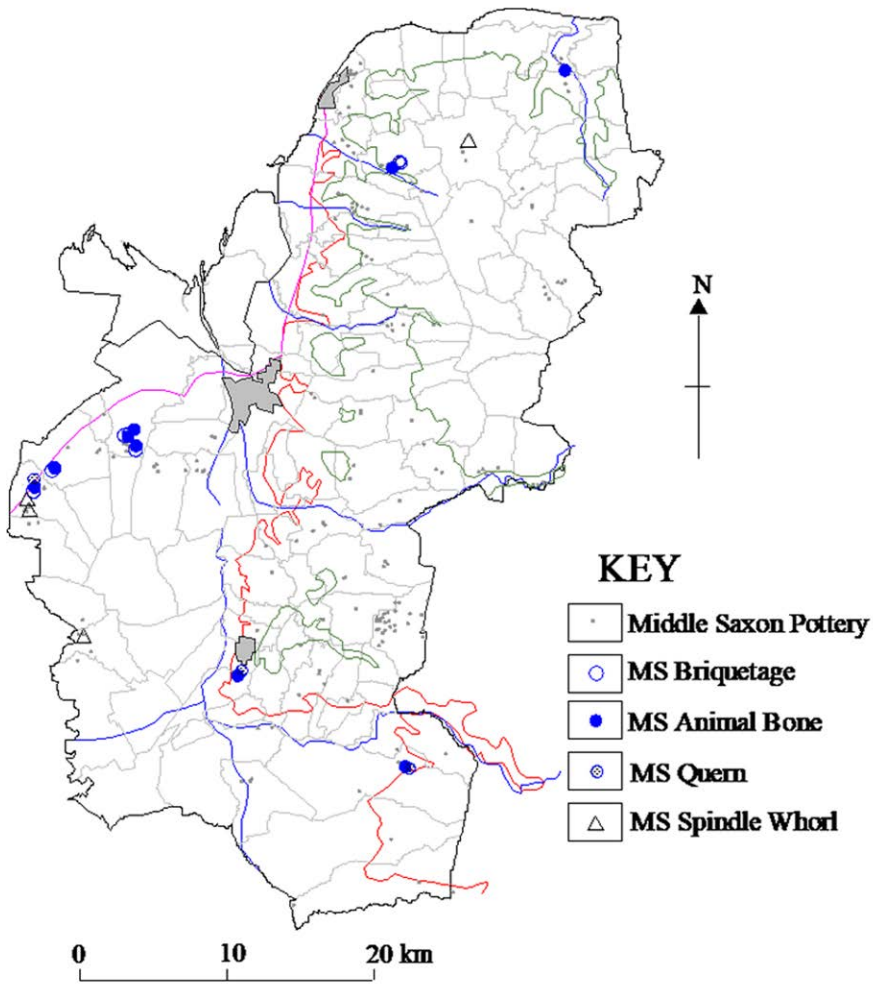


Figure 5. West Norfolk showing findspots of Middle Anglo-Saxon production-related material.

Plotting the distribution of individual artefact classes might be more helpful. If we look at the distribution of styli, for example, an interesting pattern is observable (Figure 4). First, they are reasonably abundant; does this argue against their use being very strictly controlled at ecclesiastical sites? There is also a marked concentration of styli finds along the proposed 'estate centre' corridor, which begs the question of their use in the context of these sites. Interestingly, none appears to have been lost around the Burnhams, despite a notable concentration of coins in this area. At this level of analysis though, it is probably impossible to say whether this pattern is real or just a bias of recovery.

A cautionary point in this regard is the near absence of whole material classes in the HER data, particularly those classes which are readily found during archaeological

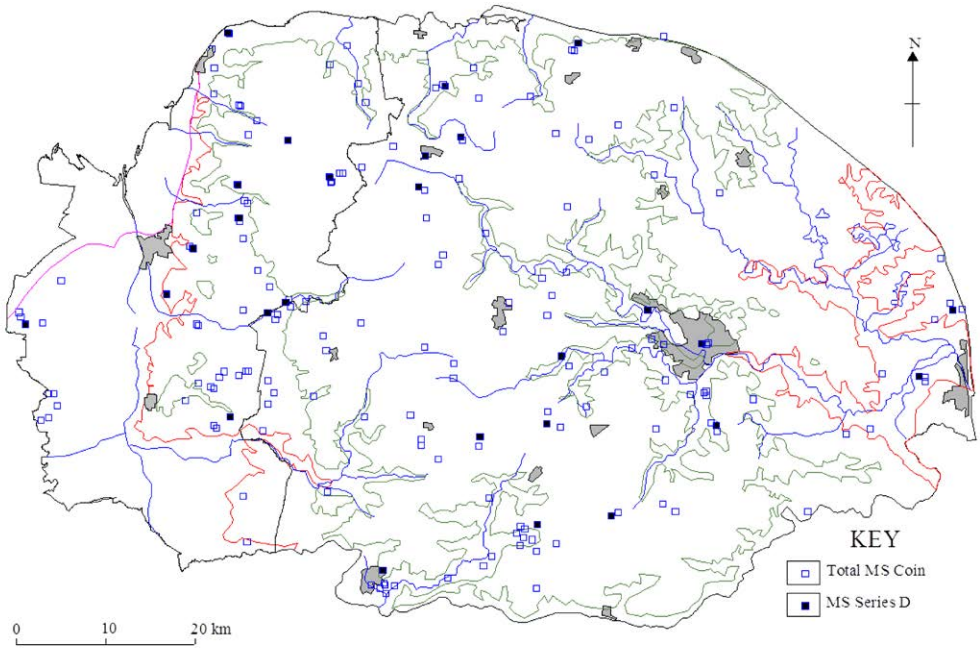


Figure 6. Norfolk showing findspots of Middle Anglo-Saxon coinage and emphasising Series D sceattas.

excavations and are associated with production-related activities (e.g. querns, briquetage related to salt production, animal bone and spindle whorls), but are rarely collected by metal-detectorists. If we compare the relative paucity of such finds with, for example, the widespread 8th-century coin finds recorded in West Norfolk, we can see that the method of recovery has resulted in the over-representation of the coins (Figure 5).

Despite that caution, the amount of coinage, such as the short-lived Frisian D Series *sceattas* (minted AD 700–15) which are concentrated in West Norfolk (Figure 6), seems to indicate regular direct or indirect trade/exchange with parts of mainland Europe at this time. So, the next question is whether all of this was directly controlled by elite groups.

Another particularly interesting distribution can be seen in pottery imported from the Continent. These vessels do not represent bulk exchange, but might represent status items, certainly when they have been transported further inland, such as in the case of silver-foil-decorated Tating ware or, perhaps, the exchange and consumption of exotic products (e.g. wine) in the case of Badorf wares. Although the total assemblage is small, contrasting distributions can be noted. Blackwares from northern France seem to be lost exclusively at the marshland sites or towards the north coast, whilst the Badorf wares are lost along the central corridor, perhaps indicating areas consuming wine (Figure 7; Davies 2013).

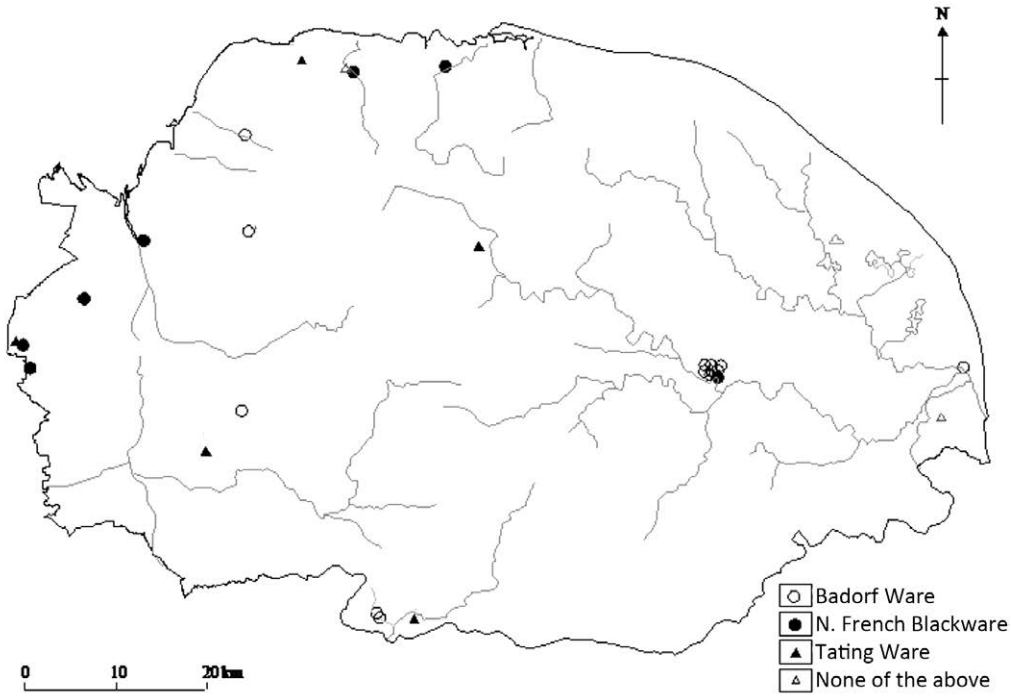


Figure 7. Norfolk showing findspots of imported pottery.

Do these contrasting distributions hint at different exchange networks in West Norfolk, breaking down Hodges' *Emporia* model of exclusive royal control? I have hypothesised elsewhere that the distribution of certain high-status goods, such as wine, might be controlled by the inland estate centres, whilst other items might reflect less regulated exchange at the marshland sites or on the north coast (Davies 2013).

Middle Anglo-Saxon Rural Centres: Diversity, Complexity and Changing Lifestyles

In my doctoral thesis, I looked in more detail at the West Norfolk sites that had been labelled 'productive'. My intention was to examine what was going on at these sites; did they represent settlements, as well as trade and exchange foci? Did they have common characteristics or was a diverse range of sites represented? I investigated my selected sites through a combination of geophysical survey and fieldwalking, systematically plotting existing surface finds and supplementing this with excavated evidence where available in the vicinity.

I have reported on these sites in more detail elsewhere (Davies 2010; 2011; forthcoming), so will not dwell on specifics, other than to say that this approach revealed a wealth of evidence. Behind the 'productive' label was a whole range of settlements, exhibiting a complex array of functional zones, including those relating

to agricultural production as well as trade and exchange, and probably administered by a range of elites. Most importantly, I was able to demonstrate that individual sites changed in character over time, suggesting transformations in the elites who controlled them. These transformations are revealed, as at Flixborough, through the combination of altered morphology, such as changed boundaries, enclosures or waste-disposal practices, and the altered material-culture profile. Crucially, this is something which is virtually invisible at the landscape scale, highlighting the great benefit of detailed single-site analysis.

Bawsey

The Middle Anglo-Saxon site at Bawsey was centred on the parish church of St James, atop a now-dry and isolated gravel island protruding into the fen-edge (Figure 8). The Middle Anglo-Saxon metalwork assemblage from the site is exceptional and there is no doubt that the site was of high status. Previously labelled as a monastic site (Rogerson 2003), investigations by *Time Team Live* in 1998, published by Tim Pestell in 2014, revealed the site to be rather more complex, with additional evidence for trade, exchange and production (Pestell 2014). The location, at the confluence of important maritime and riverine trade networks, on the western edge of the East Anglian kingdom, probably suited it to both a significant economic *and* an ecclesiastical role (Hoggett forthcoming; Pestell 2014; Hutcheson 2006).

It had been suggested, from the coin evidence alone, that Bawsey declined in the 9th century (Blackburn *et al.* 2000). Plotting the previously reported metal-detected finds has, however, demonstrated that a Middle Anglo-Saxon 'waterfront', north of the main enclosure, continued as an area of concentrated metalwork-loss, if not coinage-loss, into the Late Anglo-Saxon period. Indeed, since coin finds of this date are very rare in the region, and viewed in combination with the additional Late Anglo-Saxon finds, the presence of even a small amount of 9th-century coinage may be enough to denote the continued significance of this site (Davies 2010: 98). It has also been suggested that a main enclosure boundary to the south was dug as a defensive ditch as late as the 10th century (Hutcheson 2006: 103).

Burnham

The Middle Anglo-Saxon site at Burnham Market, which is located towards the middle of the nine Burnham-named parishes on the north Norfolk coast, has produced an important group of surface finds (Figure 9). The 'productive site' has previously been interpreted as a possible *emporium* or minor *wic*, which never fully developed as an urban centre (Rogerson 2003). The site lies either side of Goose Beck, an east–west inland tributary to the north–south River Burn. It has been postulated that this site may the royal *vill* of Bruna, referred to in the 12th-century chronicle of Bury St Edmunds (Pestell 2003).

Figure 8. Bawsey. Top: The site showing geophysical anomalies (Pestell 2014) and Middle Anglo-Saxon metal finds; Bottom: The site showing Late Anglo-Saxon metal finds.

Systematic survey, including geophysics, fieldwalking and plotting of metal-detector finds, revealed a complex morphology and sequence of artefact-loss, with strong contrasts between two settlement areas, located north and south of the beck. To the north, geophysical survey suggested that at one stage this settlement may have been planned on a rectilinear grid (as at Sedgeford) and perhaps had a waterfront (Godwin, unpublished). Here, abundant Middle Anglo-Saxon metal finds with a heavy coinage presence, but almost no functional objects had diminished to an occasional metal object by the Late Anglo-Saxon period. By contrast, south of the beck, the geophysical anomalies were restricted to one major enclosure, not unlike Sedgeford's 'D-shaped enclosure' (Faulkner *et al.* 2014: 80–1) and a drove-way. Middle Anglo-Saxon metal finds

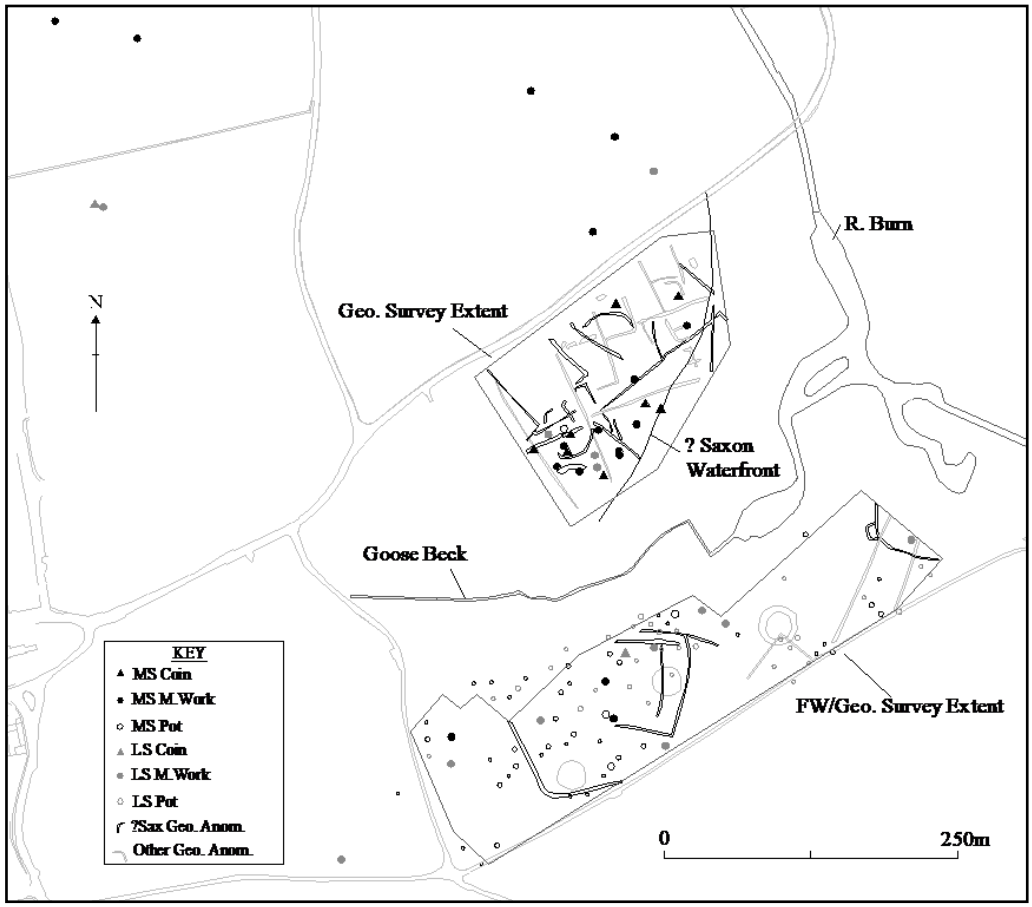


Figure 9. Surveyed areas at Burnham, showing interpreted geophysical anomalies (Geo. Anom.) and Early and Middle Anglo-Saxon surface finds of pottery, metalwork and coinage by period.

were extremely infrequent, but Late Anglo-Saxon metal finds, almost exclusively 10th century, were abundant, with a number of Scandinavian-influenced objects providing glimpses of transforming social identities at the site. Again, this transformation through time and zonation in space could only be revealed by detailed observations made during systematic survey.

Wormegay

The enigmatic 'productive site' at Wormegay is located on a now-dry silt island on the peat fen-edge and lies to the north and east of the isolated church of St Michael (Figure 10). Previous discussions have cited the short-lived sequence (ceramic finds are almost exclusively Ipswich ware) and topography of the site as evidence of monastic use, which seems plausible (Rogerson 2003: 121). However, as at the other sites, systematic survey including geophysics and plotting of all surface finds revealed a complex settlement morphology and sequence of finds. There are, again, suggestions

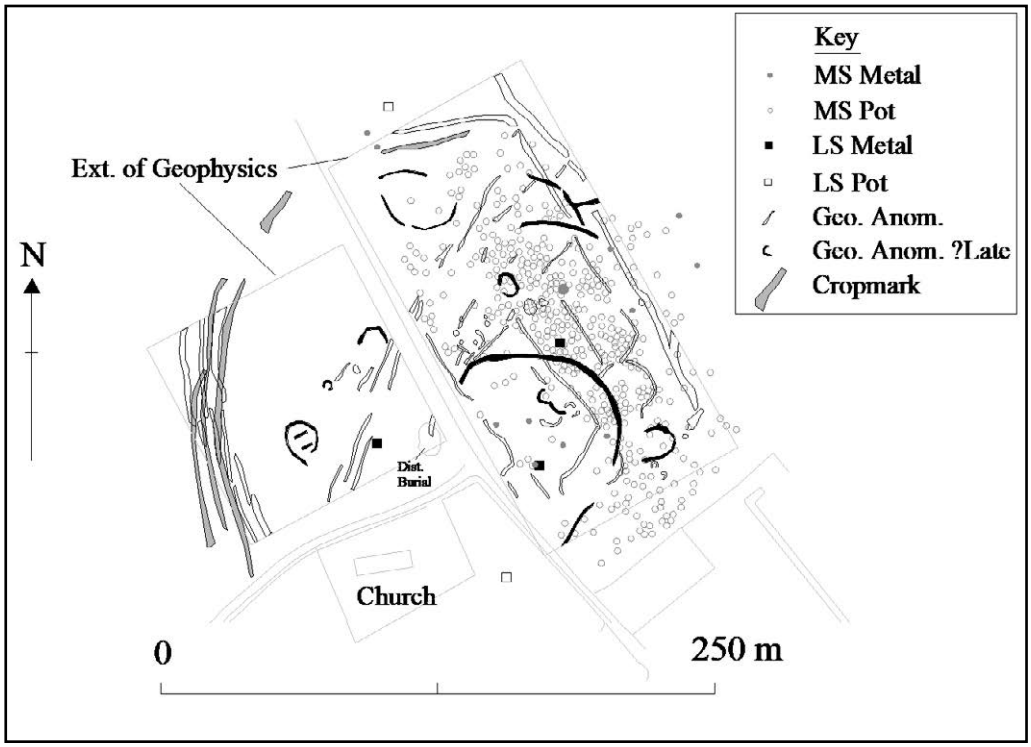


Figure 10. Wormegay (NHER 19168 and 17286): Interpreted geophysical features including possible 'late' anomalies, fieldwalking and located metal-detector finds

of rectilinear grid-planning and also distinct functional zones, with Ipswich ware-loss apparently defined by a boundary ditch revealed by geophysical survey. West of the boundary, towards the church, no finds-loss occurred, but plough-disturbed human remains have been observed.

One of the most interesting things about Middle Anglo-Saxon Wormegay is the altered character of the latest-dated finds recovered from the site. These are 9th-century and include a debased Borre-style Anglo-Scandinavian brooch and two oval (tortoise) brooch fragments, all found within an area of human bone indicative of a Scandinavian-style burial. Geophysical survey also identified a probably late sub-circular boundary ditch, comparable to settlement boundaries identified at Goltho, Lincs., where they have been interpreted as representing early manorial enclosure or even the settlement of a freeman (Loveluck 2009). In East Anglia, similar enclosures may also have been identified at Whissonsett, Norfolk, and Whitehouse Farm, Suffolk (Martin *et al.* 1996: 476–9; Mellor 2004; Trimble and Hoggett 2010).

The results from Wormegay demonstrate well that even short-lived settlements can reveal complex sequences and dynamic transformations when subjected to detailed survey.

Future Research Directions for Middle Anglo-Saxon West Norfolk

Landscapes

By 2010, regional analysis and detailed site survey allowed us to start to argue that, from the 7th century onwards, we probably have a number of 'institutions' controlling the exploitation of surpluses, at least within the 'estate centre' corridor in West Norfolk. This point was made in relation to the origins of King's Lynn by Andy Hutcheson, who also suggested that 'whether these institutions were ecclesiastical, royal or lordly is in some senses irrelevant' (Hutcheson 2006: 74). This complex picture of settlement, where rural centres emerged early and where elite transformations, both ecclesiastical and secular, were the norm, highlight the range of negotiable social identities found away from the traditional foci of the *emporia*. Indeed, it can now be argued that we might not see urbanisation in West Norfolk until the rise of King's Lynn in the 11th century *because* of the diversity of the rural centres. Perhaps a number of Biddle's 'urban functions', such as the role as a central place, a market, a diverse economic base and a place of social differentiation, were actually spread out across the landscape at this time (Davies 2010: 118).

Away from the estate centres, it is interesting that Hutcheson, looking primarily at coinage and Domesday Book, concluded that during the 7th and 8th centuries upland estates centres were *also* controlling salt-production and seasonal grassland along the fen-edge, and that these locations eventually developed into permanent settlements (Hutcheson 2006: 75). This 'landscape of control', still to my mind referencing Hodges' *Emporia* model, sits awkwardly with Hutcheson's hypothesis that the 'unurbanised' nature of West Norfolk, which survived until the Late Anglo-Saxon period, arose *because* it was left as a minor kingdom in its own right, away from the East Anglian royal control centred on the Suffolk Sandlings (Hutcheson 2006: 77). Can this be reconciled with the range of evidence starting to emerge beyond the inland estates centres of West Norfolk?

Some Polyfocal Sites in Detail: West Walton, Ingleborough and Gaywood

One site where systematic survey might help in this regard is West Walton, the least investigated of the West Norfolk 'productive sites', which is located on the fen-edge (Silvester 1988). Close inspection reveals that this 'site' is in fact polyfocal, consisting of several contrasting activity zones distributed across a broad area (Figure 11).

The site is characterised by a number of salterns, located just above the 5m contour, which is often treated as the *de facto* Anglo-Saxon fenland coastline. New salterns are regularly identified through Lidar analysis and commercial investigation and, whilst many are undated, recent work has demonstrated that they often have Middle Anglo-Saxon origins (Clarke and Clarke 2018). A saltern at Ingleborough, just 1km north of the 'productive site' and associated with Ipswich ware was identified during

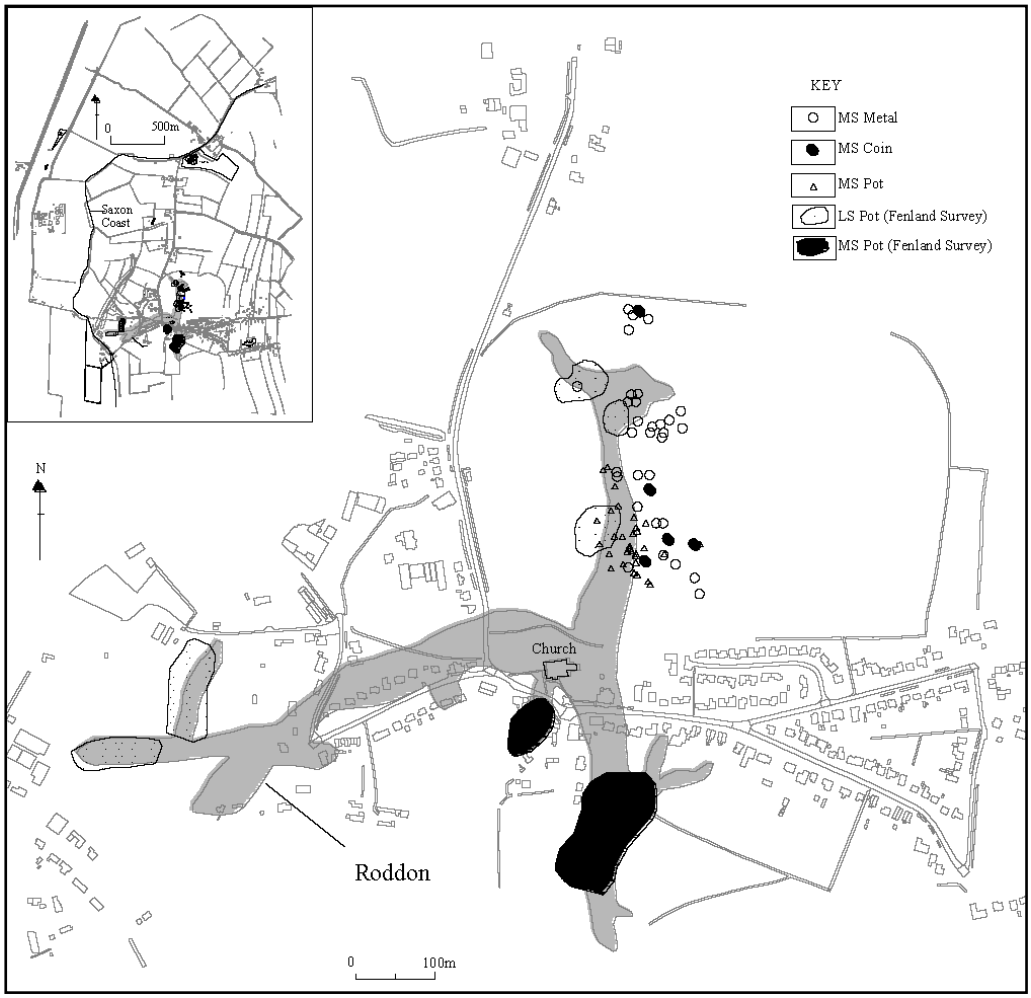


Figure 11. West Walton. Main figure: The 'productive' focus at West Walton; Inset: Overall site at West Walton with Ingleborough at its northern extent.

the Fenland survey (Silvester 1988). Trial-trenching here produced butchered cattle bone, leading the excavators to suggest this zone reflected a seasonal specialised use, associated with both animal husbandry and salt-production (Crowson *et al.* 2005). Was salt-production undertaken within the context of control from the inland estate centres?

The West Walton productive site itself lies on top of a roddon – a former water channel, now silt-filled and standing proud of the desiccated fen peats – with an area of concentrated coinage, metalwork and pottery located immediately north of a later, now isolated, church, which has a concentration of Middle Anglo-Saxon pottery to its south. Does this less-structured zoning indicate that this site started as an unregulated site of exchange? Were producers and traders taking advantage of

not being at one of the inland estate centres, before a more permanent settlement, including a church, was formalised? An interesting parallel might be found with the documented origins of King's Lynn, located on a similar fen-edge island, where St Margaret's priory was created by the Bishop in the 1090s apparently at the request of traders. This suggests that there was a desire on the part of traders to bring in Church regulation, presumably via tolls or taxes, at the focus of exchange (Hutcheson 2006: 99–100).

How might this focused activity contrast with the way animal husbandry or salt-production might have been organised? This question arises again with the publication of an excavated Middle Anglo-Saxon saltern at Gaywood, on the northern edge of modern King's Lynn, 14km east of West Walton. The excavators here suggested that salt-production might have been undertaken under the control of the estate centre at Bawsey, which is only 2km away, with a decline in production in the 10th century linked to decline there (Clarke and Clarke 2018).

If preserving salt, possibly in Ipswich ware vessels (see Anderson, this volume), was an important commodity exported from early-medieval West Norfolk, the estate centres would have had an interest in controlling its production and distribution. As we have seen, however, evidence is now building for a complex polyfocal arrangement of sites, rather than simple control. At Gaywood, between the salterns to the west and Bawsey to the east, within a network of sinuous creeks and complex tenurial boundaries, there is, in fact, a second settlement focus, situated at the mouth of an inlet. This 'new Gaywood' site is not particularly well explored, but recent test-pitting has identified plentiful Ipswich ware (Lewis 2020), leading to suggestions that it represents a 'port' (Clarke and Clarke 2018) or a site that was 'provisioning' Bawsey (Lewis 2020: 36). As at West Walton, we see a complex and probably difficult relationship between freedom and control being played out in the coastal landscape arena, involving fen-edge producers, coastal communities and inland centres.

This interplay between social groups, seen written in the landscape, is where some of the most interesting future research question lie. The King's Lynn area, where development and commercial excavation are booming, offers significant investigative opportunities which should allow us to build more 'archaeological microhistories' of these polyfocal sites.

New Approaches for Sedgeford

So how might we apply some of these new understandings to a middle-order, inland estate centre like Sedgeford? Understanding both settlement morphology *and* material culture profiles, and interpreting how these changed over time, is the key to improving the Sedgeford narrative. In this regard, the fact that the excavation results can now be placed in context with a large integrated survey program, including

geophysics, fieldwalking and metal-detecting (see Jolleys *et al.*, this volume), means that Sedgeford offers an unparalleled 'laboratory' for testing our theories.

Some interesting work has already begun. For example, the *Digging Sedgeford* monograph published in 2014 clearly demonstrated that changes in the settlement morphology over time could be observed in the stratigraphic sequence: a 'rural settlement' between *c.* AD 650/700 to AD 775/825, replaced by a 'grid-planned settlement' *c.* AD 775/825 to AD 850/925, and possibly transforming into a 'thegnly residence' of *c.* AD 900 to AD 1025 associated with a large D-shaped enclosure (Faulkner *et al.* 2014, 79–136). The next step will be to fully incorporate material-culture profiles into the existing stratigraphic analysis, and thus to really characterise these phases.

Although this work is time consuming and detailed, initial analysis following trial-trench evaluation of the settlement has already suggested some further transformations. Kris Poole, in his analysis of the animal bone, suggested that characteristic 'monastic' animal-bone assemblages in the earlier phases might show that the site transformed from a (still putative) Middle Anglo-Saxon ecclesiastical centre, with sheep and wool dominating, to a Late Anglo-Saxon secular centre with an elite element, when the D-shaped enclosure was added (Poole 2009). In the next decade, we can hope to further improve our understanding of the changing character of the actual early medieval inhabitants of Sedgeford, not just the elite groups who administered it, by continuing to develop these approaches.

Conclusions: Sedgeford, West Norfolk and The Anglo-Saxon 'Agricultural Revolution'

If we can refine interpretation of the character and development of Sedgeford and West Norfolk in this way, we might also be able to contribute to the interpretation of the 'Anglo-Saxon Agricultural Revolution'. This much-used label has recently been reclaimed by scholars reasserting that, rather than a Late Anglo-Saxon revolutionary moment, the 'momentous trends' of the 7th to 9th centuries, particularly the consolidation of kingdoms and lordship, were 'underpinned ... by fundamental transformations in farming' (McKerracher 2018: 2). Oxford University's *FeedSax* project, for example, is looking at the evidence of preserved cereals, weeds, animal bones and pollen at a regional level *and* from individual excavated sites, to build its argument that transformations occurred much earlier, but in a disaggregated way, across much of Anglo-Saxon England.

The Oxford research is ongoing at the time of writing [2021], but the initial conclusions presetned at a recent conference highlighted three key 'phases' of developments in farming regimes, which affected settlement character (McKerracher 2022). These are:

1. The 'Long 8th Century': Characterised by the introduction of droveways, pens, paddocks, corrals and hay meadows at settlements. These are signs that farmers

were co-operating and pooling labour and that livestock was being managed in new ways. Grid-planning was introduced. There was also investment in centralised storage and industrial processing of agricultural surplus. Malting complexes and mills represent capital projects associated with high-status settlements and built on the wealth derived from surplus.

2. The 10th Century: Characterised by the appearance of distinctive sets of enclosed aristocratic/manorial settlements, such as Goltho (Lincs.). These are the residences of those who can mobilise cereal surplus.
3. The 12th to 13th centuries: In parts of England, where classic nucleated villages and feudal modes of production emerged.

For the purposes of this paper, I am concerned primarily with the first two of the above phases. In relation to Sedgeford and West Norfolk the model raises a number of questions: if the introduction of grid-planning around *c*. AD 775–825 primarily reflects transformations in elite-instigated agricultural practices, how and why did new forms of agricultural production emerge, and who was responsible for them? Are we looking at 'bottom-up' developments, where rural populations triggered economic growth, or was change instead implemented 'top-down' by elite controllers? Later, during the second phase, what were the characteristics of the secular elite groups who might have transformed rural settlements in this way, and what was the surplus-producing agricultural practice underpinning the transformation?

McKerracher, in an 'Agriculture First' model, has regarded the introduction of the heavy mouldboard plough as the key innovation of the 7th century, unlocking Anglo-Saxon England's arable productivity (2018: 30–3). The introduction of this technology is considered to have been very much a royal initiative, initially in Kent, that was subsequently passed on to the landed elites (McKerracher 2018: 42). John Blair has argued the grid-planning he has identified in Anglo-Saxon settlements, including Sedgeford, is also very much a 'top-down' innovation (Blair 2013). He suggests that Christianity was the major driver for change, that 'a new religion, and the novel modes of organisation it brought was soon to stimulate larger and more stable surplus production, with all its consequences for social change' (Blair 2018: 131). Following him, Duncan Wright has also seen the creation of new forms of grid-planned settlement, 'home farms', as a phenomenon specifically of ecclesiastical planning (Wright 2015).

My reading of this work is that, although nuanced in many ways, it is in danger of presenting an artificially neat model. Focusing so much on any one innovation or one driver might obscure further detail. Having painted a picture of diverse estate centres, and contrasts between inland and coastal zones, we have to ask how thoroughly estate centres like Sedgeford could have controlled their own production and distribution? Might transformations at inland centres, presently attributed to elite direction, actually reflect other, external, stimuli?

A neglected theme seems to be the possibility that the reorganisation evident in rural settlements was, at least in part, a means to facilitate production for trade (see, for instance, Blinkhorn 2012: 92). In a model like this, specialisation and intensification of agriculture occurred because the rise of the proto-urban *wics*, the unregulated minor ports and the rural consumer centres (secular or ecclesiastical) had created a market for products. There is also room for specialised producers of 'cash crops' to be operating as free proprietors and merchants, outside direct lordly control (Blinkhorn 1999: 13–14; Loveluck 2013).

With our new-found appreciation of the inland/coast dynamic and the interplay of controlled and free exchange, we can look with fresh eyes at how agricultural production was administered at a site like Sedgeford. Taking, for example, the malting complex and its products, Blakelock and Caroe (this volume) have already suggested hints of changing production practices over time. Might this also signify a change in not only who was undertaking this work, but also in external markets, resulting in a change in how production was controlled?

On the fen-edge, too, there is now definite evidence of dynamic settlement sequences and material culture reflective of a variety of actors from an early date. These include landed elites, mercantile classes and specialised producers, all engaged in trade and exchange (Oosthuizen 2018). One is left wondering if a detailed critique using alternative datasets (e.g. proto-urban centres, the exploitation of birds, fish and wild species, and specialised production at rural sites) might paint a different picture of transformative processes at individual settlements like Sedgeford.

I hope that this brief survey of the evolution of approaches to, and perceptions of, Middle Anglo-Saxon rural settlement in West Norfolk has demonstrated the huge strides forward that have been made in the last 25 years, during the lifetime of the Sedgeford Historical and Archaeological Research Project. I also hope that progress in research will maintain this pace over the next 25 years!

Acknowledgements

Thank you hugely to both Sophie Cabot and Naomi Payne, long-time friends and SHARP collaborators, for their help with, respectively, editing and proof-reading of this article; they have greatly improved it. As usual, an inaccuracies or mistakes are totally my own.

References

Andrews, P. 1992. Middle Saxon Norfolk: evidence for settlement, 650–850. *The Annual* 1: 13–28.

Arnold, C.J. and P. Wardle. 1981. Early medieval settlement patterns in England. *Medieval Archaeology* 25: 145–9.

Banham, D. and R. Faith. 2014. *Anglo-Saxon farms and farming.* Oxford: Oxford University Press.

Blackburn, M., S. Margeson and A. Rogerson. 2000. Anglo-Saxon finds from Bawsey. Unpublished report prepared for the Oxford 'Productive Sites' conference.

Blair, J. 1996a. Palaces or minsters? Northampton and Cheddar reconsidered. *Anglo-Saxon England* 25: 97–121.

Blair, J. 1996b. Churches in the early English landscape: social and cultural contexts, in J. Blair and C. Pyrah (eds) *Church Archaeology: Research Directions for the Future*: 6–18. York: Council for British Archaeology Research Report 104.

Blair, J. 2013. Grid-Planning in Anglo-Saxon Settlements: The short perch and the four-perch module. *Anglo-Saxon Studies in Archaeology and History* 18: 18–61.

Blair, J. 2018. *Building Anglo-Saxon England*. Princeton: Princeton University Press.

Blinkhorn, P. 1999. Of cabbages and kings: production, trade, and consumption in middle-Saxon England, in M. Anderton (ed.) *Anglo-Saxon Trading Centres: Beyond the Emporia*: 3–23. Glasgow: Cruithne Press.

Blinkhorn, P. 2012. *The Ipswich Ware Project: Ceramics, Trade and Society in Middle Saxon England*. Dorchester: Medieval Pottery Research Group.

Cabot, S., G. Davies and R. Hoggett. 2004. Sedgeford: excavations of an 8th-century rural settlement in Norfolk, in J. Hines, A. Lane and M. Redknap (eds) *Land, Sea and Home: Proceedings of a Conference on Viking Period Settlement*: 313–24. Leeds: Society for Medieval Archaeology.

Carr, R.D., A. Tester and P. Murphy. 1988. The middle Saxon settlement at Staunch Meadow, Brandon. *Antiquity* 62: 371–7.

Clarke, G. and R. Clarke. 2018. A tale of two salterns: Excavations at Walpole St Peter and Gaywood, King's Lynn. *Norfolk Archaeology* 48: 1–24.

Cramp R. 2005. *Wearmouth and Jarrow Monastic Sites: Volume 1*. London: English Heritage.

Crowson, A., T. Lane, K. Penn and D. Trimble. 2005. *Anglo-Saxon Settlement on the Siltland of Eastern England*. Sleaford: Heritage Lincolnshire.

Davies, D. 2017. *The Development of Archaeological Post-Excavation Within British Professional Archaeology*. BAJR Guide Series 46.

Davies, G. 2000. Boneyard and Reeddam, in R. Hoggett (ed.) *Sedgeford Historical And Archaeological Research Project Interim Report 2000*: 4–7. Sedgeford: SHARP.

Davies, G. 2002. Sedgeford and Northwest Norfolk, in S. Cabot (ed.) *Sedgeford Historical and Archaeological Project Interim Report 2002*: 45–50. Sedgeford: SHARP.

Davies, G. 2010. Early Medieval 'Rural Centres' and West Norfolk: A Growing Picture of Diversity, Complexity and Changing Lifestyles. *Medieval Archaeology* 54: 89–122.

Davies 2011. Settlement, economy and lifestyle: the changing social identities of the coastal settlements of West Norfolk, 450–1100ad. Unpublished PhD dissertation, University of Nottingham. http://eprints.nottingham.ac.uk/12002/

Davies, G. 2013. Middle Anglo-Saxon Continental Wares in Norfolk: A Social Interpretation. *Medieval Ceramics* X: 1–9.

Davies, G. Forthcoming. Exploring settlement dynamics and social identities at 'productive' sites: The case of West Norfolk, in C. Bond (ed.) *A Celebration of Archaeology in West Norfolk*. Cambridge: Cambridge Scholars Publishing.

Davies, G. and N. Payne. 2011. Sedgeford and Wormegay: Further insights into the chronology and function of Anglo-Saxon Copper Alloy Pins. *Norfolk Archaeology* 46: 209–13.

Faulkner, N., K. Robinson and G. Rossin (eds) 2014. *Digging Sedgeford: A People's Archaeology.* Cromer: Poppyland Publishing.

Gregory, T. 1982. Romano-British settlement in West Norfolk and on the Norfolk Fen-edge, in D. Miles (ed.) *The Romano-British Countryside: Studies in Rural Settlement and Economy*: 351–76. Oxford: Archaeopress.

Hamerow, H. 1993. *Excavations at Mucking Volume 2: The Anglo-Saxon Settlement*. London: English Heritage.

Hamerow, H. 2002. *Early Medieval Settlements. The Archaeology of Rural Communities in North West Europe 400–900*. Oxford: Oxford University Press.

Hamerow, H. 2010. Herrenhöfe in Anglo-Saxon England. *Settlement and Coastal Research in the Southern North Sea Region 33*: 59–67.

Hodges, R. 2014. Review of Loveluck, C. 2013. Northwest Europe in the Early Middle Ages, *c.* AD 600–1150. A Comparative History. *Antiquity* 88: 996–7.

Hodges, R. 1982. *Dark Age Economics*. Bristol: Duckworth.

Hoggett, R. Forthcoming. An Embarrassment of Riches: The Anglo-Saxon Archaeology of West Norfolk, in C. Bond (ed.) *A Celebration of Archaeology in West Norfolk*. Cambridge Scholars Publishing.

Hope-Taylor, B. 1977. *Yeavering: An Anglo-British Centre of Early Northumbria*. London: HMSO.

Hutcheson, A.R.J. 2006. The origins of King's Lynn? Control of wealth on the Wash prior to the Norman Conquest. *Medieval Archaeology* 50: 71–104.

Leah, M. and M. Flitcroft. 1993. Archaeological Surveys at Park Farm, Snettisham and Courtyard Farm, Ringstead. *Norfolk Archaeology 41*: 462–81.

Lewis, C. 2020. A Thousand Years of Change: New Perspectives on Rural Settlement Development from Test Pit Excavations in Eastern England. *Medieval Settlement Research* 35: 26–46.

Loveluck, C. 1998. A high-status Anglo-Saxon settlement at Flixborough, Lincolnshire. *Antiquity* 72: 146–61.

Loveluck, C. 2007a. Caedmon's world: secular and monastic lifestyles and estate organization in northern England, AD 650–900, in A.J. Frantzen and J. Hines (eds) *Caedmon's Hymn and Material Culture in the World of Bede*: 150–90. Morgantown: West Virginia University Press.

Loveluck, C. 2007b. *Rural Settlement, Lifestyles and Social Change in the Later First Millennium AD. Excavations at Flixborough, Volume 4*. Oxford: Oxbow.

Loveluck, C. 2009. The dynamics of elite lifestyles in the 'rural world', AD 600–1150: archaeological perspectives from north west Europe, in F. Bougard, R. Le Jan and R. Mckitterick (eds) *La culture du haut moyen age, une question d'elites*: 139–70. Turnhout: Brepols.

Loveluck, C. 2013. *Northwest Europe in the Early Middle Ages, c. AD 600–1150*. Cambridge: Cambridge University Press.

Loveluck, C. and Tys, D. 2006. Coastal societies, exchange and identity along the Channel and southern North Sea shores of Europe, AD 600–1000. *Journal of Maritime Archaeology* 1: 140–69.

Lucy, S., J. Tipper and A. Dickens. 2009. *The Anglo-Saxon Settlement and Cemetery at Bloodmoor Hill, Carlton Colville, Suffolk*. Bury St Edmunds: East Anglian Archaeology 131.

Martin, E., C. Pendleton and J. Plouviez. 1996. Archaeology in Suffolk 1995. *Proceedings of the Suffolk Institute of Archaeology and History* XXXVIII(4): 457–85.
McKerracher, M. 2018. *Farming Transformed in Anglo-Saxon England*. Oxford: Windgather Press.
Naylor, J. 2004. *An Archaeology of Trade in Middle Saxon England*. Oxford: Archaeopress.
Newman, J. 1992. The late Roman and Anglo-Saxon Settlement Pattern in the Sandlings of Suffolk, in M.O.H. Carver (ed.) *The Age of Sutton Hoo*: 25–38. Woodbridge: Boydell and Brewer.
Newman, J. 1994. East Anglian Kingdom Pilot Survey, in M. Parker-Pearson and R. Schadla-Hall (eds) *Looking at the Land: Archaeological Landscapes in Eastern England*: 10–15. Leicester: Leicestershire Museum, Arts and Records Service.
Oosthuizen, S. 2018. *The Anglo-Saxon Fenland*. Oxford: Oxbow.
Pestell, T. 2003. The afterlife of 'productive' sites in East Anglia, in T. Pestell and K. Ulmschneider (eds) *Markets in Early Medieval Europe: Trading and 'Productive' Sites, 650–850*: 122–37. Macclesfield: Windgather.
Pestell, T. 2004. *Landscapes of Monastic Foundation. The Establishment of Religious Houses in East Anglia c. 650–1200*. Woodbridge: Boydell.
Pestell, T. 2014. Bawsey: A 'Productive' Site in West Norfolk, in S. Ashley and A. Marsden (eds) *Landscapes and Artefacts: Studies in East Anglian Archaeology Presented to Andrew Rogerson*: 139–66. Oxford: Archaeopress.
Pestell, T. and K. Ulmschneider. 2003. *Markets in Early Medieval Europe: Trading and 'Productive' Sites, 650–850*. Macclesfield: Windgather.
Poole, K. 2009. The animal bones in G. Davies, An Archaeological Survey and Evaluation of the Middle–Late Anglo-Saxon Settlement at Chalkpit Field, Sedgeford, Northwest Norfolk. Unpublished Sedgeford Historical and Archaeological Research Project report.
Reynolds, A. 2003. Boundaries and Settlements in Later Sixth to Eleventh-century England. *Anglo-Saxon Studies in Archaeology and History* 12: 97–139.
Richards, J.D. 1999. What's so special about 'productive sites?' Middle Saxon settlements in Northumbria. *Anglo-Saxon Studies in Archaeology and History* 10: 71–80.
Rogerson, A. 1999. Arable and Pasture in Two Norfolk Parishes: Barton Bendish and Fransham in the Iron Age, in J. Davies and T. Williamson (eds) *Land of the Iceni*: 125–31. Norwich: Centre for East Anglian Studies.
Rogerson, A. 2003. Six middle Anglo-Saxon sites in West Norfolk, in T. Pestell and K. Ulmschneider (eds) *Markets in Early Medieval Europe: Trading and 'Productive' Sites, 650–850*: 110–21. Macclesfield: Windgather.
Rogerson, A. 2005. Middle Saxon Norfolk (*c.* AD 650–850), in T. Ashwin and A. Davison (eds) *An Historical Atlas of Norfolk*: 32–3. Chichester: Phillimore.
Rogerson, A. 2017. 'A great increase in reported, provenanced, archaeological finds': A History of Recording in Norfolk Before the Portable Antiquities Scheme. *Public Archaeology* 15: 238–44.
Scull, C., F. Minter and J. Plouviez. 2016. Social and economic complexity in early medieval England: A central place complex of the East Anglian kingdom at Rendlesham, Suffolk. *Antiquity* 90: 1594–1612.
SHARP. 2000. Sedgeford: Exploring an early English Village. *Current Archaeology* 171: 122–9.

Silvester, R.J. 1988. *The Fenland Project Number 3: Marshland and the Nar Valley, Norfolk*. Gressenhall: East Anglian Archaeology 45.

Tester, A., S. Anderson, I. Riddler and R. Carr. 2014. *Staunch Meadow, Brandon, Suffolk. A high-status Middle Saxon settlement on the fen-edge*. Bury St Edmunds: East Anglian Archaeology 151.

Theuws, X. In preparation. Rural Riches The post-Roman economic development of North-western Europe (450–640). https://www.merovingianarchaeology.org/blog/about/

Thomas, G. 2013. Life before the minster: the social dynamics of monastic foundation at Anglo-Saxon Lyminge, Kent. *The Antiquaries Journal* 93: 109–45.

Thomas, G., G. McDonnell, J. Merkel and P. Marshall. 2016. Technology, ritual and Anglo-Saxon agriculture: the biography of a plough coulter from Lyminge, Kent. *Antiquity* 90: 742–58.

Trimble, G. and R. Hoggett. 2010. An archaeological evaluation on land at North View Drive, Whissonsett, Norfolk. Unpublished NAU Archaeology report 1185.

Ulmschneider, K. 2000. *Markets, Minsters and Metal-Detectors. The Archaeology of Middle Saxon Lincolnshire and Hampshire Compared*. Oxford: Archaeopress.

Verhulst, A. 2002. *The Carolingian Economy*. Cambridge: Cambridge University Press.

Wade-Martins, P. 2017. *A Life in Norfolk's Archaeology*. Oxford: Archaeopress.

Wade, K. 1988. Ipswich, in R. Hodges and B. Hobbley (eds) *The Rebirth of towns in the west AD 700–1050*: 93–100. York: Council for British Archaeology Research Report 68.

Whyman, M. 2002. Emporia and early medieval settlement types, in D. Perring (ed.) *Town and Country in England: Frameworks for Archaeological Research*: 92–103. York: Council for British Archaeology.

Slow Wheel Revolution: Ipswich Ware in the East Anglian Landscape

Sue Anderson

Abstract

Blinkhorn's influential work on Middle Anglo-Saxon Ipswich ware was published in 2012, although the work to complete it was carried out somewhat earlier. Consequently, at least ten years have passed since the original data were collected and more recent finds can be added. Based on Historic Environment Records, the pattern of distribution has not changed radically, but there are several factors which need to be taken into consideration with regard to the identification and quantification of Ipswich ware. It is also worth considering its distribution in relation to fieldwork carried out across the region and the geography of the area. Recent finds at Stoke Quay, Ipswich, have provided new dating for the production of Ipswich ware based on the kiln excavated there, and another kiln discovered at Wreningham (Norfolk) has provided evidence for the production of pottery similar to Ipswich ware (although of late date). The latter may provide some insights into the transition from Middle to Late Anglo-Saxon pottery in the region.

Introduction

Towards the end of the late 7th century, a minor revolution took place in the recently established *wic* (trading centre) at *Gipeswic* (Ipswich). A new technology was introduced which was to change the type of pottery in use across East Anglia and beyond over the following few decades. The potter(s) working in the southern part of the *wic* had started to manufacture their pots using a slow wheel or turntable and to fire them in a formal kiln, rather than a bonfire or clamp kiln. This new style of pottery is known to us as 'Ipswich ware'. Up until this point, all Anglo-Saxon pottery from the region was handmade, probably in the main by local specialists working in villages across Norfolk and Suffolk, making enough to serve their communities with perhaps a small surplus to exchange with other settlements.

Recent excavations at Stoke Quay, Ipswich, unearthed a kiln which has produced the earliest radiocarbon dates so far for the production of Ipswich ware (Sudds 2020). It is suggested that in the early years the pottery may have served the needs of the *wic* alone, but within about 20–30 years these pottery vessels were the dominant type across much of eastern England, extending as far south as Kent, as far north as York and as far west as Oxfordshire, with occasional outliers beyond (Blinkhorn 2012).

A major project to study Ipswich ware was funded by English Heritage and carried out in the 1990s, resulting in a publication which aimed to present a technological, functional, temporal, geographical and cultural interpretation of this important ware (Blinkhorn 2012). Although updates to the project were made in 2008, prior to final publication, the majority of the study had been completed by 1998 and it is now over 20 years since the work was carried out. This paper will incorporate and discuss some

Figure 1. A typical selection of Ipswich ware jars from Brandon (Suffolk). (Photo: Sue Anderson, courtesy of Suffolk County Council Archaeological Service)

of the more recent findings relating to Ipswich ware, with particular reference to the discovery of new kiln sites and using a GIS study of the existing evidence.

Ipswich Ware

Ipswich ware is a sand-tempered, slow-wheel-turned pottery type which comes in two main varieties (fabrics). These comprise a very fine 'smooth' or 'sandy' fine fabric, which is slightly micaceous, but with few other inclusions visible to the naked eye, and a 'gritty' or 'pimply' fabric, which contains common to abundant rounded sand. Most vessels are grey, although variations exist and include oxidised examples (buff to orange) and some very dark grey or black types. Full descriptions of these fabrics, including petrographic and chemical studies, are provided by Blinkhorn (2012: 9–25). The vessel forms made in these fabrics are broadly the same and comprise a limited range, which is dominated by small to large jars with sagging bases, globular bodies and upright or slightly everted rims (Figure 1). Other, less-common forms include spouted pitchers (the basic large jar form with an added spout and handle and/or lugs), 'hanging' jars with lugs on the rim, bowls/dishes, lamps and the so-called Buttermarket-type 'bottle'. Decoration is rare, but includes stamp impressions or incised lines, most of which occur on spouted pitchers or bottles. Jars often exhibit 'girth-grooving' or corrugations on the upper part of the body. Vessels are generally thick walled, which reflects the method of manufacture, that is, slow-wheel coiling.

Figure 2. Ipswich ware wasters from the Cox Lane kiln, Ipswich. (Photo: Carleton Van Selman, courtesy of Ipswich Museum: Acc. No. 1920.53.15 and 1920.53.1)

Dating

Wasters of Middle Anglo-Saxon pottery were first found in Ipswich in the 1920s and a partial kiln was discovered in Cox Lane, Ipswich, in the late 1950s (Smedley and Owles 1963: 304; Figure 2). The first major study of the ware was published in 1957. Although there was no absolute dating of the kiln, a start-date for the industry in the AD 650s and an approximate end-date of AD 850 were suggested, based on finds and artefact associations on sites elsewhere in the region (Hurst and West 1957).

The broad date-range of AD 650–850 continued to be used for several decades and was only really questioned by Blinkhorn, who presented a summary of the evidence in his study, concluding that the ware probably originated in the AD 720s and perhaps continued as late as the AD 860s (Blinkhorn 2012: 3–8). This newly proposed date-range has proved problematic for interpretations of Middle Anglo-Saxon Ipswich and other contemporary *wics,* such as London and Southampton (Wade 2015). Wade proposed that a start-date of *c.* AD 690 was more likely, even if there was 'restricted export in the early years' (Wade 2015: 4), but concurred with Blinkhorn that the ware probably continued in use beyond AD 850. Hutcheson (2006: 92–3) has suggested that production of Ipswich ware may have halted in AD 841, a year in which the *Anglo-Saxon Chronicle* records that East Anglia suffered heavily at the hands of Danish raiders.

Radiocarbon dates have since been obtained from charcoal from the kiln excavated at Stoke Quay, Ipswich, in 2012 and also from burnt residue adhering to some sherds from elsewhere on the site (Sudds 2020). One of the latter has a calibrated date of *c.* AD 650–715 (95.4% probability), indicating that it was almost certainly in use prior to AD 720. Furthermore, a series of single-entity charcoal samples recovered from the kiln produced a range of similar dates, also ending in AD 715. Sudds has reconsidered the evidence presented by Blinkhorn and concludes that the start of Ipswich ware probably does predate AD 720, perhaps by 'just one or two decades' (Sudds 2020).

Based on this new evidence, it is proposed here that Ipswich Wade's suggested start-date of AD 690 should be used at least for Ipswich and potentially for other sites in Suffolk. How long it took for Ipswich ware to be established in Norfolk is a matter for debate as, unfortunately, there is still no good dating evidence for this.

Origins

Hurst suggested that Ipswich ware represents a development from handmade sandy wares in the 7th century, based on handmade pots with sagging bases and knife trimming at Bromeswell and Butley (Suffolk), but later on the same page says the origin is 'clearly in the Rhineland' (Hurst 1959: 16). By 1976, he had modified his view due to finds of slow-wheel-made pottery in Whitby (Hurst 1976: 303, 307), but still considered that the technique, or the potters themselves, ultimately derived from continental Europe.

Blinkhorn's work is persuasive in linking the origins of Ipswich ware to Frisia, based on comparable contemporary pottery from Oldorf, Friesland (Blinkhorn 2012: 66), but this does not entirely stand up to scrutiny. While the forms and decorative techniques are similar, the fabric of these *Eitopf* or *weiche GrauWare* vessels is significantly coarser and contains 'rock' fragments (Stilke 1993: 140). One of the main factors which convinced Blinkhorn of the link is the presence of stamp decoration, but Stilke notes that this is only found on sherds dated from the early 9th century. There is also no evidence for the characteristic Ipswich-type 'girth-grooving' on any of the published drawings. Coutts' (1991) comprehensive study of the imported Middle Anglo-Saxon pottery from Ipswich did not identify any similar coarse fabrics, so if Frisian potters were brought to Ipswich to make pottery or demonstrate their craft, it seems unlikely that they brought many (or any) samples of their work with them. Fragments of grey-gritted *Kugeltopf* pottery of 8th/9th-century date appear to be the earliest recognised Frisian pottery from the town so far (Coutts 1991: 39; Wade 1988: 96 and fig. 55.8). Nevertheless, the use of the slow wheel in Frisia does suggest a technological link, even if the pottery itself is not as similar as has been suggested.

Other Contemporary Pottery in East Anglia

Handmade Wares

The Early Anglo-Saxon potters used coil- and slab-building techniques to produce a basic range of jars, bowls and dishes, most of which were utilitarian and appropriate for the needs of their 'customers', although the level of skill required to make some of the finer vessels implies a degree of specialisation. In the early part of the period, this was largely in the form of 'sand-tempered' wares – clay which included sand either naturally or as a deliberate addition, with other inclusions commonly present depending on the source of the clay; granite pieces and/or fossil shell fragments were particularly common. By the 7th century, in the south of the region, this pottery was increasingly grass- or chaff-tempered – the organic material was burnt out during the firing process, leaving a 'corky' porous vessel which absorbed the thermal shock associated with hearth cooking. Sand-tempered wares continued in use alongside grass-tempered ones in both Norfolk and Suffolk, unlike sites in southern England, where the latter remained the dominant type of handmade pottery well into the 8th century (Hamerow *et al.* 1994). Hamerow suggested that grass-tempered wares formed only 16% of the Early Anglo-Saxon pottery from fifteen sites in Norfolk and Suffolk (Hamerow *et al.* 1994: 14), and a total of 23 sites in Suffolk studied by the present author yielded an overall proportion of 14.9%. However, this is partly a result of the date-range of some sites and the proportion varies greatly between sites. Eleven of 32 vessels (34.3%) from a site in Mildenhall (Suffolk), for example, were organic-tempered and as many as 110 vessels out of 159 (69.2%) from Great Cornard (Suffolk) had organic inclusions (Anderson 2019a; 2013a). In Norfolk, the vessels used in the Early Anglo-Saxon cemetery at Tittleshall (Norfolk) were almost exclusively organic-tempered, while those from the nearby settlement were not (Anderson 2013b).

Although in Suffolk it appears that Ipswich ware very quickly subsumed and replaced the local handmade wares by the early 8th century, it is possible that this was not the case in Norfolk. There is some published evidence for the use of handmade ware alongside the new slow-wheel-made type here. Rogerson noted a high proportion of handmade wares in association with Ipswich ware at Fransham (Norfolk), including organic, sandy and gritty wares, and possibly some other Middle Anglo-Saxon wheel-turned wares (Rogerson 1995: 109), noting that some of this material could be 7th century. As this material was recovered during fieldwalking rather than excavation, it is not certain that it represents contemporary use, although as Rogerson notes, it would not be unreasonable for handmade wares to supplement Ipswich ware if this were less readily available.[1] Other authors have suggested the presence of non-Ipswich Middle Anglo-

[1] Many NHER entries for the Fenland Survey mention Middle Anglo-Saxon pottery, and in some cases specify non-Ipswich handmade wares, but Rogerson's summary report on medieval pottery (Rogerson 1988) states that all Middle Anglo-Saxon pottery (apart from two imports) was Ipswich ware and the organic-tempered wares are regarded as Early Anglo-Saxon.

Figure 3. Examples of pottery from the Wreningham kiln (Norfolk). (Photo: © Pre-Construct Archaeology)

Saxon wares on sites elsewhere in the county, the most notable being Fishergate and St Faith's Lane in Norwich, Tasburgh Iron Age fort and the castle at Castle Acre (Dallas 1994: 20; Blinkhorn 2010; Dallas 1992; Wade 1980; Milligan 1982: 202, 222 and fig. 24.1–2). The latter were reported as 'similar to published Middle Saxon types' and contained sparse organic inclusions, but the published drawings are suggestive of an Early Anglo-Saxon date. Those from Tasburgh were recorded as Middle/Late Anglo-Saxon transitional wares and may be related to the recently discovered kiln of this period at Wreningham (Sudds 2023; see below). The Norwich examples now need re-assessment in view of this discovery. In addition, Wade identified eight sherds of possible local Middle Anglo-Saxon slow-wheel-made pottery at North Elmham (Wade 1980: 419).

Wreningham Ware and Other Possible Transitional Wares

In 2016, an excavation to the north of Church Road, Wreningham (Norfolk) identified a pottery kiln which contained a substantial quantity of wasters; superficially, these appeared very similar to Ipswich ware (Jackson 2016; Figure 3). Analysis was still being carried out on this material at the time of writing (2021), but based on four radiocarbon dates a late Middle or early Late Anglo-Saxon date seems most likely. Perhaps the most reliable is the sample from the stoke hole, which provided a date of 865–996 cal AD (95.4% probability) (Seddon 2016; Sudds 2023). If, as it appears, this is a new type which post-dates the main period of Ipswich ware use, it may seem irrelevant to the present paper. However, given that the pottery is so similar to Ipswich ware that some of the sherds from the evaluation of the site (which did not find the kiln) were identified as such (Blinkhorn 2015: 14), it follows that if sherds from this production site travelled across Norfolk they may well have been identified as Ipswich ware at other sites.

Two sites in Suffolk could potentially have produced pottery similar to Ipswich ware, but unfortunately it has not been possible to confirm this due to a lack of available sample sherds. Basil Brown recorded a possible kiln site in Bromeswell (Suffolk HER BML 002), although he did not apparently visit the site himself and only saw samples of the pottery. Notes from the Ipswich Museum record card show that it was dated to the 8th century and described as 'LSax types in pale brown wares, slightly sagged bases, interesting pierced upright lug' and the fabric was described as 'a hard red-brown gritty ware with a grey core, comparable with Ipswich ware, represented all small cooking pots'. The assemblage included both wasters and 'kiln debris'. Hurst and West subsequently published a short note on it, together with drawings of two jars and a lugged vessel (1957, 39 and fig. 5 nos 10–12). The same area appears to have been later investigated by Brown as the site of a medieval (13th-century) pottery kiln.

At Burrow Hill, Butley, a pottery kiln constructed of coralline crag was dated archaeomagnetically to *c.* AD 830, and was thought to be an Ipswich ware kiln (Suffolk HER BUT 001; Fenwick 1984). Unfortunately, the site has not been published in detail and all finds from the site were retained by the excavator.

Imports

A few imported wheel-thrown wares are known from this period, but they form an insignificant proportion of all assemblages in which they occur. The largest groups have been recovered from excavated settlements, with Ipswich having a relatively large assemblage which was studied several decades ago (Coutts 1991). Very few have been identified in Norfolk outside Norwich (Davies 2012). There are problems, however, with identifying this material and it is likely that some sherds – particularly if unstratified or unrelated to other finds – will have been recorded as either Roman or Late Anglo-Saxon pottery.

The Distribution of Ipswich Ware in East Anglia

Chemical analysis undertaken during the Ipswich Ware Project suggested that all Ipswich ware was made in Ipswich, rather than being the product of potteries seeded from the originators in the *wic*. Further ICPMS analysis carried out during the Stoke Quay project concurs with this (Badreshany 2020). The pattern of distribution of the ware within East Anglia was not discussed in detail by Blinkhorn, who focussed on finds beyond the kingdom (Blinkhorn 2012: 69–116). He did, however, publish gazetteers of sites in Norfolk and Suffolk, as supplied by the county Historic Environment Records (HERs) (Blinkhorn 2012: Tables 39–40).

Updated versions of the HER lists were provided to the present author as part of her *Norfolk and Suffolk Saxon and Medieval Pottery Project*. The HER searches produced similar lists to those published by Blinkhorn, with the addition of new sites recorded

during the past decade. Further sites were added from the author's archive of reports, as some of these have not yet been added to the HER databases. Every record was checked using the online HERs and quantities of Ipswich ware were recorded wherever possible. During this work, it was noticed that a number of entries in the original Norfolk list were not for Ipswich ware; rather, they included pottery termed 'Early/Middle Saxon' (meaning handmade wares) or simply 'Saxon' (the majority of which appeared to be old finds of 'cinerary urns'). These have been weeded out to provide a distribution map which, as far as possible, only includes Ipswich ware. This editing has resulted in the removal of 72 records from the original list and the addition of 419 new sites,[2] and allows a basic distribution map to be generated (Figure 4). Despite the additions, the overall pattern is not vastly different to the one published in 2012.

There are problems with using raw data from the HERs,[3] not least of which is the reliance on identifications which have been made over many decades by a variety of individuals with varying experience in the identification of pottery, and the translation of that into a summary for inclusion on the digital record. Specific pottery types are not always recorded: the Suffolk HER does generally mention Ipswich ware as a matter of course, but many of the entries in the Norfolk HER mention only 'Middle Saxon' pottery – while it is likely that the majority of this was, or was identified as, Ipswich ware, the existence of several records in which 'handmade Middle Saxon' pottery is recorded makes this less certain (A. Rogerson, pers. comm.). Of the 987 sites in Norfolk which have been included in the new distribution, 391 cannot be proven to have produced Ipswich ware based on the entries in the online HER and some of the remaining 596 sites could only be confirmed by checking published or grey literature reports. There are 434 Middle Anglo-Saxon pottery sites in the Suffolk HER, of which only four do not mention Ipswich ware by name. None of this matters too much if one is simply looking for Middle Anglo-Saxon findspots, but for a distribution map of Ipswich ware these factors have to be considered.

There are several potential explanations for the apparently wider distribution of Ipswich ware across Norfolk than appears to be the case in Suffolk. As mentioned, there is the possibility that some spots on the original distribution map (and the new one) may not actually represent Ipswich ware. Some of the 'handmade', 'non-standard', 'non-Ipswich' and other sherds recorded as Middle Anglo-Saxon on the Norfolk HER may relate to locally produced wares in the style of Ipswich ware, and the similarity of Wreningham ware to Ipswich ware in both form and fabric has been noted above. It should also be noted that a number of records include Ipswich ware or Middle Anglo-Saxon pottery which is only *possibly* identified as such – the

[2] Note that the original list (Blinkhorn 2012: Table 40) also contains a number of duplicates, not counted here.
[3] This is not intended as a criticism of the HERs and their officers, merely an observation on the use of the data and the need to check what has been provided.

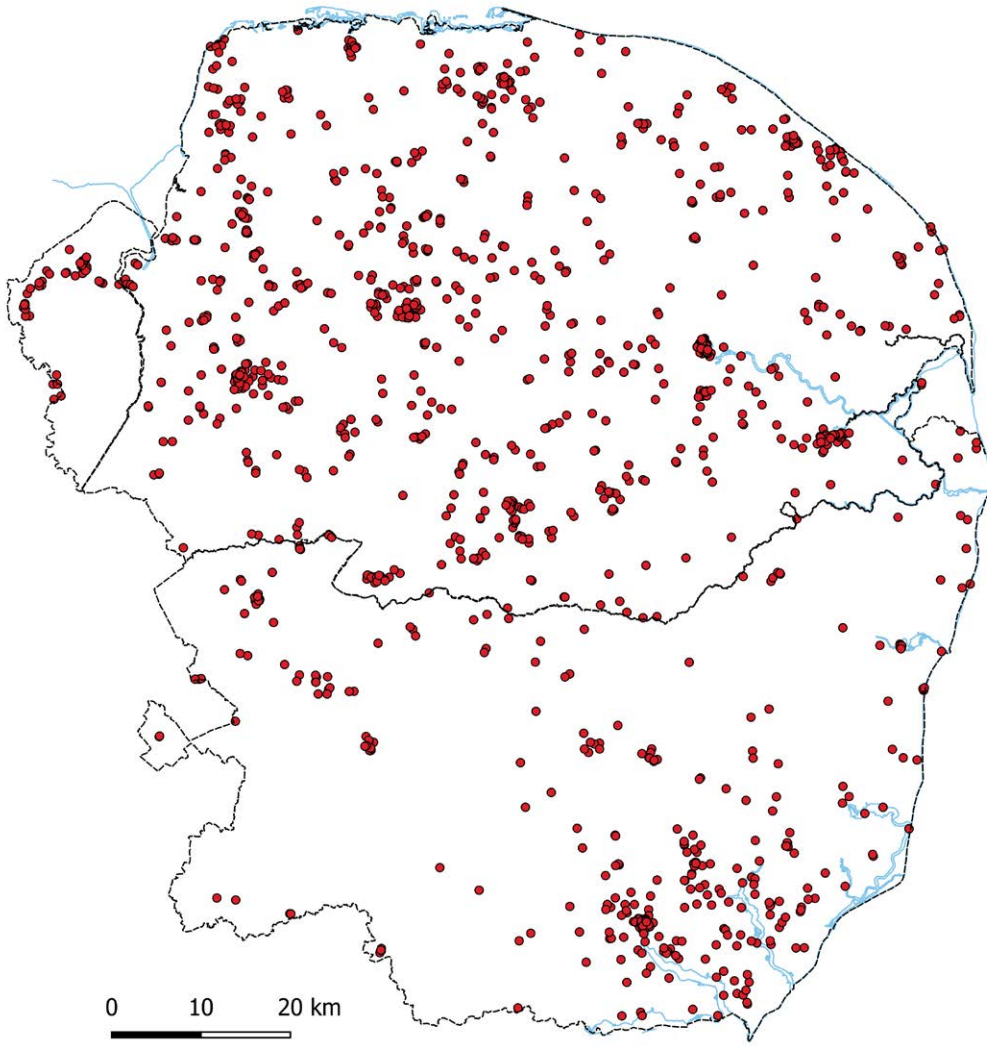


Figure 4. Basic distribution map of Ipswich ware discovery based on edited Norfolk and Suffolk Historic Environment Record and other data.

difficulties in distinguishing abraded Roman and Late Anglo-Saxon storage vessels from Ipswich ware body sherds, particularly in fieldwalking assemblages, are well known to pottery specialists working in the region. However, even if these less confident entries are taken into account, the overall distribution of Ipswich ware still seems to be more widespread in Norfolk than in Suffolk.

Despite these caveats, the distribution of Ipswich ware can be a useful tool in Middle Anglo-Saxon settlement studies. Work on the South-East Suffolk fieldwalking survey, by John Newman of the Suffolk Archaeological Unit, resulted in distributions of pottery

and other finds in an area focusing on the Deben valley and incorporating the royal sites of Rendlesham and Sutton Hoo (Newman 1992; 1999; 2005). The fieldwalking finds in this concentrated area appear to show a correlation between large spreads of Ipswich ware and known 'high status' sites (Newman 2005: 457), as well as resulting in smaller scatters in parishes such as Grundisburgh which, through later excavation, have been shown to indicate settlement activity.

The use of distribution maps in large towns is less well established. Based on work in Norwich, clusters of Ipswich ware were originally taken to indicate areas of early settlement close to the river, until it was determined that much of the material was residual and some had probably been brought to the site from elsewhere during levelling or dumping of construction waste (Atkin and Evans 2002: 236). More recent excavations at 40 Fishergate, Norwich, have, however, located Middle Anglo-Saxon features and the grouping of Ipswich ware centred on Fishergate, Quayside and the northern part of the cathedral precinct may well represent a farmstead or small settlement of the period, with small clusters of pottery elsewhere also interpreted as possible farmsteads (Ayers 2009: 27–30). In Ipswich, the large assemblages of pottery from the town are, of course, associated with Middle Anglo-Saxon features at the Buttermarket and elsewhere.

Some of the larger clusters seen in rural parts of the map are the result of intensive programmes of fieldwalking carried out over the past five decades (for overviews see Hoggett 2007: 167–78; Wright 2015: 145–52). The South-East Suffolk survey has already been mentioned, and this is largely responsible for the cluster to the north-east of Ipswich. In Norfolk, clusters can also be seen around Barton Bendish, Fransham, Quidenham and Loddon, for example, which also represent areas of field survey (Rogerson 2005). However, there are areas which have been intensively surveyed and which have not produced Ipswich ware in any quantity, one of these being focussed on the Suffolk side of the Waveney valley, in and around the parishes of Metfield and Mendham. Early Anglo-Saxon pottery is also lacking in this area, although it tends not to survive well enough in ploughsoil to be certain, but it appears that the area was not intensively occupied in this period.

Gaps in the distribution of Ipswich ware in parts of Suffolk in particular have been noted previously (e.g. Newman 1999: 39) and it is worth considering why these exist. Figure 5 shows the Ipswich ware distribution on a topographical map of the two counties. It is clear from this that the higher ground in Suffolk lacks Ipswich ware finds. This pattern is not an artefact of lack of fieldwork on the higher ground, as this area has been as much subject to fieldwork as any other part of Suffolk. Williamson (2015: 58) has suggested that the lack of Ipswich ware in the south and south-west of Suffolk and Essex was due to this area being politically separate, but there is also a lack of handmade wares across the higher ground, arguing against this being the main reason. Although there are some clusters on the higher ground in Norfolk, most notably in Fransham, close inspection of most of these shows that they are actually

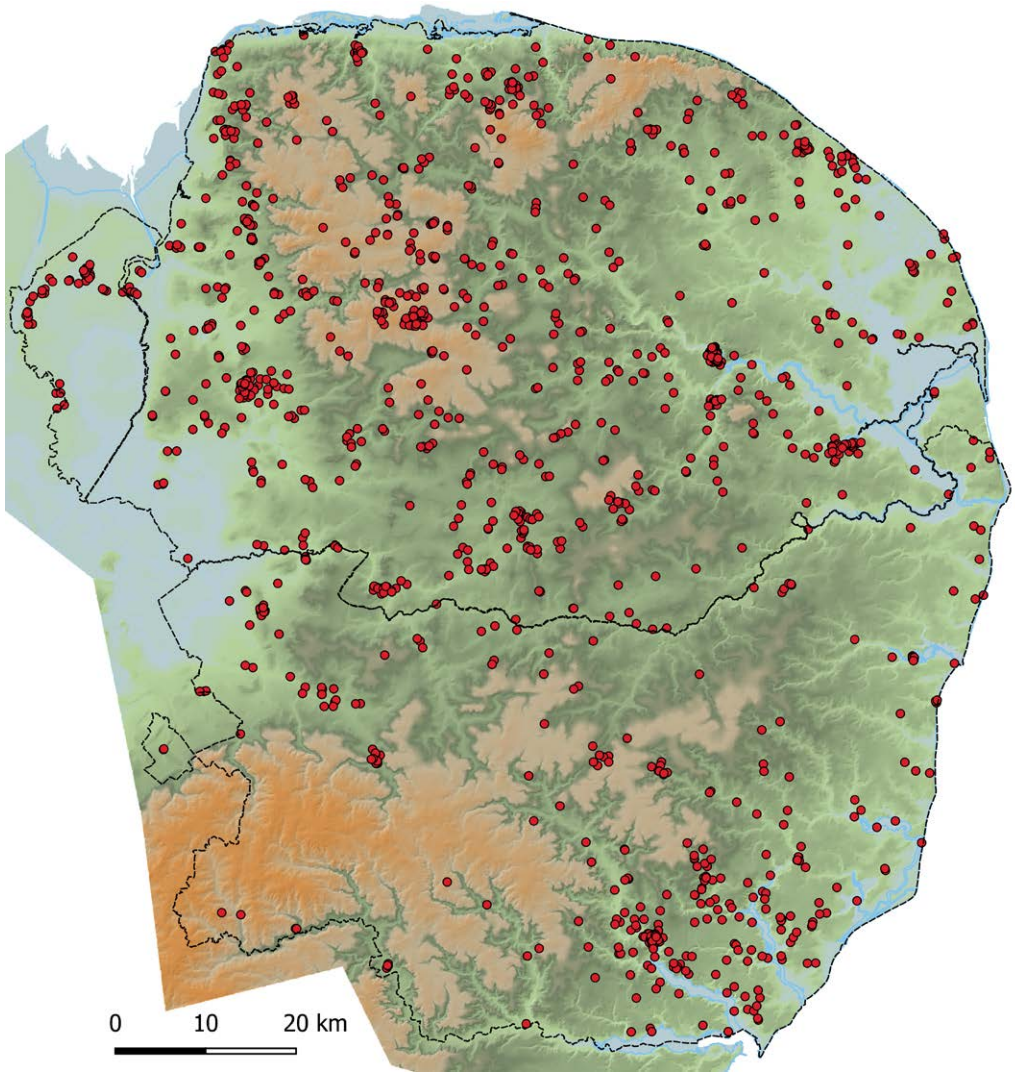


Figure 5. Distribution map of Ipswich ware discovery sites recorded in the Norfolk and Suffolk Historic Environment Records and other data in relation to topographic features.

located in the small valleys rather than on the slopes. Nevertheless, the higher areas in Norfolk were apparently more settled than those in Suffolk at this time.

A basic 'dots on map' approach to distribution does not really provide the full picture though. More useful would be some idea of where larger quantities are located. It is clear from the survey of HER entries carried out as part of this study, that many of the dots only represent one or two sherds. Unfortunately, some of the HER entries which hint at bigger groups are not specific in quantities and are unpublished, but where possible, the number of sherds (or a reasonable estimate) has been added to the database of sites used

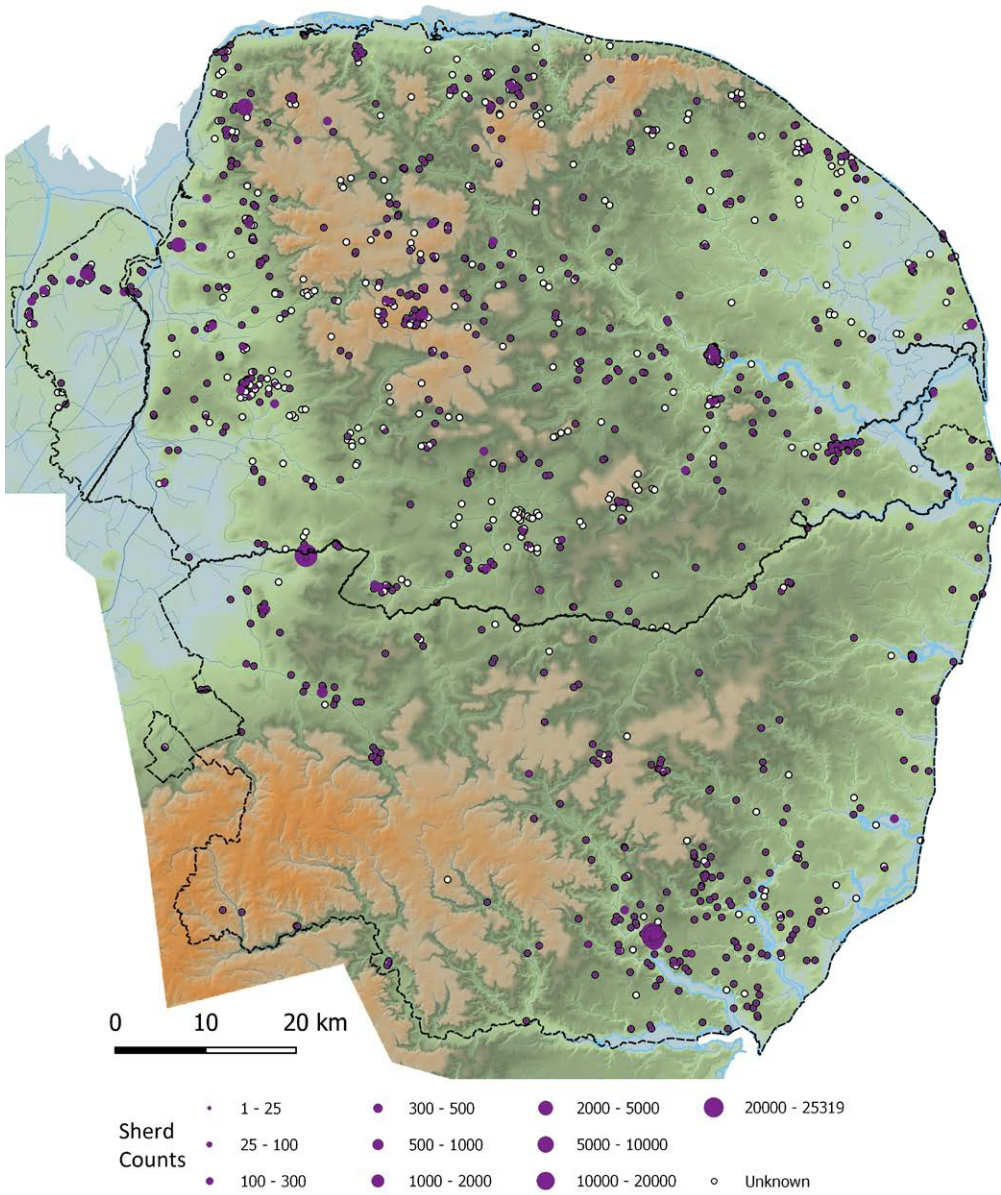


Figure 6. Weighted distribution map of Ipswich ware discovery sites recorded in the Norfolk and Suffolk Historic Environment Records and other data in relation to topographic features.

to generate Figure 6. The white dots on the map represent sites for which quantities are unknown, but it is likely that most of these produced fewer than 25 sherds each. Those for which mention is made of 'lots' of Ipswich ware have been given an estimate of 101 sherds, but some of these may have had considerably larger (or slightly smaller) assemblages.

Fen-edge/Marshland	Coastal/Estuarine	Riverine	Inland
Southery (50)*	Snettisham (50)*	Heckingham (96)	Longham (50)*
Mildenhall (81)	Happisburgh (50)*	Thetford (490)	Costessey (51)
Marham (86)	Friston (63)	Norwich (541)	Banham (53)
Oxborough (101)	Burnham Market (71)	Sedgeford (4,630)	Purdis Farm (59)
Tilney (110)	Sandringham (102)	Ipswich (90,851)	Little Dunham (64)
West Walton (135)	Bawsey (139)		Caistor St Edmund (67)
Barton Bendish (139)	Burgh Castle (256)		Barwick (101)
Wormegay (204)	Caister on Sea (408)		North Lopham (103)
Eriswell (298)	King's Lynn (1,337)		Grundisburgh (109)
Walpole (313)			Gt Dunham (121)
Terrington (1,155)			Rocklands (124)
Brandon (20,482)			Field Dalling (127)
			Bury St Edmunds (129)
			Tasburgh (135)
			Harling (148)
			North Elmham (161)
			Hindringham (203)
			Whissonsett (251)
			Fransham (378)
Total: 23,293	**Total: 2,476**	**Total: 96,608**	**Total: 2,421**

*Table 1. Minimum quantities of sherds from Norfolk and Suffolk parishes which have produced at least 50 sherds. * these figures are estimates based on 'lots' of pottery being found in fieldwalking.*

As might be expected, Ipswich has by far the largest assemblage of Ipswich ware. Sites which have been intensively excavated and from which midden material has been recovered (such as Brandon (Suffolk) and Sedgeford) are also represented by large quantities. Other significant sites are located in the fens of Norfolk and the fen-edge of both counties. Those on the marshland around Terrington St Clement are discussed by Silvester, who notes their correlation with roddons and their apparent regular spacing across the landscape (1988: 158); over 1,000 sherds were recovered from fieldwalking across twelve fields at Hay Green (Rogerson and Silvester 1985). Trench excavations of some of these sites were subsequently carried out and Middle Anglo-Saxon ditches and pits were identified (Crowson *et al.* 2005). What is clear, though, is that the majority of large assemblages are from sites which were close to water at the

time, particularly the estuaries and large river systems along the east coast and the fen-edge in the west. Table 1 shows the minimum quantities of sherds recovered from parishes with a total count of 50 or more sherds.

Some of the sites in Table 1 have been interpreted as early monastic sites, particularly Burgh Castle (Norfolk), while others may have been small trading places, such as Caister-on-Sea (Norfolk) and Friston (Suffolk), and some were probably estate centres with control over trade and exchange, such as the possible elite/minster site at Brandon (Suffolk). They would have had a key role in the economy and trade of the period, and in some cases were also involved in manufacturing (Hutcheson 2006: 91; Pestell 2011). Brandon, for example, seems to have been involved in potentially commercial wool production and textile manufacture (Tester *et al.* 2014: 376). The roddon sites in the fens are thought to have been farm settlements with access to the sea, and there is a suggestion that they may have been involved in salt manufacture (Penn 2005). The types of site on which Ipswich ware is more frequently found may have some implications for use of the vessels, as is discussed further below.

It is possible that Blinkhorn's model for distribution across the 'Secondary zone' – that is, via the coast, rivers and Roman (or other) roads (2012, 89–90) – might also be the basis for early dissemination in Norfolk, with the pattern later filled in as pots moved into the more 'remote' settlements. As there is apparently no possibility of dating Ipswich ware forms closely, confirmation of this would need to be based on associated finds and radiocarbon dating, preferably of soot residues from the pots themselves.

Some 'New' Sites

Phil Andrews provided a useful summary of the known Middle Anglo-Saxon sites in Norfolk up to the final decade of the 20th century (Andrews 1992). At the time, no Middle Anglo-Saxon pottery had been found at Caistor St Edmund, despite significant evidence for activity there in the period. Fieldwalking by the Norfolk Archaeological and Historical Research Group in the following year produced several Middle Anglo-Saxon sherds (Norfolk HER 29994, quantity unknown). Recent fieldwork carried out as part of the Caistor Roman Project has resulted in at least 67 sherds of Ipswich ware being recorded at various locations around the village, with the largest single collection being from the uppermost fill (and surrounding topsoil) of a deep sunken-featured building (SFB) of Early Anglo-Saxon date (Anderson 2016a). Ipswich ware also occurred in the upper fills of some SFBs at West Stow (Suffolk), although the majority came from an overlying layer (West 1985: 137). In both cases, it appears that the Ipswich ware was intrusive from later middening.

There are several other recently identified sites of note, which do not feature in Andrews' summary or Blinkhorn's catalogue (not including urban excavations). At Eriswell (RAF Lakenheath), Suffolk HER ERL 116 lay to the east of an area of Early

Anglo-Saxon occupation and to the north-east of the Early Anglo-Saxon cemeteries; 221 sherds of Ipswich ware were recovered from an area which yielded no evidence for structures and comprised largely pits, ditches and pottery finds (Anderson 2006). An excavation near the centre of Mildenhall yielded 80 sherds from pits and ditches, and a contemporary oven was dated by radiocarbon analysis (Havard *et al*. 2019). Three other rural sites in Suffolk have produced twenty or more sherds, Haughley School (Suffolk HER HGH 015), Silver Birches, Hintlesham (Suffolk HER HNS 027, most of the sherds represented a single vessel) and Fairfield Road, Framlingham (Suffolk HER FML 078); most sherds were recovered from ditches or pits of later date.

In Norfolk, two sites to the south of North Walsham Road, Happisburgh (Norfolk HER 58810 and 61654) produced a total of 41 sherds of Ipswich ware (Anderson 2013c; 2019b), but again there were no structural remains dating from this period, only ditches and pits. Over 100 sherds have turned up during metal-detecting in North Lopham in the past decade (Norfolk HER 30181). Approximately 250 sherds have been collected in Whissonsett, spread across several sites including three excavated areas (Anderson 2016b). A site at the Old Bell, Marham, produced 85 sherds of Ipswich or 'Ipswich-type' ware and 166 handmade sherds which the author designated 'Early/ Middle Saxon' (Thompson 2010), although they do not need to be any later than the 7th century. The 6th–9th-century 'Middle Anglo-Saxon' phase on the site (Newton 2012) probably comprises an Early Anglo-Saxon SFB with later backfilling (the fill included both Ipswich and Thetford-type wares), as seen at Caistor and West Stow.

By far the most prolific new site, however, is in the Wootton Road, Gaywood, area of King's Lynn, from which 1,335 sherds of Ipswich ware have been reported since 2009 (Norfolk HER 52930). This total includes 83 sherds from test-pitting by Access Cambridge Archaeology (Collins 2018), which may have identified part of a contemporary structure at one site (GAY/10/4) although the evidence is limited. The large group of 1,252 sherds was recovered from a single area only *c*.1,600 m^2 in extent (A. Rogerson, pers. comm.).

There are still gaps in the distribution in places where large assemblages might be expected. For example, to date only eighteen sherds have been recovered from Blythburgh (Suffolk), even though a monastery is known to have been founded there in the 7th century and it is thought to have been an important centre for several centuries (Wade 1993: 150). Sudbury is also thought to have been an important settlement in the 8th century (Wade 1993: 144), but so far only seven sherds have been found in the town. Rendlesham was still a royal 'palace' in the 8th century, but fewer than 150 sherds have been quantified from the area. In all cases, this is almost certainly the result of limited excavation in the appropriate areas.

Further excavations in Ipswich have resulted in many more sherds from the town, although by far the largest of the recent assemblages is that from Stoke Quay (6,444

sherds; Sudds 2020). Of more interest, perhaps, are the additions of several small findspots inside the area of the Anglo-Saxon borough, as defined by Wade (1988: fig. 57). The original four inside the boundary were identified by Wade as representing small farmsteads, and there are perhaps ten or twelve findspots within the area now. To this group can be added more significant assemblages at three locations just outside the borough boundary, at Whitehouse Farm (Suffolk HER IPS 247), Purdis Farm (Suffolk HER PFM 008) and in Washbrook (Suffolk HER WSH 012 and WSH 016, either side of the Copdock Interchange). A farmstead in a D-shaped enclosure was almost completely excavated at Whitehouse Farm (Caruth 1996), while at Purdis Farm a structure which appears Middle Anglo-Saxon in character was phased as Late Anglo-Saxon based on the presence of two tiny sherds of Thetford-type ware in one of the post-hole fills, which could easily be intrusive (Loader 2009). Perhaps these were the homes of independent farmers setting up as close to the boundary of the *wic*'s hinterland as possible.

Discussion

A novel pottery for changing times?

Towards the end of the 7th century, there is a clear change which can be seen archaeologically in both material culture and physical remains. Settlements are found to have shifted from the positions they occupied in the Early Anglo-Saxon period, a phenomenon known as the 'Middle Saxon shuffle' (Arnold and Wardle 1981). Settlement forms changed as well, with the appearance of specialist types, such as the *emporia* or *wics*, estate and lordly centres, monastic sites and small trading sites (e.g. Pestell and Ulmschneider 2003; Loveluck and Tys 2006; Hamerow 2008). Ipswich ware was not the only new 'thing' on the scene at this time.

In Suffolk, analysis of the distribution of Early Anglo-Saxon pottery in comparison with the Middle Anglo-Saxon distribution appears to show not only a shift in settlement, but also a decrease in the number of findspots in the north-west of the county (Figure 7).[4] Whether this correlates directly with a decrease in population from one period to the next is impossible to prove, but it is compelling evidence and is similar to the decrease in pottery findspots which occurs between the medieval and late medieval periods (Anderson 2024). This latter is almost certainly the result of depopulation following successive outbreaks of the Black Death, together with the other well-known disasters of the 14th century, for example famine and war.

One of the suggestions for change towards the end of the 7th century is the effect of the Justinian plague (Maddicott 1997). Despite recently identified aDNA evidence for the presence of *Yersinia pestis* (the bacterium which causes Bubonic plague) in

[4] The South-East Suffolk Survey area shows an increase closer to Ipswich, but this could of course represent settlement at any time during the currency of Ipswich ware.

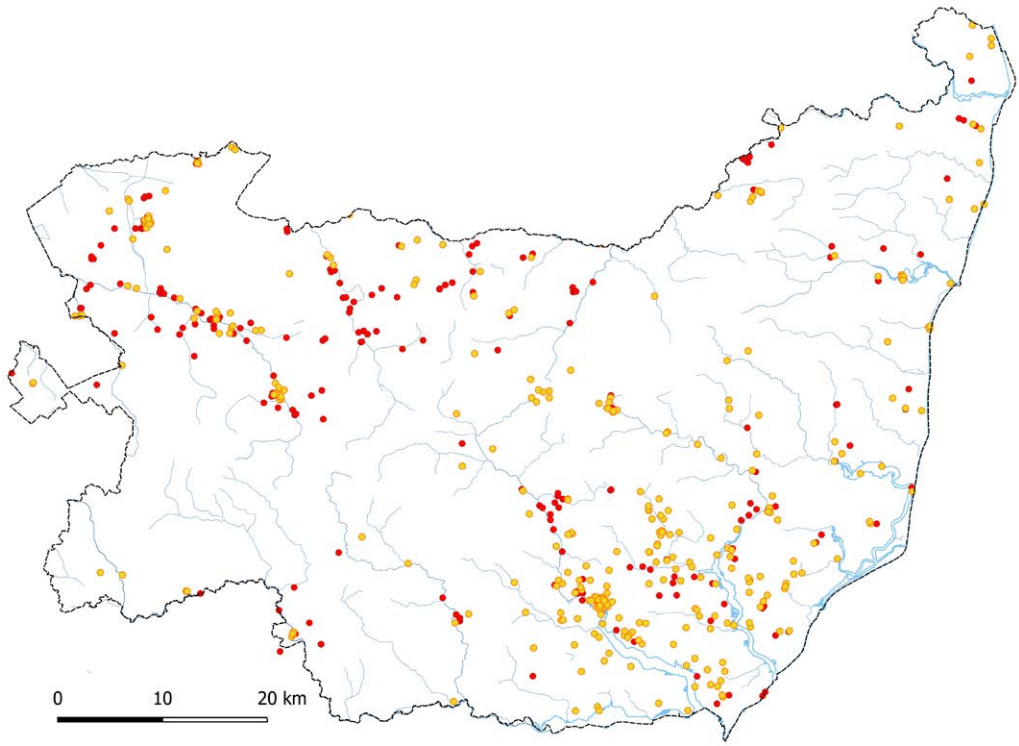


Figure 7. Distribution map of Early Anglo-Saxon (red) and Middle Anglo-Saxon (yellow) based on Suffolk Historic Environment Record data.

the 6th-century Edix Hill cemetery in Cambridgeshire (Keller *et al.* 2019), the degree to which the outbreaks of plague in the 6th and 7th centuries affected the general populace is hotly debated (e.g. Mordechai *et al.* 2019). *If* depopulation occurred in the East Anglian countryside, which is far from proven or even provable, this could have provided the impetus for movement away from the old villages (which might be seen as 'unclean' or taboo) and might have allowed the rising elite – whether secular or clerical – to impose a new order on survivors. Further, if the plague wiped out many of those with knowledge of pottery manufacture, this would be exactly the time at which to bring in experienced practitioners from the Continent. As noted above, Blinkhorn has suggested that such potters may have come from Frisia, and trade links with the Frisians are attested in both historical sources and material culture (Pestell 2017). Scull (2013: 48) considered the possibility of 'external authority' in the form of continental elites having some input into the establishment of the *wic* at Ipswich.

In support of this argument, Homans (1957: 206) claimed that historical evidence showed institutional similarities between early medieval East Anglia and Frisia, which he used as evidence for the Frisians invading East Anglia in the 5th century. If his basic premise is accepted, it may be more reasonable to suggest that in fact this merging of cultures dates to the later 7th or 8th centuries, when new systems of control were

apparently being introduced by the East Anglian elite. Analysis of male DNA in East Anglia, specifically Fakenham and North Walsham, showed no significant difference between the region and Friesland (Weale *et al.* 2002) and was used to suggest mass migration from Frisia in the Early Anglo-Saxon period, although it was noted that the results could represent migration at any time between 50 to 60 generations ago. A more recent aDNA study using a small sample from two cemetery sites in Cambridgeshire showed that some of the Early Anglo-Saxons from Oakington and all of the Middle Anglo-Saxons from Hinxton had close genetic links with Dutch samples (Schiffels *et al.* 2016), with the authors expressing surprise that 'the middle Anglo-Saxons from … Hinxton look more genetically consistent with unmixed immigrant ancestry', suggesting that they were recent immigrants. More aDNA analysis of Middle Anglo-Saxon populations may help to elucidate this in the future.

Why was there a need for 'Ipswich ware'?

That Ipswich ware vessels were used for cooking and storage, amongst other household uses, is not doubted, and perhaps in Ipswich and its hinterland that was their primary function. However, given the widespread distribution, it is most likely that the jars were originally designed as containers in which to move specific products.

Hutcheson (2006: 86) suggested honey, salt or wine as the most likely commodities.[5] This was discussed in greater detail by Blinkhorn (2012: 97–9), with the suggestion that vessels found at sites in his 'Secondary zone' (i.e. outside East Anglia) were primarily used to carry salt. Wine would have arrived at Ipswich in barrels, some of which have been found (e.g. Goodburn 2020) and is likely to have remained in them for onward transport across any great distance. Perhaps for local distribution pitchers could have been used, although the high proportion of pitchers outside East Anglia might suggest that wine was sometimes transported in them, perhaps most likely for personal use. Sherds of Badorf ware *amphorae* are sometimes found at rural settlements and may well be further evidence for the movement of wine in this type of vessel, but only in a limited capacity – they were just too fragile to have been used regularly for this purpose. Other goods might perhaps be sold or bartered in small quantities – dairy products or smoked, brined or salted fish are possibilities, although fish oil might be expected to show up in lipid analysis and so far it has not (Blinkhorn 2012: 35–52).

The movement of salt is likely to have been at least part of the reason for widespread distribution across Blinkhorn's 'Primary zone' of Norfolk and Suffolk as well. In particular, the sites around the Fens and along the west coast of Norfolk were well-placed to be involved in the salt industry, although at present evidence for this in the Anglo-Saxon

[5] It is interesting to note that an early interpretation for the presence of Slavic vessels in Scandinavia in the 11th–12th century was that they were used to transport perishable goods (salt, honey or wax), but this theory was rejected several decades ago and the favoured explanation now is the presence of Slavic settlers. This area saw a similar replacement of handmade local vessels with wheel-coiled pottery, attributed to the 'personal presence of skilled Slavic potters' (Naum 2012: 98).

period is limited and largely conjectural (but see Clarke and Clarke (2018) for an ?early Late Anglo-Saxon example recently identified in King's Lynn). The main salt-production sites in Norfolk and Suffolk are those of prehistoric and Roman date, most of which were located around the Wash and the Great Estuary (Gurney 2005), with several examples also known along the Suffolk coasts and estuaries (Good and Plouviez 2007). Domesday records several salt-houses or saltpans in the same coastal areas (Williamson 2005). Comparison of the locations of these earlier and later salt manufactories shows a close correlation with the larger assemblages of Ipswich ware shown in Figure 6.

The association of pottery with salt-trading has been noted for other periods, for example the widespread distribution of Black Burnished ware (BB1) of the Roman period has been linked to salt manufacture in Dorset (Gerrard 2008), and an ethnoarchaeological study of salt and pottery manufacture in the present-day Philippines has shown a symbiotic relationship between potters and salt-workers (Yankowsi 2019).[6] This works well, because both pottery and salt were being made in the same place. Was the same true of the early pottery manufacture at Stoke Quay? Ipswich was located at the place where salt water and fresh water meet in the Orwell estuary, so conceivably salt could have been produced nearby. The closest saltpan site recorded in Domesday was located at Wherstead, the northern boundary of the parish being less than a kilometre to the south of the Stoke Quay kiln, but so far no salterns have been identified archaeologically this close to the town.

As Ipswich ware is supposed to have been made only in Ipswich (although as noted above, identification of some sherds is suspect and there may have been other production sites like the one at Wreningham), a model which involves salt transportation needs more consideration. Although there was salt production in Suffolk, sites are considerably more frequent on the Norfolk coast. It would be much more convenient for those located in, for example, Terrington St Clement to have a local source for their pottery. That they appear not to have done so can be interpreted in several ways – a cultural need to conform to East Anglian identity (as proposed by Blinkhorn (2012: 87)), a political requirement of the elite groups based in the south-east of the region, or a functional necessity because the pots were perfect for moving salt around.

The need for salt was great, not only for the preservation and flavouring of food, but also for its use in some manufacturing processes, and control of saltworks was often in the hands of the elite and monastic establishments (Hagen 1992: 93). Perhaps Ipswich ware pots found at sites around the Wash were sent there with the proviso that they were filled and returned. The large assemblage from Brandon could be related to movement of salt and salted goods from the Wash sites into southern East

[6] The pots used to make and transport salt in this Philippines 'household industry' are remarkably similar to the plain Ipswich ware pots from Brandon illustrated in Figure 1, and are made in standard sizes, but the Philippine practice is to boil brine in the pots until the bases crack, to break off the base and discard those sherds at the salt-making site, and to transport the salt in the remainder of the broken vessel.

Anglia, although the textile manufacturing 'industry' based there would also have been a major consumer of salt. Potentially vessels, once emptied, could be recycled by returning them to the saltworks, if they were not retained for use in the home. Certainly it would have been easier for the salt-workers to collect pots, or have them delivered, from Brandon than from Ipswich and perhaps they were returned with other produce inside. Bawsey may have performed a similar administrative role in Norfolk, as suggested by Clarke and Clarke (2018: 20). Hamerow (2002: 128) notes a similar relationship, postulated by Lebecq, between the Frisians and the Rhine merchants, producing salt and fish in exchange for cereals, timber and wine.

The end of the industry

Ipswich ware flourished in East Anglia for at least 150 years, but eventually the heavy-based sturdy pots were replaced with a lighter, more finely potted, wheel-made type known as Thetford-type ware. This ware, despite its name, also appears to have originated in Ipswich, with Ipswich Thetford-type wares being made in a similar fabric to the sandy version of Ipswich ware, and with jars having the characteristic girth-grooving on the upper half of the body. Determining the date range for this new ware is equally as difficult as that for Ipswich ware, although a transition towards the end of the 9th century seems most likely. Ipswich and Thetford-type wares occur together in some contemporary contexts in Ipswich, but there is considerable redeposition of both fabrics in the town, and it appears that there was at least a little overlap of the two types. The technology of the fast wheel, again perhaps introduced from the Continent, soon spread across much of eastern England.[7] As a result, Ipswich no longer had a monopoly in the manufacture of high-quality ceramics in the region, as potteries started up in Thetford, Norwich, Sudbury and possibly other urban centres within a few decades, and later spread to rural areas, such as Grimston, Gayton, Bircham and Langhale (all Norfolk).

Although Thetford-type ware appears to have taken over fairly rapidly, the kiln at Wreningham and the putative examples in Bromeswell and Butley, together with finds of 'transitional' wares, suggest a degree of conservatism in some rural areas. Presumably some people still favoured this type of slow wheel-made pottery for cooking. Some of the finer, thin-walled Thetford-type ware jars would have been more susceptible to thermal shock than their predecessors and may have been more appropriate for innovative methods of cooking, such as ovens and stoves, as in the Roman period, or simply for storage. Transitional wares appear to be quite rare at the moment, although re-assessment of some assemblages of Ipswich ware may result in more being identified. However, it is unlikely that they lasted very long, given the ubiquity of Thetford-type wares on most Late Anglo-Saxon sites.

[7] There is evidence to suggest that several centres (e.g. Stamford, Stafford) started making wheel-thrown pottery at around the same time or earlier than Ipswich and Thetford, and the 'spread' of this type of pottery via the east to the rest of the Danelaw area and beyond is no longer an acceptable model.

Conclusions

The pattern of Ipswich ware distribution in Norfolk and Suffolk shows a greater concentration of the pottery in the former than the latter. While this is in part a result of more concentrated fieldwalking projects in Norfolk, it is also possible to see some patterns which relate to the geography of the region. It is unfortunate that Ipswich ware cannot be more precisely dated through changes in fabric, form or decoration, but based on the ways in which Ipswich ware travelled beyond the limits of the East Anglian kingdom it is possible to predict that the earliest users of the pottery in Norfolk were probably those based around the coast and along other routeways. Concentrations and large assemblages of the pottery are the result of excavation and other fieldwork, but they occur particularly in areas where salt-making is likely to have occurred. Possibly they were prized for their sturdiness and could have been used in the boiling of brine for salt manufacture, although there is no clear evidence of this. Alternatively, they may have been deliberately sent to the salterns in the expectation that they would be filled with salt or preserved foodstuffs, and either returned to their origin or distributed across the kingdom and beyond.

Acknowledgements

First, I would like to thank Richard Hoggett for commissioning this paper. I am grateful to Berni Sudds for information on the Stoke Quay and Wreningham kiln sites and their products; to John Newman for supplying copies of his papers when it was impossible to visit a library; and to Heather Hamilton and James Rolfe of the Norfolk and Suffolk HERs respectively for supplying data. Keith Wade, John Newman and Andrew Rogerson commented on the first draft of this paper, and I am very grateful for their expertise and comments. Finally, my husband Carleton Van Selman is thanked for his patience while I spent many lockdown weekends and evenings writing this paper.

References

Anderson, S. 2006. Pottery, in J. Caruth. Consolidated Support Complex, RAF Lakenheath, ERL 116 and Family Support Complex, RAF Lakenheath ERL 139. A report on the archaeological excavations, 2001–2005: 29–30. Unpublished Suffolk County Council Archaeological Service report 2006/179.

Anderson, S. 2013a. Sudbury Rugby Ground, Great Cornard (COG028/030): post-Roman pottery. Unpublished archive report for Suffolk County Council Archaeological Service.

Anderson, S. 2013b. Early Anglo-Saxon pottery, in P. Walton Rogers. *Tyttel's Halh: the Anglo-Saxon Cemetery at Tittleshall, Norfolk*: 13–15. Gressenhall: East Anglian Archaeology 150.

Anderson, S. 2013c. North Walsham Road, Happisburgh (ENF130225): pottery. Unpublished archive report for NPS Archaeology.

Anderson, S. 2016a. Caistor Roman Town (CRT09–12): post-Roman pottery. Unpublished archive report for Caistor Roman Project.

Anderson, S. 2016b. Rose Cottage, London St, Whissonsett (ENF140337): pottery (including revised quantifications for Church Close 40453WHS) and North View Drive (44708WHS). Unpublished archive report for Witham Archaeology.

Anderson, S. 2019a. Post-Roman pottery, in T. Havard, M. Alexander and R. Holt. *Iron Age Fortification beside the River Lark: excavations at Mildenhall, Suffolk*: 81–8. Bury St Edmunds: East Anglian Archaeology 169.

Anderson, S. 2019b. North Walsham Road, Happisburgh (ENF141823): pottery. Unpublished archive report for Norvic Archaeology.

Anderson, S. 2024. Tradition and Innovation: six centuries of pottery production, use and disposal in Late Saxon to late medieval East Anglia. Unpublished PhD dissertation, University of East Anglia.

Andrews, P. 1992. Middle Saxon Norfolk: evidence for settlement, 650–850. *The Annual* 1: 13–28.

Arnold, C. and P. Wardle. 1981. Early medieval settlement patterns in England. *Medieval Archaeology* 25: 145–9.

Atkin, M. and D.H. Evans. 2002. *Excavations in Norwich 1971–1978. Part III*. Norwich: East Anglian Archaeology 100.

Ayers, B. 2009. *Norwich.* Stroud: Amberley.

Badreshany, K. 2020. ICP-AES Analysis of Middle Saxon to Medieval Pottery, in R. Brown, S. Teague, L. Loe, B. Sudds and E. Popescu. *Excavations at Stoke Quay, Ipswich: southern Gipeswic and the parish of St Augustine*: Appendix 4, 459–65. Bury St Edmunds: East Anglian Archaeology 172.

Blinkhorn, P. 2010. Post-Roman pottery, in I. Soden. *Life and Death on a Norwich Backstreet, AD 900–1600: Excavations in St Faith's Lane*: 26–33. Gressenhall: East Anglian Archaeology 133.

Blinkhorn, P. 2012. *The Ipswich Ware Project. Ceramics, trade and society in Middle Saxon England*. London: Medieval Pottery Research Group.

Blinkhorn, P. 2015. The pottery, in A. Forshaw. Archaeological Evaluation. Land North of Church Road, Wreningham, Norfolk: 14–16. Unpublished Archaeology South-East report 2015189.

Caruth, J. 1996. Ipswich, Hewlett Packard plc, Whitehouse Industrial Estate (IPS247). *Proceedings of the Suffolk Institute of Archaeology and History* 38: 476–9.

Clarke, G. and R. Clarke. 2018. A Tale of Two Salterns: recent excavations at Walpole St Peter and Gaywood, King's Lynn. *Norfolk Archaeology* 48: 1–24.

Crowson, A., T. Lane, K. Penn and D. Trimble. 2005. *Anglo-Saxon Settlement on the Siltland of Eastern England*. Lincoln: Lincs Archaeology Heritage Report Series 7.

Coutts, C. 1991. Pottery and the Emporia: Imported pottery in Middle Saxon England with particular reference to Ipswich. Unpublished PhD dissertation, University of Sheffield.

Dallas, C. 1992. Post-Roman pottery, in A. Rogerson and A. Lawson. The earthwork enclosure at Tasburgh, in J.A. Davies, T. Gregory, A.J. Lawson, R. Rickett and A. Rogerson. *The Iron Age Forts of Norfolk:* 54–5. Gressenhall: East Anglian Archaeology 54.

Dallas, C. 1994. Pottery, in B. Ayers. *Excavations at Fishergate, Norwich, 1985*: 19–29. Gressenhall: East Anglian Archaeology 68.

Davies, G. 2012. Middle Anglo-Saxon continental Wares in Norfolk: a social interpretation. *Medieval Ceramics* 33: 1–9.

Fenwick, V. 1984. Insula de Burgh. Excavations at Burrow Hill, Butley, Suffolk, 1978–81. *Anglo-Saxon Studies in Archaeology and History* 3: 35–54.
Gerrard, J. 2008. Feeding the army from Dorset: pottery, salt and the Roman state, in S. Stallibrass and R. Thomas (eds) *Feeding the Roman Army. The Archaeology of Production and Supply in NW Europe*: 116–27. Oxford: Oxbow.
Good, C. and J. Plouviez. 2007. *The Archaeology of the Suffolk Coast*. Ipswich: Suffolk County Council Archaeological Service.
Goodburn, D. 2020. The worked wood, in R. Brown, S. Teague, L. Loe, B. Sudds and E. Popescu. *Excavations at Stoke Quay, Ipswich: southern Gipeswic and the parish of St Augustine*: 263–70. Bury St Edmunds: East Anglian Archaeology 172.
Gurney, D. 2005. Roman Norfolk (c. AD 43–110), in T. Ashwin and A. Davison (eds) *An Historical Atlas of Norfolk, 3rd edition*: 28–9. Chichester: Phillimore.
Hagen, A. 1992. Anglo-Saxon Food: Processing and Consumption. Unpublished MPhil dissertation, University College London.
Hamerow, H. 2002. *Early Medieval Settlements: The Archaeology of Rural Communities in North-west Europe, 400–900.* Oxford: Oxford University Press.
Hamerow, H. 2008. Settlement mobility and the 'Middle Saxon Shift': rural settlements and settlement patterns in Anglo-Saxon England. *Anglo-Saxon England* 47: 1–17.
Hamerow, H., Y. Hollevoet and A. Vince. 1994. Migration period settlements and 'Anglo-Saxon' pottery from Flanders. *Medieval Archaeology* 38: 1–18.
Havard, T., M. Alexander and R. Holt. 2019. *Iron Age Fortification beside the River Lark: excavations at Mildenhall, Suffolk*. Bury St Edmunds: East Anglian Archaeology 169.
Hoggett, R. 2007. Changing Beliefs. The Archaeology of the East Anglian Conversion. Unpublished PhD dissertation, University of East Anglia.
Homans, G.C. 1957. The Frisians in East Anglia. *Economic History Rev*iew 10: 189–206.
Hurst, J.G. 1959. Middle-Saxon pottery, in G.C. Dunning, J.G. Hurst, J.N.L. Myres and F. Tischler. Anglo-Saxon pottery: a symposium. *Medieval Archaeology* 3: 13–31.
Hurst, J.G. 1976. The pottery, in D.M. Wilson (ed.) *The Archaeology of Anglo-Saxon England*: 283–348. London: Methuen.
Hurst, J.G. and S.E. West. 1957. Saxo-Norman pottery in East Anglia Part II Thetford Ware, with an account of Middle Saxon Ipswich Ware. *Proceedings of the Cambridge Antiquarian Society* 50: 29–60.
Hutcheson, A. 2006. The origins of King's Lynn? Control of wealth on the Wash prior to the Norman conquest. *Medieval Archaeology* 50: 71–104.
Jackson, C. 2016. Land North of Church Road, Wreningham, Norfolk: Post-Excavation Assessment. Unpublished Pre-Construct Archaeology report 12683.
Keller, M., *et al.* 2019. Ancient Yersinia pestis genomes from across Western Europe reveal early diversification during the First Pandemic (541–750). *PNAS* 116: 12363–72.
Loader, T. 2009. Lark's Meadow, Purdis Farm PFM008. Archaeological Excavation Report. Unpublished Suffolk County Council Archaeological Service report 2009/256.
Loveluck, C. and D. Tys. 2006. Coastal societies, exchange and identity along the Channel and southern North Sea shores of Europe, AD 600–1000. *Journal of Maritime Archaeology* 1: 140–69.
Maddicott, J. 1997. Plague in 7th-century England. *Past and Present* 156: 7–54.
Milligan, B. 1982. Pottery, in J.G. Coad and A.D.F. Streeten. Excavations at Castle Acre Castle, Norfolk, 1972–77. Country house and castle of the Norman earls of Surrey. *Archaeological Journal* 139: 199–227.

Mordechai, L., M. Eisenberg, T.P. Newfield, A. Izdebski, J.E. Kay and H. Poinar. 2019. The Justinianic Plague: an inconsequential pandemic? *PNAS* 116: 25546–54.

Naum, M. 2012. Ambiguous pots: everyday practice, migration and materiality. The case of medieval Baltic Ware on the island of Bornholm (Denmark). *Journal of Social Archaeology* 12: 92–119.

Newman, J.A. 1992. The late Roman and Anglo-Saxon settlement pattern in the Sandlings of Suffolk, in M.O.H. Carver (ed.) *The Age of Sutton Hoo*: 25–38. Woodbridge: Boydell and Brewer.

Newman, J.A. 1999. Wics, trade and the hinterlands – the Ipswich region, in M. Anderton (ed.) *Anglo-Saxon Trading Centres. Beyond the Emporia*: 32–47. Glasgow: Cruithne Press.

Newman, J.A. 2005. Survey in the Deben valley, in M.O.H. Carver. *Sutton Hoo. A seventh-century princely burial ground and its context*: 477–87. London: British Museum Press.

Newton, A.A.S. 2012. Saxon and medieval settlement at The Old Bell, Marham. *Norfolk Archaeology* 46: 331–56.

Penn, K. 2005. Discussion and Conclusions, in A. Crowson, T. Lane, K. Penn and D. Trimble. *Anglo-Saxon Settlement on the Siltland of Eastern England*: 289–300. Lincs Archaeological Heritage Report Series 7.

Pestell, T. 2011. Markets, emporia, wics, and 'productive' sites: pre-Viking trade centres in Anglo-Saxon England, in D.A. Hinton, S. Crawford and H. Hamerow (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 556-79. Oxford: Oxford University Press.

Pestell, T. 2017. The Kingdom of East Anglia, Frisia and continental connections, *c*. AD 600–900, in J. Hines and N. Ijssennagger (eds) *Frisians and their North Sea Neighbours: from the fifth century to the Viking Age*: 193–222. Woodbridge: Boydell and Brewer.

Pestell, T. and K. Ulmschneider (eds) 2003. *Markets in Early Medieval Europe. Trading and 'Productive' Sites, 650–850.* Macclesfield: Windgather Press.

Rogerson, A. 1988. Appendix 1: the medieval pottery, in R. Silvester. *The Fenland Project, Number 3: Norfolk Survey, Marshland and Nar Valley*: 174–5. Gressenhall: East Anglian Archaeology 45.

Rogerson, A. 1995. Fransham: an Archaeological and Historical Study of a Parish on the Norfolk Boulder Clay. Unpublished PhD dissertation, University of East Anglia.

Rogerson, A. 2005. Middle Saxon Norfolk, in T. Ashwin and A. Davison (eds) *An Historical Atlas of Norfolk, 3rd edition*: 32–3. Chichester: Phillimore.

Rogerson, A. and R. Silvester. 1985. Middle Saxon Occupation at Hay Green, Terrington St Clement. *Norfolk Archaeology* 39: 320–2.

Schiffels, S., W. Haak, *et al*. 2016. Iron Age and Anglo-Saxon genomes from East England reveal British migration history. *Nature Communications* 7: 10408.

Scull, C. 2013. The Buttermarket cemetery and the origins of Ipswich in the seventh century AD. *Proceedings of the Suffolk Institute of Archaeology and History* 43: 43–51.

Smedley, N. and E. Owles. 1963. Some Suffolk kilns: IV. Saxon kilns in Cox Lane, Ipswich, 1961. *Proceedings of the Suffolk Institute of Archaeology and History* 29: 304–27.

Seddon, B. 2016. A new Saxon kiln discovery at Wreningham, Norfolk. *Medieval Pottery Research Group Newsletter* 84: 3–4.

Silvester, R. 1988. *The Fenland Project, Number 3: Norfolk Survey, Marshland and Nar Valley*. Gressenhall: East Anglian Archaeology 45.

Stilke, H. 1993. Die frühmittelalterliche Keramik von Oldorf, Gde. Wangerland, Ldkr. Friesland. *Nachrichten aus Niedersachsens Urgeschichte* 62: 135–68.
Sudds, B. 2020. The pottery, in R. Brown, S. Teague, L. Loe, B. Sudds and E. Popescu. *Excavations at Stoke Quay, Ipswich: southern Gipeswic and the parish of St Augustine*: 121–93. Bury St Edmunds: East Anglian Archaeology 172.
Sudds, B. 2023. A Late Saxon pottery enterprise in rural Norfolk: excavations at Wreningham. *Norfolk Archaeology* New Series 2: 25–54.
Tester, A., S. Anderson, I. Riddler and R. Carr. 2014. *Staunch Meadow, Brandon, Suffolk: a high status Middle Saxon settlement on the fen edge*. Bury St Edmunds: East Anglian Archaeology 151.
Thompson, P. 2010. The Pottery, in A.A.S. Newton. Saxon and Medieval Settlement at the Old Bell, Marham, Norfolk. Unpublished Archaeological Solutions report 3458.
Wade, K. 1980. The pottery, in P. Wade Martins. *North Elmham Vol. II*: 413–77. Gressenhall: East Anglian Archaeology 9.
Wade, K. 1988. Ipswich, in R. Hodges and B. Hobley (eds) *The Rebirth of Towns in the West AD 700–1050*: 93–100. York: Council for British Archaeology Research Report 68.
Wade, K. 1993. The urbanisation of East Anglia: the Ipswich perspective, in J. Gardiner (ed.) *Flatlands and Wetlands: current themes in East Anglia archaeology*: 144–51. Gressenhall: East Anglian Archaeology 50.
Wade, K. 2015. The chronological framework. *Ipswich 1974–1990 Excavation Archive*. Suffolk County Council Archaeological Service. https://archaeologydataservice.ac.uk/archives/view/ipswich_parent_2015/index.cfm
Weale, M.E., D.A. Weiss, R.F. Jager, N. Bradman and M.G. Thomas. 2002. Y chromosome evidence for Anglo-Saxon mass migration. *Molecular Biological Evolution* 19: 1008–21.
West, S.E. 1985. *West Stow. The Anglo-Saxon Village*. Bury St Edmunds: East Anglian Archaeology 24.
Williamson, T. 2005. Domesday industries: mills, salt pans and fisheries, in T. Ashwin and A. Davison (eds) *An Historical Atlas of Norfolk, 3rd edition*: 42–3. Chichester: Phillimore.
Williamson, T. 2015. East Anglia's character and the 'North Sea World', in D. Bates and R. Liddiard (eds) *East Anglia and its North Sea World in the Middle Ages*: 44–62. Woodbridge: Boydell and Brewer.
Wright, D.W. 2015. *'Middle Saxon' Settlement and Society.* Oxford: Archaeopress Archaeology.
Yankowski, A. 2019. Salt making and pottery production: community craft specialization in Alburquerque, Bohol, Philippines. *Ethnoarchaeology* 11: 134–54.

Part III: The Anglo-Saxon Economy

The Animal Economy: A Zooarchaeological Perspective on Agriculture and Trade in Anglo-Saxon England

Matilda Holmes and Helena Hamerow

Abstract

The Middle Anglo-Saxon period (7th to 9th centuries) introduced new centres of production and trade that required increased agricultural output, new distribution networks and provided opportunities for craft workers. These two interlinked areas of production and distribution can be observed in the zooarchaeological record. This paper describes the evidence for agricultural output of cattle and sheep based on an extensive data set compiled during work on the European Research Council (ERC)-funded Feeding Anglo Saxon England (FeedSax*) project and how this marked a change from the self-sufficient farms of the Early Anglo-Saxon period. Consideration of the zooarchaeology recorded at the major various site types in this period – farms, estate centres and* wics *– throughout England can also provide evidence for distribution networks and how these varied between regions.*

Introduction

Animals were fundamental to Anglo-Saxon life and this paper considers two aspects of the interactions between people and animals in the Middle Anglo-Saxon period: agriculture and exchange. By considering what animals were used for and how animals and animal products were moved between sites we can better understand the mechanics of production and distribution. This chapter provides an overview of the basics of the animal economy before moving on to look in detail at how this varied between sites, and what this can tell us about the wider economy of the Middle Anglo-Saxon period.

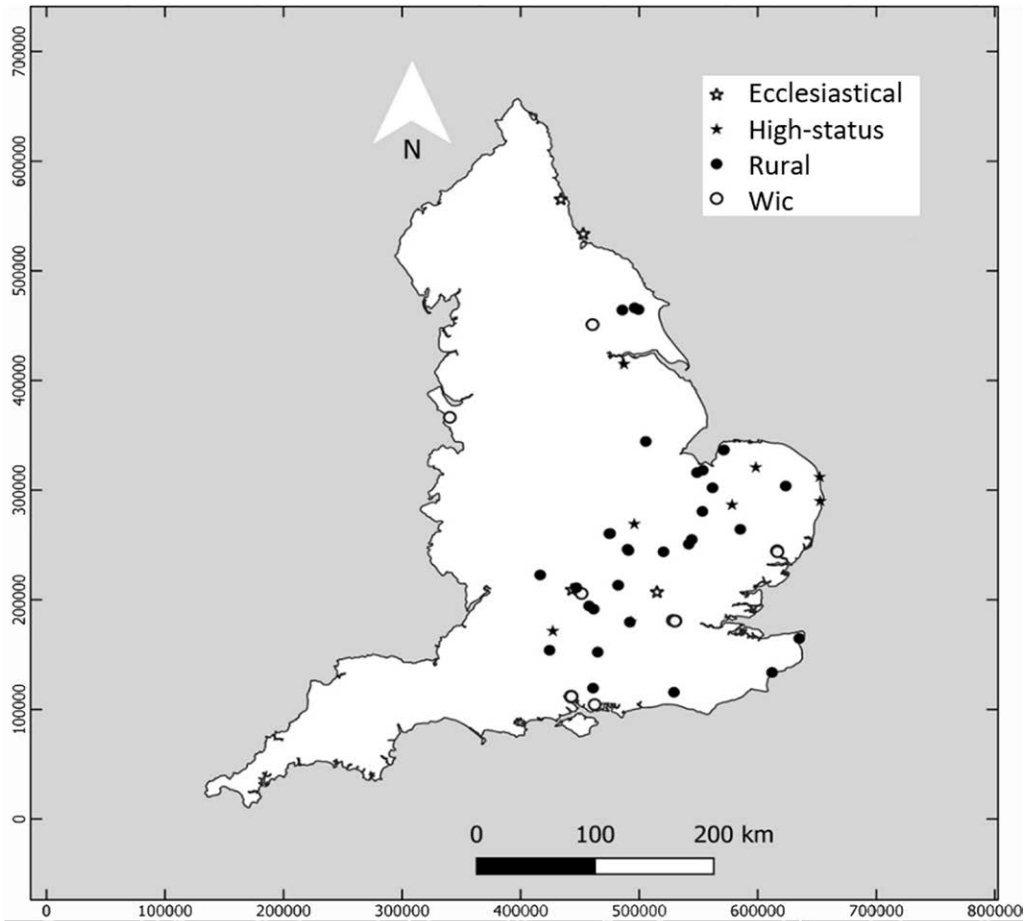
To set the scene, it is important to envisage the settlement and economy of England prior to the 7th century. There was little social and settlement stratification compared to the preceding Roman towns, villas and military bases, and subsequent lordly and ecclesiastical estates (Ulmschneider 2011: 157). There were local elites, but almost everyone would have been involved in agricultural production. The general image is one of self-sufficient farmers living in settlements largely made up of an extended family and their slaves, where production would have provided enough to feed those living on the farm as well as a surplus to act as a safety net and to trade for goods and services (O'Connor 2014). Cattle were valuable animals and much of the wealth of a household would be represented by their cattle (Holmes *et al.* 2021). Cattle and sheep would have been used for meat and milk, with cattle also used for small-scale draught purposes and sheep for their wool. Ard cultivation would have been the main method of soil preparation ahead of planting arable crops (Banham and Faith 2014: 44) and beef, lamb and pork would have been the mainstay of the diet, with very little evidence for wild animals having been routinely targeted for meat (Holmes 2014; Sykes 2004; Sykes 2007).

From the 7th century, much of the population continued to live with their extended families, largely on a self-sufficient basis, but a social change occurred, leading to increasing stratification, international contact and subsequent movement of goods (Wright 2015; Crabtree 2018). These changes can be illustrated by considering the three major site-types observed in the period, from which animal remains are commonly recovered. The first and most common settlements are farms, but a rise in local elites increasingly required the farming population to pay tribute (a form of tax in kind), which meant that farmers had to produce more surplus, such as meat, grain, honey and livestock (Faith 1997: 40; 2013). Collection of these tributes would occur at the second major site-type, the ecclesiastical and secular estate centres. These were ostensibly farms in their own right, but included industrial areas, used luxury goods and had areas for the collection and storage of surplus (Hamerow 2002: 191; Wright 2015; Crabtree 2018: 90).

The third major site-type is the *wic* or trading site. The Middle Anglo-Saxon period was one of increased trade on an international scale and the founding of the *wics* enabled the rise of a section of the population that were not directly involved with agricultural production for the first time since the Roman period (Pestell 2011; Crabtree 2018: 133). Although some people living within *wics* would farm the surrounding fields, they would inevitably require a supply of food and raw materials beyond that which could be produced by the inhabitants themselves. It is important to note that the elites had a role to play in the development of these trading sites, becoming rich on the tolls exerted over the traded goods (Pestell 2011: 573).

Farms, estate centres and trading settlements did not exist in isolation. The relationships between them were varied and complex, and the precise mechanisms of supply and procurement remain uncertain (Hamerow 2007). The unique place of zooarchaeology – the study of animal remains from archaeological sites – to add to the understanding of these relationships is the basis of the following analysis. By considering the changing emphasis of the animal economy between sites, a picture of interactions between those living on farms, estate centres and wics can be realised.

For the purposes of this discussion the role of cattle and sheep in agricultural production will be explored. Both animals would have been common to any Middle Anglo-Saxon settlement. Cattle were vital for power, being the tractors of the day, used for carting, logging and pulling ploughs and ards, while sheep had a direct link to agricultural production in their ability to provide dung to manure the fields and thrive on marginal land. Animals that were important for power, milk and wool would be expected to live longer than those raised primarily for meat, and culled before reaching three years old, when they become skeletally mature. Cattle and sheep of all ages had a major role to play in the trade of skin and wool for textiles, milk for dairy products and raw materials such as bone and horn for tools and utensils.



	Elite	Rural	Wic
Number of assemblages	15	39	30

Figure 1. Location of Middle Anglo-Saxon sites in the dataset and summary table to quantify the major site-types.

Materials and Methods

The data used in this analysis results from the compilation of records collected for the *Feeding Anglo-Saxon England* project (Hamerow *et al.* 2019; Hamerow *et al.* 2020). This project investigates the increased arable production required to feed a growing population in England between AD 400 and 1400, and the data presented here provide one aspect of the wider project. Information on mortality and sex profiles of cattle and sheep populations and the relative proportions of various taxa comes from syntheses of published data (Holmes 2014; McKerracher *et al.* 2021). Figure 1 shows the location of sites and the number of zooarchaeological assemblages recorded for each site type.

Due to the differential preservation of animal remains in various geological regions in England, there is a bias towards recovery from the central and south-eastern areas (Figure 1). The more acidic soils of the western region and parts of the north lead to the poor recovery of bone (Baker and Worley 2019).

Species representation was calculated as the relative proportion of cattle, sheep/goat and pig remains and ageing was based on tooth eruption and wear (Grant 1982; Jones 2012; Jones and Sadler 2012). Determining the sex of animals was done using pelvis measurements for sheep/goats (Popkin *et al.* 2012) and metacarpal measurements for cattle (Davis *et al.* 2012). Summary data are presented here, detailed analysis is published elsewhere (Holmes 2014; Holmes *et al.* forthcoming).

A novel approach to analysis has been employed, allowing the data to be viewed at 50-year intervals. This method allows a more detailed interpretation of the data without having to rely on pre-defined phases. Specifics of the method can be found in Holmes *et al.* (forthcoming).

The Animal Economy

Table 1 provides a summary of data relating to the animal economy of the Middle Anglo-Saxon period. Cattle are more commonly recorded throughout the period, but sheep/goats increase from AD 650. Sheep are synonymous with arable production (Campbell 2000: 154), both for their value as a mobile manuring source and their ability to thrive on marginal areas. The latter became important as more land was taken up with crops, providing a decrease in that available for less-productive animals, such as beef cattle. Furthermore, sheep would have been easier than cattle to move to more-distant pastures for grazing. While the increase in the proportion of sheep/goats in the early 7th century may have been linked to arable production, it is most commonly observed at monastic sites, where it is likely that they were preferentially kept both for economic benefits of wool production and links with iconography and religious doctrine (Holmes 2023).

Throughout the period, the majority of both cattle and sheep/goats died before reaching three years of age. This is consistent with a mixed economy, where most animals were kept primarily for meat, resulting in their being culled as they reached skeletal maturity and the point at which they become full grown. A few older animals would be kept for milk, traction and breeding purposes.

The increasing age of cattle from AD 800 implies a greater emphasis on secondary products (milk and power) and breeding. This coincides with an increase in oxen (male cattle) and pathological changes to the lower limb bones further implies that these older cattle were important for traction.

	Years AD						
	550–600	600–650	650–700	700–750	750–800	800–850	850–900
Relative Proportion of cattle and sheep	Cattle predominate		Cattle most common, slight increase in sheep			Slight increase in cattle	
Cattle economy	A few adults for dairy and/or draught work, most culled at prime meat age					Increase in draught	
Sheep economy	A few adults for dairy and/or wool, most culled at prime meat age					Increase in wool	
Wics			More cattle and pigs				
Rural			More sheep				
Ecclesiastical		More sheep					
High-status		More pigs and birds					

Table 1. Summary data from all sites relating to the animal economy of the Middle Anglo-Saxon period. Data from Holmes et al. *(forthcoming). Grey cells = no difference from overall trend or no data.*

Sheep/goats are also kept to older ages from the 9th century, indicating greater emphasis on secondary products such as wool or milk. Even if culled in their third year, sheep typical of this period can produce one or two clips of wool (Ryder 1983: 448) and an increase in wethers (male sheep) suggests that this emphasis was on wool rather than dairy production.

The overall picture of agriculture in the Middle Anglo-Saxon period is one of increasing production, albeit piecemeal, with an increase in sheep at monastic sites from the 7th century and wool production and use of cattle for draught from the 9th century.

The Role of Settlement Type

Against this increase in production observed in the animal economy, some observations may be made of how this varied between the major site-types of the period. By understanding differences in provision and supply between sites, it is possible to build a picture of the relationships between them.

People living in *wics* consumed more beef and less mutton (Table 1), while sheep were more likely to be recorded at ecclesiastical and rural sites. Pig remains were also slightly more common at *wics* and elite sites. Differences can also be observed in the consumption of domestic birds (chicken and goose) and wild birds, such as ducks, other waterfowl and game birds. The most obvious trend is the scarcity of birds at

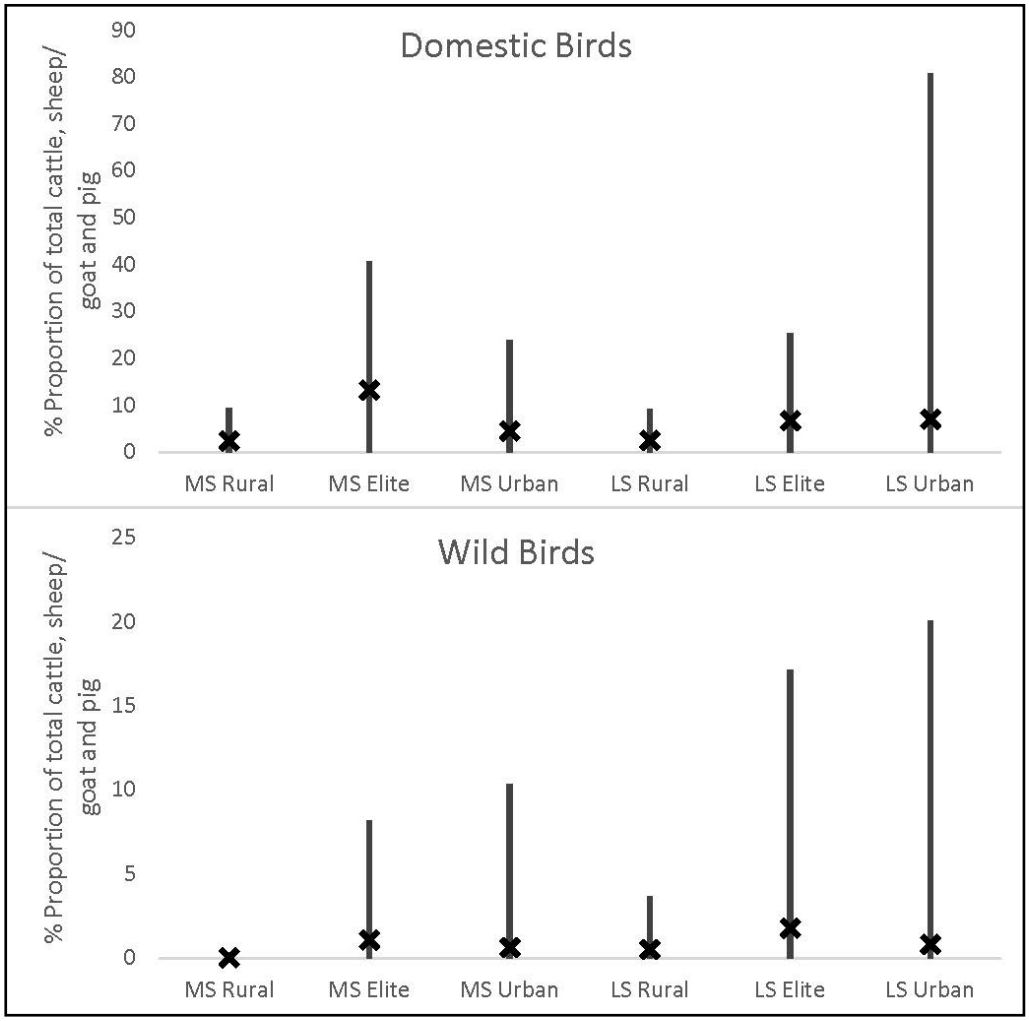


Figure 2. Minimum, maximum and mean proportions of birds at various site-types in the Middle Anglo-Saxon (MS) compared with Late Anglo-Saxon (LS) periods. (Data from Holmes 2014)

rural sites (Figure 2), with domestic birds most common at elite sites, and wild birds at elite sites and *wic*s, although the mean value is greatest at elite sites. Data from Late Anglo-Saxon sites have been included to emphasize the change in provisioning between the two periods. This is reflected in an increase in birds. The presence of a high cattle signature at *wics* has been recognised elsewhere, as has low diversity in the presence of wild animals (Crabtree 2014: 107; O'Connor 2014: 113).

Supply of Raw Materials

The final consideration of the animal economy is that of the supply of raw materials for craft production. Industries such as textile-, glass- and metal-working are evident at

many elite sites in Middle Anglo-Saxon England (Thomas 2011: 412). Bone-, horn- and antler-working occurred at some rural sites on a household level, but at *wics* the scale of production of such items was considerable (Riddler and Trzaska-Nartowski 2011).

Workshops producing bone and antler combs have been excavated at Southampton/*Hamwic* and London/*Lundenwic*, which would have required provisioning with a considerable quantity of raw materials. For example, the animal bone assemblage from Chapel Street (SARC XIV), Southampton, was consistent with the organised movement of horse and cattle legs to the bone-worker, fresh from the carcass, which implies a considerable scale of supply and organisation of activities (Driver 1984; Riddler 2001). In *Lundenwic* and elsewhere, it is likely that comb-makers worked with horn, antler and bone (Riddler 2004; Riddler and Trzaska-Nartowski 2011) and there is some evidence that horn-cores were more commonly recorded at *wics* than other site types (Holmes 2014: 90). The implication is that a reliable supply chain based on trade, exchange and/or redistribution was in existence.

Movement of Animals and Raw Materials

It is indisputable that there was an increase in international trade in the Middle Anglo-Saxon period through *wics* and smaller trading sites, particularly around the North Sea and southern coastal areas, but also following the major river routes inland (Pestell 2011: Figure 29.1; Crabtree 2018). Furthermore, although coinage was in circulation in this period, it is likely that exchange of goods and services remained a major method of procurement (Astill 2011: 505; Pestell 2011: 574). Renders (taxes based on goods) levied on farmers by the royal and monastic land owners are documented, such as the food-rent described in the *Laws of Ine* dating between AD 688–694, including honey, loaves, ale, cows, oxen, wethers, geese, hens, cheeses, butter, salmon, fodder and eels as payment (Whitelock 1996: Document 32.2.2). These renders were used to supply both the secular and ecclesiastical estate centres and potentially the population of *wics* (Astill 2011: 508). There is also evidence for high-status burials in association with the early phases of *wics* (Pestell 2011: 570) and it is likely that *wics* and smaller and seasonal trading or productive sites were places that the elite used to exact tolls from the movement of goods (Pestell 2011).

Although livestock would have been kept within *wics* and the surrounding fields, the presence of a population of craft-workers would have required external provisioning from the hinterland, either through a market or from the redistribution of renders from ecclesiastical and secular estate centres (O'Connor 2010; Crabtree 2018).

The earliest emphasis on the keeping of sheep at ecclesiastical sites, prior to the establishment of *wics*, implies an early focus on wool production by the monastic estates (Holmes 2023). The increase in sheep at rural sites in the mid-7th century occurred alongside the formation of trading settlements and the ensuing supply of

beef to *wics* implies the movement of cattle away from rural producer sites, either through a market or as renders via the estate centres. The apparently restricted diet of those living within *wics*, observed in the low availability of birds, provides an indication that this occurred via renders, with the elites keeping fowl and game back for their own tables.

Changes in the meat diet and increasing emphasis on cattle and sheep for secondary products from the 9th century come at a time of wider political, economic and social changes that included the abandonment or contraction of *wics* in response to the Viking threat and political upheaval (Crabtree 2018: 134), yet also implies a greater emphasis on production of wool, grain and possibly milk.

Conclusion

The uniformity (or lack of diversity) of the available meat diet and provisioning of raw materials apparent at *wics* throughout the period suggests that it was regulated. Given the likely role of elites in developing these trading sites, it is possible that much of the meat and raw materials consumed came directly from estate centres. Changes from AD 800 in the range and diversity of meat consumption implies an opening up of the market. Furthermore, the increasing production of grain and wool that began in the animal economy of the Middle Anglo-Saxon period would have paved the way for the burgeoning economies of the Late Anglo-Saxon and medieval periods.

Acknowledgements

This research and the project *Feeding Anglo-Saxon England: The Bioarchaeology of an Agricultural Revolution* were funded by the European Research Council under the European Union's Horizon 2020 research and innovation programme under grant agreement 741751 (ERC-2016-ADG-741751).

References

Astill, G. 2011. Overview: trade, exchange, and urbanization, in H. Hamerow, D. Hinton and S. Crawford (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 503–14. Oxford: Oxford University Press.

Baker, P. and F. Worley. 2019. *Animal Bones and Archaeology: Guidelines for Best Practice*. Portsmouth: English Heritage.

Banham, D. and R. Faith. 2014. *Anglo-Saxon Farms and Farming*. Oxford: Oxford University Press.

Bourdillon, J. 1994. The animal provisioning of Saxon Southampton, in J. Rackham (ed.) *Environment and Economy in Anglo Saxon England*: 120–5. York: Council for British Archaeology Research Report 89.

Campbell, B.M. 2000. *English Seigniorial Agriculture 1250–1450*. Cambridge: Cambridge University Press.

Crabtree, P.J. 2014. Animal husbandry and farming in East Anglia from the 5th to the 10th centuries CE. *Quaternary International* 346: 102–08.

Crabtree, P.J. 2018. *Early Medieval Britain: The Rebirth of Towns in the Post-Roman West*. Cambridge: Cambridge University Press.

Davis, S.J., E.M. Svensson, U. Albarella, C. Deitry, A. Gotherstrom, A.E. Pires and C. Ginja. 2012. Molecular and osteometric sexing of cattle metacarpals: a case study from 15th century AD Beja, Portugal. *Journal of Archaeological Science* 39: 1445–54.

Driver, J.C. 1984. Zooarchaeological analysis of raw material selection by a Saxon artisan. *Journal of Field Archaeology* 11: 397–403.

Faith, R. 1997. *The English Peasantry and the Growth of Lordship*. London: Leicester University Press.

Faith, R. 2013. Feorm, in M. Lapidge, J. Blair, S. Keynes and D. Scragg (eds) *The Wiley Blackwell Encyclopaedia of Anglo-Saxon England*: 186–7. Chichester: John Wiley and Sons.

Grant, A. 1982. The use of toothwear as a guide to the age of domestic ungulates, in B. Wilson, C. Grigson and S. Payne (eds) *Ageing and Sexing Animal Bones from Archaeological Sites*: 91–108. Oxford: British Archaeological Reports British Series 109.

Hamerow, H. 2002. *Early Medieval Settlements: The Archaeology of Rural Communities in North-West Europe 400–900*. Oxford: Oxford University Press.

Hamerow, H. 2007. Agrarian production and the emporia of mid Saxon England, *ca.* A.D. 650–850, in J. Henning (ed.) *Post-Roman Towns, Trade and Settlement in Europe and Byzantium*: 219–32. Berlin: Walter de Gruyter.

Hamerow, H., A. Bogaard, M. Charles, E. Forster, M. Holmes, M. McKerracher, S. Neil, C.B. Ramsey, E. Stroud and R. Thomas. 2020. An integrated bioarchaeological approach to the medieval 'agricultural revolution': a case study from Stafford, England, *c.* AD 800–1200. *European Journal of Archaeology* 23(4): 585–609.

Hamerow, H., A. Bogaard, M. Charles, C.B. Ramsey, R. Thomas, E. Forster, M. Holmes, M. McKerracher, S. Neil and E. Stroud. 2019. Feeding Anglo-Saxon England: the bioarchaeology of an agricultural revolution. *Antiquity* 93(368): 1–4.

Holmes, M. 2014. *Animals in Saxon and Scandinavian England: Backbones of Economy and Society*. Leiden: Sidestone.

Holmes, M. 2023. The 'Lamb of God' in the early Middle Ages: a zooarchaeological perspective. *Journal of Medieval History* 49(5): 701–10.

Holmes, M. Forthcoming. The Mouldboard Plough, in H. Hamerow and M. McKerracher (eds) *Feeding Medieval England: A Long 'Agricultural Revolution', 700–1300*. Oxford: Oxford University Press.

Holmes, M., H. Hamerow, D. Orton and R. Thomas. Forthcoming. *Milk, Wool and Grain: The Animal Economy of Medieval England (AD 400 to 1400).*

Holmes, M., H. Hamerow and R. Thomas. 2021. Close companions? A zooarchaeological study of the human–cattle relationship in medieval England. *Animals* 11(4): 1–18.

Jones, G. 2012. The animal bone from the ritual deposit, in M. Farley and G.G. Jones (eds) *Iron Age Ritual: A Hillfort and Evidence for a Minster at Aylesbury, Buckinghamshire*: 29–49. Oxford: Oxbow.

Jones, G.G. and P. Sadler. 2012. Age at death in cattle: methods, older cattle and known-age reference material. *Environmental Archaeology* 17: 11–28.

McKerracher, M., M. Charles, C.B. Ramsey, J. Hodgson, H. Hamerow, T. Zerl, E. Stroud, S. Neil, A. Bogaard, R. Thomas, M. Holmes and E. Forster. 2021. *Feeding Anglo-Saxon*

England (FeedSax): The Bioarchaeology of an Agricultural Revolution [data-set]. York: Archaeology Data Service (doi.org/10.5284/1057492).
O'Connor, T. 1994. 8th–11th century economy and environment in York, in J. Rackham (ed.) *Environment and Economy in Anglo-Saxon England*: 136–47 York: Council for British Archaeology Research Report 89.
O'Connor, T. 2010. Livestock and deadstock in early medieval Europe from the North Sea to the Baltic. *Environmental Archaeology* 15 (1): 1–15.
O'Connor, T. 2014. Livestock and animal husbandry in early medieval England. *Quaternary International* 346: 109–18.
Pestell, T. 2011. Markets, *emporia*, *wics*, and 'productive' sites: pre-Viking trade centres in Anglo-Saxon England, in H. Hamerow, D. Hinton and S. Crawford (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 556–79. Oxford: Oxford University Press.
Popkin, P., P. Baker, F. Worley, S. Payne and A. Hammon. 2012. The sheep project (1): determining skeletal growth, timing of epiphyseal fusion and morphomentric variation in unimproved Shetland sheep of known age, sex, castration status and nutrition. *Journal of Archaeological Science* 39: 1775–92.
Riddler, I. 2001. The spatial organisation of bone-working at Hamwic, in D. Hill and R. Cowie (eds) *Wics: The Early Medieval Trading Centres of Northern Europe*: 61–6. Sheffield: Sheffield Academic Press.
Riddler, I. 2004. Production in Lundenwic: antler, bone and horn working, in J. Leary (ed.) *Tatberht's Lundenwic: Archaeological Excavations in Middle Saxon London*: 145–48. London: Pre-Construct Archaeology Monograph 2.
Riddler, I. and N. Trzaska-Nartowski. 2011. Chanting upon a dunghill: working skeletal materials in Anglo-Saxon England, in M. Hyer, G. Owen-Crocker and C. Biggam (eds) *The Material Culture of Daily Living in the Anglo-Saxon World*: 116–41. Exeter: University of Exeter Press.
Ryder, M. 1983. *Sheep and Man*. London: Duckworth.
Sykes, N. 2004. The dynamics of status symbols: wildfowl exploitation in England AD 410–1550. *Archaeological Journal* 161: 82–105.
Sykes, N. 2007. *The Norman Conquest: A Zooarchaeological Perspective*. Oxford: British Archaeological Reports International Series 1656.
Thomas, G. 2011. Overview: craft production and technology, in H. Hamerow, D. Hinton and S. Crawford (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 405–22. Oxford: Oxford University Press.
Ulmschneider, K. 2011. Settlement hierarchy, in H. Hamerow, D. Hinton and S. Crawford (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 156–71. Oxford: Oxford University Press.
Whitelock, D. 1996. *English Historical Documents* c. *500–1042*. London: Routledge.
Wright, D.W. 2015. Early medieval settlement and social power: the middle Anglo-Saxon 'home farm'. *Medieval Archaeology* 59(1): 24–46.

The Political Economy of Middle Anglo-Saxon England: A Hypothetical Model

Neil Faulkner†

Abstract

The 25-year-long excavations at Sedgeford have produced strong evidence for an Anglo-Saxon 'agricultural revolution' during 'the long 8th century'. How is this to be explained? To date, most attempts to place such evidence in a wider economic, social and political framework lack theoretical vigour; many simply recycle the 'received wisdom' of neo-classical economics. Drawing on the evidence of written sources, coin assemblages and pottery distributions, this paper critiques the use of such dubious and inappropriate economic concepts in relation to Middle Anglo-Saxon England. It then advances an alternative model based on dynamic flows of labour-service, food-render and food-provisions – flows which created lordship, dependence and 'tiered connectedness'. In this model, commercial exchange is relegated to an economically marginal role, albeit one of moderately increasing significance, perhaps especially in East Anglia. The economic model – that of a 'food-flow' system – is integrated with two other models. First, a geopolitical model which foregrounds the division of the early-medieval world into rival kingdoms engaged in a competitive process of politico-military 'accumulation'. Second, an anthropological model which foregrounds collective food-consumption in the construction of social solidarity and social rank.

Sedgeford's Middle Anglo-Saxon Agro-social Revolution

I begin by highlighting a recurring theoretical error: that of 'reification'.[1] This arises when abstractions, e.g. technique or trade, or things, e.g. ploughs or *emporia*, are granted causative significance in social analysis. Trade, for example, cannot actually *do* anything; it is simply the term we use to describe a range of activities done by human-beings. Likewise, ploughs, in and of themselves, are simply assemblages of wood and metal; without the application of human labour, they are inert. I will have more to say about reification below, when we come to the substance of the paper, but I raise it here in relation to the term 'agricultural revolution'. There is no question that this abstraction has been reified in some academic discussion (by me as much as anyone). The 'agricultural revolution' is sometimes granted a kind of social agency in its own right, much as classical economists talk of a 'hidden hand' in relation to 'free-market' capitalism.[2]

The only social reality is that created by the decisions and actions of human-beings. That being so, the term 'agro-social revolution' (which I will henceforward adopt) may be preferable to 'agricultural revolution'. It underlines the fact that what we have to explain at Sedgeford are the decisions and actions of Middle Anglo-Saxon people in the years *c.* AD 700 to 850.

[1] The word is derived from the Latin *res*, meaning thing, so that to 'reify' a social relationship or activity is to obscure its human character by attributing it to a non-human entity or force.

[2] I parenthesise both 'hidden hand' and 'free market' because they are false theoretical constructs, not descriptions of how real economies actually work.

With that in mind, let us summarise the extraordinary range of things they actually did, in a comparatively short period of time, before we pose our central questions: who, how, and why? And these are big questions, because an enormous upheaval is implied – wholesale relocation of communities, large-scale reorganisation of the landscape, massive engineering projects, huge investments of labour and so on. This kind of upheaval is very rare. It seems likely that nothing comparable, nothing so comprehensive, ever happened again in the history of Sedgeford. So we have big questions to answer.

Let us first recap the evidence. The two opening papers in this volume have discussed this in detail, and there are, in addition, our recent paper on Malthouse 1 in *Anglo-Saxon Studies in Archaeology and History* and a paper in the volume arising from the recent *FeedSax* conference hosted at Oxford in December 2020 (Faulkner and Blakelock 2020; Faulkner 2022). Here, therefore, a bullet-point summary will suffice. Some things, please note, are certain, while others are merely interpretations based on strong circumstantial evidence. All the necessary caveats can be found in the other papers referenced. At Sedgeford, we have:

- A large, ordered Christian cemetery of between 800 and 1600 inhumations, in use for about 175 years, representing a living population of about 300 people.
- A Middle Anglo-Saxon 'shuffle' giving rise to a new/relocated nucleated settlement.
- A nucleated village formed of timber houses in large rectangular plots, with well-defined boundaries, systematically laid out using a short-perch grid.
- Large-scale hydraulic engineering to manage a river, create a mill-pond, power watermills and refurbish an old Roman canal for the movement of bulk cargoes.
- The introduction of heavy ploughs, open fields and specialised grain-production.
- An industrial-scale malting complex with at least three, probably four, possibly more standard-size malthouses, some of which may have been in contemporary use.
- Approximately 4,500 sherds of Ipswich ware pottery, implying regional connectivity and the importation of high-value foodstuffs.

There seems little doubt that this is some sort of 'package' centred on the production, distribution and consumption of food in a new, scaled-up, more regionally interconnected way. The cemetery and settlement indicate a large concentrated workforce and a pooling of resources; and the *de novo* appearance of the settlement around AD 700 suggests a deliberate act of (re-)foundation. A reasonable assumption is that this was related to the introduction of heavy ploughs. These required ox-

teams and open fields – more animals and more land than any single household could manage, necessitating collective labour. The Domesday survey records five plough-teams at Sedgeford in the 11th century; perhaps it was similar in the 8th, in which case around 600 acres might have been ploughed each season. The careful regulation of space represented by the grid-planning and the boundaries may imply an ordering of people in terms of rights and responsibilities, such as one might expect in a community organised for collective village labour. The remodelling of the water system to provide power and transport, and the large-scale processing of grain implicit in the malting complex, speak of mass production and monoculture. And the litter of recycled ceramic containers tells us that stuff was coming in as well as going out.

So food was on the move. What other conclusion could we draw in the light of what we know? And for this to happen, food production had to be reorganised, big time. When we look at Early Anglo-Saxon settlements, such as West Stow (Suffolk), the impression we have is of mixed subsistence agriculture: small communities cultivating a range of crops and raising small numbers of animals to provide for most of their own needs. Something radically different was happening in Middle Anglo-Saxon Sedgeford. While it seems likely that each household still engaged in some subsistence agriculture – though we have no way of measuring how much – it seems equally likely that a) each household was dependent for at least part of its subsistence on collective provisioning, and b) each household was involved to some degree in mass specialised production for distribution outside Sedgeford.

Changes as profound as this – changes which surely compromised the independence and self-sufficiency of individual households – are likely to have been contested. I have no direct evidence for this. The Anglo-Saxon sources are silent on peasant resistance from below. But everything we know about major landscape reorganisations in the past – invariably involving winners and losers – can leave little doubt that the changes implicit in the archaeological evidence would not have been wholly consensual. For those in doubt, I can recommend any number of historical studies of land wars in the medieval and early-modern periods (e.g. Jackson 1946; Prebble 1963; Hobsbawm 1969; Hilton 1973; Thompson 1980). Sedgeford's agro-social revolution, we can safely assume, would have evoked mixed reactions and involved tense mediations. This underlines the significance of the 'who, how, and why' questions we are posing.

The Neo-Classical Gaze

What and when are fairly clear. We continue to build our dataset and refine our sequencing at Sedgeford, but we are unlikely to reverse our broad thesis: that the archaeological evidence adds up to a transformational 'package' that – as far as Sedgeford is concerned – amounted to an agro-social revolution. We can see what was being done, we know roughly when it was happening, and we can safely assume that stuff was moving around the landscape on a much greater scale than before. But we

want to know who was doing this, with what purpose, through what connections, by what mechanisms, and why now, at this particular moment in time?

These 'who, how and why' questions are much more difficult to answer. One might be forgiven for thinking otherwise, given the cavalier way in which some archaeologists wield scatterguns of neo-classical jargon, spraying text with terms like 'exchange', 'markets', 'supply and demand' and much else. This is what happens in the absence of direct evidence for socio-economic relationships – and, I am bound to say, in the absence of social theory. Any old cliché will do, it seems, in the throwaway remarks that pass for 'interpretation' in far too much of the archaeological discourse. Simplistic equations abound: towns = markets; coins = exchange; movement = trade; increased production = demand stimulus; and so on.

The fact that Richard Hodges' seminal *Dark Age Economics* was published in 1982, just three years after the neoliberal era was formally inaugurated with the election of Margaret Thatcher as British Prime Minster, may be significant. He waxes lyrical about 'the inception of competitive markets' (in the 8th century) and informs us that 'specialist farmers would have to trade their produce to acquire goods or food they did not have' (Hodges 1982). For all the criticism of Hodges's work since, it remains a foundation-block in discussion of Anglo-Saxon economics and the neo-classical theory embedded within it seems to have become part of conventional wisdom. Thus – an example taken at random – early-medieval pottery specialist Paul Blinkhorn writes in 1999 of 'the production of cash crops', 'the need to produce surpluses' in the context of a 'trade boom' and 'a narrower, more specialised, range of produce resulting in surpluses which allowed them [the producers] access to the burgeoning market' (Blinkhorn 1999). Or, more recently, in 2014 – another random example – we have Rory Naismith populating the 8th century with peasant-entrepreneurs eager 'to sell a significant quantity of surplus for cash' and local lords for whom 'intensified agricultural resource extraction presupposed a market for surpluses' (Naismith 2014). Moreover, Nasmith states that:

> *Coinage production and circulation ... often reflected forces other than the geography of elite power... Rather, throughout the early Middle Ages coined money was most prevalent in contexts where complex exchange and commercial relations between different segments of society were strongest. The elite was only one part of the story: the monetary economy was a phenomenon they nourished and took part in, rather than dictated. (Naismith 2014)*

Here, it seems, in the best of all possible worlds, a mysterious market mechanism is at work – represented archaeologically by little more than handfuls of coins at so-called 'productive sites' – as if some Thatcherite 'hidden hand' was remaking early-medieval Europe.

Such lazy, simplistic, ideologically-charged assumptions, such blatant reification of economic and social relationships, cannot substitute for proper modelling of Middle

Anglo-Saxon political economy – a matter we should approach no less seriously than we do our stratigraphic narratives and finds analysis. Towns may be markets, but they may also be power-bases, ecclesiastical centres and fortified enclosures. Coins may be used in commercial exchange, but they may also be used to pay fines or compensation or dowries. Artefacts may move via trade, but they may also move as gift-exchange or food-render or food-provisions. To decide, we are obliged to examine such evidence as we have and, on a foundation of general social theory, create a model that takes full account of that evidence and proposes a plausible system whereby Middle Anglo-Saxon people got their living.

Let me clear the decks of one irrelevant anachronism: 8th-century England was not any sort of proto-capitalist economy. Capitalism is a historically-specific economic and social system based on competitive capital accumulation. It involves circuits of capital in which capital is endlessly reinvested in pursuit of profit. Capital can therefore be defined as 'the self-expansion of value'. It is summarised in the flow-formula M – C – M+, where M is the money invested, C are the commodities (plant, materials, labour) consumed in the production process, and M+ is the money originally invested plus profit. This economic system emerged in the 15th and 16th centuries, became predominant in the 18th and 19th centuries, and is now, in the early 21st century, hegemonic across the globe. Trade and exchange, money and markets, surpluses and deficits, supply and demand are therefore the foundation-blocks of modern economic analysis.

The Middle Anglo-Saxon economy did not work like this. It was not a capitalist economy, even in an embryonic sense, and therefore it cannot be understood using a set of concepts developed in the analysis of capitalism. Above all, it cannot be understood using the constructs of neo-classical economics, which is more political ideology than academic discipline, more an assertion of how neoliberals imagine the modern economy *ought* to work than a description of how it *actually* works.[3]

Yet this seems to be the default position of many, perhaps most, historian and archaeologist colleagues who venture comment on matters economic in the Anglo-Saxon period. Without making any attempt to model the early-medieval economic system, they make frequent use of modern concepts like markets, exchange and trade, as if these were eternal categories, as applicable to England in AD 800 as to Britain in AD 2020; and, typically, they do this in a deterministic and teleological way, with the apparent implication that a form of mercantile capitalism is necessarily the basis of economic prosperity and social development. Thus, the shift from subsistence farming in the Early Anglo-Saxon period to specialisation and surplus-production in the Middle Anglo-Saxon period is interpreted as a growth of commerce, a kind of

[3] I am contrasting (neo-)classical economics – the core claims of which have been disproved by both Marxist and Keynesian analysis – with what I term 'political economy', by which I mean the academic discipline concerned with understanding how real economies actually work, both past and present.

proto-capitalism, an evolution towards a 'proper' economy. I call this 'the neo-classical gaze', since it involves peering at the past through a lens distorted by a contemporary political ideology.

I cannot claim that what follows – my proposed model of Middle Anglo-Saxon political economy – is correct. It is a working hypothesis. It must be tested, and re-tested, against evidence. It may be found wanting, either in need of substantial revision or even wholesale rejection. What I can claim is that it is not an ideological construct derived from a modern economics textbook; it is an attempt to synthesise a wide range of evidence, to draw on a body of social theory, and to propose an economic framework for Middle Anglo-Saxon England.

We begin with the evidence. Taking Sedgeford as a kind of type-site for the Middle Anglo-Saxon agro-social revolution, I consider three classes of evidence on which we might draw to set the site in a wider regional context: they are documents, coins and pots.

Meet the 8th-Century Merchants

There do not seem to have been many of them. Pen-portraits of merchants are as rare as hen's teeth in the early-medieval sources. Trawl through *Beowulf*, Bede, the *Anglo-Saxon Chronicle*, the saints' lives and so on, and how many do you find? They are rare for a reason: merchants were not very important people, certainly so far as early-medieval elites were concerned. That in itself is highly significant. Historical sources throughout the ages are dominated by the activities of the rich and powerful; the people 'who mattered'; the 'makers and shakers'. In the 8th century, they were not merchants. I cannot improve on Ross Sampson's conclusion (1999: 88–9):

> *If there were such things as emporia, special trading settlements on the borders of kingdoms, far from the main centres of secular and ecclesiastical politics, and if it were true that they were inhabited by commercial merchants engaged in the first proper capitalist trade and industry of Europe, to say this was important to the economies of early-medieval Europe is to look at the small shrew-like mammals that ran between the legs of dinosaurs and mistakenly say that 'these were the truly important creatures of their day'. Hindsight lets us glimpse the time when their descendants (mammals and capitalists) will rule the Earth, but in their time Jurassic mice and Dark-Age businessmen scuttled about unnoticed by the giants of their day.*

Perhaps not entirely unnoticed. Merchants pop up now and again and when they do, and we get a glimpse of them at work, we find them occupying a rather specific sociological niche. One makes a brief appearance in Aelfric's *Colloquy* (*c.* AD 1000) and the merchant's explanation of his work is worth quoting in full (Swanton 1975: 169–77):

> *I am useful to king and ealdorman, and to the wealthy and to all the people... I board my ship with my cargo and sail to lands overseas, and sell my goods, and buy precious things which*

> *are not produced in this country. ... Purple cloth and silks, precious jewels and gold, unusual clothes and spices, wine and oil, ivory and bronze, copper and tin, sulphur and glass and many similar things. ... I want to sell dearer here than I buy there so that I gain some profit, with which I feed myself and my wife and my sons.*

Critical points to note are that the merchant works mainly for the elite, is involved in the overseas trade in luxury/prestige goods and seems to expect only to cover his costs and earning an adequate living. He is a middleman, not a capitalist in the sense of one who *accumulates* capital – which is what we have come to expect, for we do not encounter rich merchant-capitalists in the early-medieval sources.

But even here, in the apparently rather specialised business of sourcing, transporting, and trading luxury items, the merchant middleman was not always needed. Alan Morton quotes an interesting reference from the correspondence of Alcuin, the English cleric who served at the court of Charlemagne. I shall take the liberty of quoting Morton's summary (1999: 55):

> *In 790, when Alcuin was in Northumbria on a diplomatic mission, he wrote to Joseph, known as his disciple, who had stayed behind on the Continent. His letter states that wine could not be obtained and bitter beer ... had to be drunk. Winter, who was Charlemagne's doctor, had promised him two carrata of the finest clear wine (a carratum was a unit of measurement probably equivalent to a small wagon-load). Alcuin had asked Winter to deliver the wine to Joseph. If Joseph had the wine, and if it was the finest, he was to give it to Rufus, so that Rufus could arrange its delivery; half to Alcuin, half to Brorda, an English noble.*

In this case, a valuable shipment seems to have been managed by in-house functionaries, without any involvement of third-party specialists in the carrying trade.

Nonetheless, I must not overstate the case: there are many *passing* references to merchants – Frisian, English, Jewish, others – in intra-elite correspondence, in chronicles and biographies, sometimes in law codes and other official documents (various examples are listed in Hodges 1989: 88–91). But what these do is to confirm the impression we get from Aelfric's *Colloquy* – that merchants were middlemen of modest station who traded luxury goods in overseas markets and who, because of the value of their merchandise (and the tolls that could be levied on it), attracted the occasional attention of their social superiors.

Had Middle Anglo-Saxon England been a proto-capitalist economy – had it even been an economy with a substantial commercial sector, like late-medieval North-West Europe – we might have expected to see some rich merchant-capitalists, some powerful commercial houses and some sizeable semi-independent towns. But we do not. We see petty traders moving small cargoes through scruffy pop-up entrepôts like *Hamwic* and Ipswich.

Type	Date	Quantity
Series O *sceatta*	*c.* AD 700–20	1
Series R8 *sceatta*	*c.* AD 730–50	2
Denier of Pepin III	AD 755–68	1
Penny of Eadwald	AD 796–8	1
Penny of Burgred of Mercia	AD 852–74	1
Memorial Penny of St Edmund	*c.* AD 895–910	1
Penny of Aethelred II	AD 979–85	1
Penny of Harthcnut	AD 1040–2	1
Penny of Edward the Confessor	AD 1065–6	1
Total		**10**

Table 1. Coin loss at Agnlo-Saxon Sedgeford.

The Meaning of Money

A routine interpretive conflation in the archaeological literature runs something like this: coins = commerce = capitalism; or money = markets = merchants. In this section I want to deconstruct this conflation. As good a place as any to begin is Sedgeford's own coin assemblage. We are, after all, trying to explain Sedgeford's place in the wider Middle Anglo-Saxon world, and, given the formidable achievements represented by our archaeological evidence, it looks as if Sedgeford was a cutting-edge place at the time.

The coinage so far recorded at Sedgeford is listed in Table 1. Despite the numismatic convention of distinguishing *sceattas* and pennies, all these coins were essentially the same, standardised silver pieces, and they were worth approximately £25 in today's money. An Anglo-Saxon penny might represent a day's pay for an unskilled labourer or buy 12 small loaves or one-fifth of a sheep.[4] Please note that we have *one such coin per generation*. We probably achieve more or less total recovery in our excavations, because we routinely sieve and metal-detect. On the other hand, we may have excavated less than one-fifth of the settlement; a combination of plough-damage and colluvial accumulation on our sloping site makes it hard to tell even with the benefit of extensive geophysical survey. But even if we were to assume a total site assemblage of around 50 coins, we still have a community of up to 300 people who, between them, were losing only five coins per generation.

If we broaden the view to Anglo-Saxon sites more generally, the pattern is confirmed: the norm is only modest coin loss. Consider the so-called 'productive sites' (Table 2)

[4] Two handy medieval price lists can be found at http://medieval.ucdavis.edu/120D/Money.html and https://regia.org/research/misc/costs.htm

Site	Anglo-Saxon Coins
Rendlesham, Suffolk	277
Whitby, Yorkshire	169+
London (various sites)	158
York	150+
Tilbury, Essex	146
Ipswich (various sites), Suffolk	c.145
'South Lincolnshire'	141
Hamwic, Southampton	134
South Newbold, South Yorkshire	126
Bawsey, Norfolk	124
Royston (near), Hertfordshire/Cambridgeshire border	116
'North of England' (various sites), East Yorkshire or North Lincolnshire	112
Thetford (various sites), Norfolk and Suffolk	109+
Reculver, Kent	73+
Whithorn, Wigtownshire	66
Carlisle (various sites), Cumbria	61
Malton (near), Site 2, North Yorkshire	57+
Flixborough, Lincolnshire	53
Barham, Suffolk	50+
Torksey, Lincolnshire	50+
Lincoln (various sites), Lincolnshire	47
Cottam, North Yorkshire	40
Hollingbourne, Kent	39
Malton (near), Site 1, North Yorkshire	35+
Coddenham, Suffolk	33+
Riby (near), Lincolnshire	28+
Caistor-by-Norwich, Norfolk	23
Brandon, Suffolk	20
Bedford, Bedfordshire	19

Table 2. Coin loss at (not very) 'productive' Anglo-Saxon sites (after Blackburn 2003).

Site	Anglo-Saxon Coins
Canterbury (near), Kent	19
Hanford, Dorset	18+
Cambridge (near)	15
Carisbrooke (area), Isle of Wight	15+
Bideford-on-Avon, Warwickshire	14
Ravendale, Lincolnshire	12

Table 2 (continued). Coin loss at (not very) 'productive' Anglo-Saxon sites (after Blackburn 2003).

Site	Anglo-Saxon Coins
Trowbridge, Wiltshire	5
Hoddom, Dumfriesshire	2
North Elmham, Norfolk	2
Raunds Furnells, Northamptonshire	2
Higham Ferrers, Northamptonshire	1
Northampton ('palace' site)	1
Wharram Percy, North Yorkshire	1
Barton Bendish, Norfolk	0
Goltho, Lincolnshire	0
Pennyland, Buckinghamshire	0
Yarnton, Oxfordshire	0

Table 3. Coin loss at 'non-productive' Anglo-Saxon sites.

and before commenting further, let us also consider a range of Anglo-Saxon sites not considered 'productive'. These have tiny numbers of coins or even none at all (Table 3).

Little wonder that the concept of 'productive site' is so hotly debated. No obvious conclusions leap out. There appear to be 'high-status' secular and ecclesiastical sites in both lists. Why does Whitby yield 169+ coins, but North Elmham only two, for example? Nor do there appear to be any clear regional patterns. Each kingdom appears to have its share of 'productive' and 'unproductive' sites. It is this, of course, that has persuaded many archaeologists that 'productive sites' must be markets – a range of coastal, inland and seasonal markets where money-based exchange took place. The problems with this conclusion are numerous. They range from the skewing of evidence by intensive metal-detecting – with Rendlesham, the recent focus of a major research project, now an especially clear example – through 'middle-range

Site	Roman Coins
Richborough, Kent (fort)	50,767
Silchester, Hampshire (county town)	11,716
Coventina's Well, Northumberland (sanctuary)	11,460
Colchester, Essex (county town)	10,890
Cirencester, Gloucestershire (county town)	9,981
Verulamium, Hertfordshire (county town)	9,141
Canterbury, Kent (county town)	8,832
Lydney, Gloucestershire (sanctuary)	6,219
Caistor-by-Norwich, Norfolk (county town)	3,587
Uley, Gloucestershire (sanctuary)	2,870
Piercebridge, Co Durham (fort)	2,497
Kingscote, Gloucestershire (small town)	1,953
Dorchester, Dorset (county town)	1,876
Nettleton, Wiltshire (sanctuary)	1,790
Kenchester, Herefordshire (small town)	1,459
Aldborough, Yorkshire (county town)	1,229
Hacheston, Suffolk (small town)	1,086
Rockbourne, Hampshire (villa)	684
Barnsley Park, Gloucestershire (villa)	635
Frocester Court, Gloucestershire (villa)	557
Gestingthorpe, Essex (villa)	471
Lullingstone, Kent (villa)	327
Chedworth, Gloucestershire (villa)	318

Table 4. Coin loss at Roman sites (after Reece 1991).

theory' concerns about what coin-loss actually signifies, to questions about the uses of coins in the early-medieval period. It is the last of these issues that I wish to explore further. A contrast with Romano-British coin loss is salutary (Table 4).

All these sites, note, have yielded larger coin assemblages than even the most 'productive' of Anglo-Saxon sites. Six Roman villa sites have produced more coins than Rendlesham, the most 'productive' (by a margin of 60%) of all the Anglo-Saxon sites. The Roman period (AD 43–410) and the coin-using Anglo-Saxon period (*c.* AD 700–

1066) were of the same duration, yet the respective coin assemblages are qualitatively different in scale. What is clear, therefore, is that however coins were being used in these two periods, they were not being used in the same way. As it happens, we know a fair amount about the mechanics of coin use in the Roman period. We know that the Roman imperial state operated a 'tax-pay cycle', whereby it turned bullion into coin to pay soldiers and military contractors, and organised the return of bullion to the state by requiring civilians to pay taxes in coin. This both facilitated and necessitated widespread market exchange: on the one hand, coins entered general circulation and could therefore be used in everyday buying and selling; on the other, civilians needed to trade surplus produce for coins in order to meet their tax obligations.

But even this does not amount to a fully-monetised commercial economy. For much of the time, the Roman coinage was dominated by relatively small numbers of high-denomination issues. Even when relatively large numbers of low-denomination issues became available, it is difficult to imagine small peasant households, especially in more remote areas, routinely producing and marketing surpluses. Perhaps they performed labour-services and delivered food-renders on the estates where they held land, and it was the landowning elite who traded surpluses, handled coin and paid their tenants' taxes. Probably it varied from place to place and over time; probably things were much more complex on the ground than our models imply. What matters here is that, however exactly it worked, the political economy of Roman Britain was some form of tributary system based on a mix of forced labour, rent and tax, not a species of capitalism. But even this tributary economy was far more monetised than Anglo-Saxon England.

The entire Anglo-Saxon corpus amounts to 80,000 coins from some 300 British hoards, 60,000 coins from hoards elsewhere and just 8,000 individual finds (Blackburn 2011: 581). That is fewer individual coin finds *in total* than have been recovered in each of half a dozen Roman towns. This is what we might expect if commerce (buying and selling in a market) was an economically marginal and politically managed activity – one restricted to designated places, subject to customs, tolls and fees, and regulated by officials and guilds. The implication is not widespread, everyday, 'free market' exchange, but occasional money-based commerce, perhaps involving agents as often as entrepreneurs, and largely restricted to high-end activity on behalf of elite clients – like Alcuin's two wagon-loads of wine. This is fully confirmed by the absence of low-denomination units. Anglo-Saxon coins were stamped pieces of silver, each approximating to £25 in today's money. So, you could have bought 15 chickens, but not one. Whereas the much larger number of coins found in hoards implies quite different uses of money.

Money has at least four key economic functions: as well as medium of exchange, it can also be a unit of account, a store of wealth, and a means of payment/final settlement (Ryan-Collins *et al.* 2012: 29). It may also have political functions: it may

assert power, confer legitimacy, express allegiance and identity, define territory, and so on. The historical and archaeological evidence provides weak support for an economic model that sees Anglo-Saxon coins as *primarily* a medium of exchange, but strong support for them as units of account, stores of wealth and means of payment. As such, these relatively rare stamped pieces of bullion should be considered elite 'high-status' artefacts that were held in bulk (hoarded) and occasionally transferred in large payments or seized by force as plunder. We hear, in the Anglo-Saxon sources, of numerous cases where money functioned as means of payment for land, bequests, dowries, ransoms, subsidies, tribute, tithes, fines, compensation (*weregeld*), commuted services/renders, military service, gifts and so on – not to mention straightforward extortion, like *Danegeld*. To quote examples would be quite superfluous: any number can be found in a most cursory scan of the laws, charters, and letters in the first volume of *English Historical Documents* (Whitelock 1979).

My conclusion is a hearty endorsement of something written by Cambridge numismatist Philip Grierson in 1959:

> *The whole approach, that of accumulating evidence for the existence of trade instead of trying to form an overall picture of how and to what extent material goods changed ownership, is in itself profoundly misleading and can only result in conclusions that are far from the truth. ... Almost all scholars who have written about them have assumed that they [coins] reached their destination through the medium of trade. This is particularly true of numismatists, whose approach to the whole subject is sometimes one of singular naivety. ... Much evidence alleged to 'prove' the existence of trade proves nothing of the kind, and in dealing with the Dark Ages, in cases where we cannot prove, we are not entitled, without careful weighing of the evidence, to assume.*

Ambers and *Croccas*

Ipswich ware pottery provides a third category of evidence for Middle Anglo-Saxon economic processes (Blinkhorn 2012). It is remarkable stuff in several ways. As far as we know, all of it was made in Ipswich, it was produced on an industrial scale and it was highly standardised in form and fabric. Around 95% of the output took the form of globular jars of various sizes, and virtually all the rest the form of pitchers almost identical to the jars except for the addition of handles, spouts, and lugs. It was virtually the only pottery used in East Anglia between *c.* AD 720 and 850, Ipswich ware apparently driving most local, domestic, grass-tempered wares to rapid extinction. It is found in abundance on sites across much of the former kingdom of East Anglia (though less so in northern and western Suffolk) and in moderate quantities on sites further afield. Its distribution, however, is highly skewed, with some sites receiving large quantities, others nearby and apparently of similar standing relatively little. Sedgeford, with 4,500 sherds, is a high-yield site, whereas North Elmham, a contemporary high-status ecclesiastical site with good river communication, for no obvious reason, produced only 160 sherds. Making direct comparison in the form of sherds per square metre

excavated, Sedgeford has a density of 1 sherd per 2.2m^2, North Elmham only 1 sherd per 75m^2.

The circumstantial evidence points clearly towards some sort of politically-controlled distribution mechanism. The pots themselves are best regarded as containers for the transport of higher-value foodstuffs and the like, which were then recycled as handy storage jars and cooking pots. Some, at least, may correspond to the Anglo-Saxon term *amber* – a corruption of *amphora* – which appears in food-render lists as a unit of measure. Goods that may have been moved in Ipswich ware *ambers* include ale, beeswax, butter, cheese, dried fruit, fish (dried, pickled, salted, smoked), honey, lard, mead, pepper, preserved meat, salt, spices, tallow and wine. Once at their destination, they would not have been worth the carriage back – they were cheap fired-clay vessels – and they seem to have been repurposed as *croccas* (household pots) until they broke and ended up as rubbish. They figure large in our archaeological lens because big, grey, chunky sherds of broken Ipswich ware jars are indestructible and prevalent on many sites. They may, indeed, have been relatively high-value objects, carrying iconic significance on account of their specialised contents and long-distance connections, and perhaps a further layer of significance when incorporated into household assemblages, especially those that became *croccas* for preparing family meals over the domestic hearth. But they would have taken their place among dozens of other objects and substances that are now lost to us, including the food-stuffs they originally carried (presumably from Ipswich).

The point I wish to emphasise in concluding is that nothing inherent in Ipswich ware requires us to assume 'trade' – no more than in the case of *sceattas* and pennies. It is safe to assume that the Ipswich potters were producing ceramic containers to transport high-value goods; the alternative assumption, that they were producing household crockery for export, seems counterintuitive. But this tells us nothing about *why* goods were moving. Trade, commercial exchange, is only one possible mechanism and, given everything we know about the Middle Anglo-Saxon world, there are other, better, more plausible explanations. To these we now turn.

Labour-services and Food-renders

What makes the litter of neo-classical fallacies in the archaeological literature especially peculiar is that the written sources contain no real evidence to support them, whereas they do contain abundant evidence to support a very different model of Middle Anglo-Saxon political economy. Before reviewing this evidence, a word about the perennial problem of visibility/invisibility in the archaeological record.

We all know the problem: taphonomic processes and Hawkes' ladder of inference are 1st-year undergraduate fare. But we repeatedly forget the problem in practice, defaulting to a (subliminal) working assumption that we can build a more-or-less-

complete picture of a site on the basis of a large enough sample of stratigraphy and finds. Let me illustrate in relation to the archaeology which concerns us here. Well-fired pottery is virtually indestructible, so we can see the broken fragments of the ceramic containers used to ship high-value goods from Ipswich to other places in the kingdom of East Anglia in the 8th century. Silver coins degrade in the soil, but are usually sufficiently well-preserved to be identified, so this species of material culture also becomes part of the archaeological record (carrying, in this case, an enormous load of scholarly interpretation). Pots and coins are archaeologically visible; that means they can tell stories about the past; but that also means that they skew our perceptions and interpretations. Now consider some of the things we cannot see.

Labour-services never give rise to direct evidence and only occasionally to indirect evidence. So, for example, at Sedgeford, we have evidence for both large-scale infrastructure projects and for the use of heavy ploughs and open-field agriculture. We can assume – but cannot prove, for the evidence is only indirect – that labour-service was implicated. On the other hand, across most of the landscape, centuries of medieval and modern activity have erased all traces of Middle Anglo-Saxon labour. A small sample of Middle Anglo-Saxon ploughsoil has been preserved at Sedgeford by virtue of its lying beneath later hillwash in a gully; elsewhere, later ploughing has destroyed such evidence. In fact, most of the evidence for perhaps 4,000,000 person-days of human labour in the fields of Sedgeford since *c.* AD 700 has been erased without trace.[5]

Or consider food-renders.[6] As far as I can see, these are completely invisible in the archaeological record. We can guess that some of the labour invested in structures and activities that have left archaeological traces may have taken the form of obligatory labour-services. But we cannot even see food moving outwards (geographically) and upwards (socially) from the primary producers at Sedgeford. However, to repeat the old axiom, absence of evidence is not evidence of absence. In fact, when we turn to the historical sources, the evidence for food-renders is voluminous.

I fully accept that the historical evidence is skewed in its own way. The corpus is dominated by Wessex, with more modest contributions from Kent, Mercia, and Northumbria, and precious little from East Anglia. On the other hand, we have what we have: if we are to construct any models at all, given the invisibility of economic and social relationships in the archaeological evidence, we are bound to draw on such written sources as survive. In any case, even if we regard East Anglia as more connected and commercial than other parts of Anglo-Saxon England – given the barrier of the Fens to the west and the role of the North Sea as a trading highway to

[5] I have done a 'back-of-a-fag-packet' calculation and it comes out around this figure, assuming a population of around 300 over some 1300 years.

[6] I prefer 'food-render' to 'food-rent', to underline the crucial difference between an obligatory payment in kind to a feudal overlord and a modern commercial rent; since two different economic and social systems are implicated, it seems best to make a terminological distinction.

Rank	Labour obligations	Payment obligations	Provisioning rights
Thegn	Military service; Repair of fortresses; Work on bridges; Deer fencing; Equipping a ship and guarding the coast; Guarding the lord; Military watch.	Alms-giving and church dues.	
Geneat	Riding, performing carrying service, and furnishing means of carriage; Reaping and mowing; Cutting deer hedges; Providing deer-hunting places; Building and fencing the lord's house; Bringing strangers to the village; Guarding the lord; Looking after the lord's horses; Carrying messages.	Rent payment; A swine a year; Entertaining the lord; Paying church dues and alms.	
Cottar	Work for lord each Monday or 3 days per week at harvest-time; Work on demesne-land if ordered; Keeping watch on the coast; Working on deer fence.	Hearth-penny on Ascension Day; Church dues at Martinmas.	
Boor	Work for lord 2 days each week and 3 days from Feast of the Purification to Easter; Carrying service; 'Lie at lord's fold' from Martinmas to Easter; 1 acre to be ploughed each week between start of ploughing and Martinmas; Must plough 3 acres as boon-work and 2 for pasturage.	10 pence rent at Michaelmas; 23 sesters of barley and 2 hens at Martinmas; A young sheep or 2 pence at Easter; Seed to be presented in lord's barn; Plough 3 acres as tribute-land, sow it from his barn, and pay hearth-penny; Each pair of boors to maintain 1 hunting dog; 6 loaves to lord's herdsman when he drives swine to mast-pasture; 2 oxen, 1 cow, 6 sheep, and 7 acres sown for occupation of land; Tribute in honey, or food, or ale.	Tools for his work and utensils for his house.
Bee-keeper	Work at lord's pleasure in addition to boon-work and cutting corn and mowing meadows.	5 sesters of honey; Horse for lord.	
Swine-herd	Preparation of swine after slaughter; Other sorts of work.	15 swine for slaughter, 10 old, 5 young; Horse for lord.	

Table 5. Labour and payment obligations recorded in the Rectitudines Singularum Personarum *(Douglas and Greenaway 1968).*

Rank	Labour obligations	Payment obligations	Provisioning rights
Cheese-maker		Butter for lord's table.	100 cheeses; All buttermilk (except shepherd's portion)
Herdsman slave			A young pig in sty; His perquisites and dues.
Male slave			12lbs of good corn, 2 carcasses of sheep, 1 good cow for food; Right of cutting wood.
Female slave			8lbs of corn, 1 sheep or 3 pence for winter food, 1 sester of beans for Lenten food, whey in summer or 1 penny.
All slaves			Food at Christmas and Easter; A strip of land for ploughing and a 'harvest-handful' beside their dues.
Retainer			Use of 2 acres, 1 sown, 1 not; Food, shoes, and gloves.
Sower			Seedlip full of seed.
Ox-herd			Pasture for 2 oxen and 1 cow; Shoes and gloves.
Cow-herd			Old cow's milk for a week after calving; Beesting of a young cow for a fortnight; Pasture for 1 cow.
Shepherd			12 nights' dung at Christmas; 1 lamb; 1 bell-wether's fleece; Milk of flock for a week after equinox; Bowl-full of whey or buttermilk all summer.
Goat-herd			Milk of herd after Martinmas; Portion of whey before this; 1 kid a year.
Granary-keeper			Corn spilt at granary door.
Beadle			A piece of land.
Woodward			Every tree blown down by wind.

Table 5 (continued). Labour and payment obligations recorded in the Rectitudines Singularum Personarum *(Douglas and Greenaway 1968).*

the east – we are entitled, I think, to place this regional difference in the context of a meta-model of early-medieval political economy; otherwise we end up imagining two distinct modes of production co-existing side-by-side. My argument with colleagues in this regard is not to deny the regional diversity they stress; it is to insist that there is a prior matter to be settled – namely, the general character of the political economy of early-medieval North-West Europe. Regions can only be 'diverse' in relation to an established pattern. So what is the pattern?

A good starting-point is the *Rectitudines Singularum Personarum*, a document unique in character, probably dating from the reign of Edward the Confessor (1042–66), which sets out the ranks, roles, obligations and rights of various people working on landed estates. The fact that it is relatively late is to our purpose: were a commercial economy to have been emerging in Anglo-Saxon England, we might have expected clear signs of it in the *Rectitudines*; but in fact, there are none. Table 5 summarises the labour and payment obligations recorded in the document.

This is not the place for a detailed discussion of the document. It is far from being a comprehensive catalogue of social rank and economic activity in Late Anglo-Saxon England. But it gives us a flavour of how things actually worked – how labour was appropriated, payments extracted and surpluses thereby flowed upwards in the form of 'obligations' to Anglo-Saxon lords; and how 'rights' to land, resources and food gave rise to reverse, downward, provisioning flows from lords to dependants. Even with this admittedly very partial record, do we not have the impression of a more or less self-sufficient economic system based on labour-services, food-renders and food-provisioning? With not a merchant in sight.

Lest it be thought the *Rectitudines* are somehow anomalous, let us take a broad sample of documents. My method in this case was to trawl 25 documents which contained references to food-renders and other payments, a mix of law codes, charters, regulations, leases, etc., and record each unique mention of a particular item. The results are shown in Table 6.

In this random sample, references to food-renders/payments in kind massively outnumber references to payments in money. Even where money payments are listed, we cannot be sure that payments in coin, as opposed to goods of equivalent value, are implied. Let us recall that one of the four primary functions of money is to act as 'unit of account' and the facts that coin in general was in short supply, that low-denomination coins were non-existent and that peasant-farmers may have found it nigh on impossible to obtain coin. But, even if actual monetary payments were expected, this would have nothing whatsoever to do with commercial exchange; it would be money functioning not as 'means of exchange', but as 'means of payment/final settlement'.

Item	References	Item	References
Ale	14	Malt	9
Barley	3	Mead	1
Butter	2	Meal (ground)	3
Cattle (cows and bullocks)	11	Oxen	7
Corn (unground)	3	Pigs (and bacon)	12
Fish (inc. eels)	5	Rye	1
Fleeces	1	Sheep	18
Fodder (inc. beechmast)	2	Wax	1
Geese	3	Wheat	6
Hens	4	Wine	1
Honey	13	Wood (in various forms)	8
Horses	1	Yarn	1
Iron (bloom)	1	Food (unspecified)	7
Loaves	8	Money (various amounts)	12

Table 6. Items listed in various Anglo-Saxon render lists recorded in a sample of 25 documents. (Sources: Birch 1885–93; Douglas and Greenaway 1968; Faith 1997; Finberg 1961; Hagen 2006; Stenton 1970; Whitelock 1979)

I am an archaeologist rather than a historian, so I lack wide knowledge of the Anglo-Saxon written sources. But I should record that I have never found any reference in the contemporary sources to ordinary Anglo-Saxon farmers marketing surplus produce in exchange for money; that is, engaging in commercial exchange. Whereas I have found numerous references to their involvement in labour obligations, payment obligations and provisioning rights. Am I missing something? Or is the entire edifice of claims about Anglo-Saxon commerce resting on nothing more than occasional handfuls of muddy coins?

A War-making State

It is time to tie the threads of evidence together and present an alternative model. Anglo-Saxonists would be wise to heed the advice of the ancient historian Moses Finley (1992: 188–9), who, writing about a classical world that seems to have been a hundred-fold more monetised than the early-medieval, was dismissive of claims to the effect that the Roman Empire was some sort of proto-capitalist economy.

> *It is generally accepted that the main (and favoured) form of wealth throughout antiquity was the land. It should then follow automatically that exploitation of the land normally involved deployment of the available resources for purposes of self-enrichment or self-*

> *advancement in social status and power in a variety of ways, including not only profits in the narrow sense but also, for example, expansion of manpower under the landowner's personal influence or direct control. That seems to me self-evident, yet I found it necessary to protest against the persistent unwillingness by historians to accept so simple a logic, because they cling to the fallacy that there is no ground between a 'subsistence economy' and a full-blown, profit-motivated capitalist exploitation.*

The Roman ruling class was not a commercial bourgeoisie, but a class of absentee landlords, slave-owners, state functionaries and army officers. It did not invest surpluses in expanded production, but in aristocratic display and political competition. Towns were not so much market-places as centres of political administration and elite consumption. The state was essentially a tax-pay recycling mechanism geared to a war machine by which wealth was accumulated through predatory military aggression (Faulkner 2008).

It seems clear to me that the foundation of the Middle Anglo-Saxon economic and social order was also land, or rather, land and labour, since the former without the latter has no value-producing capacity. Anglo-Saxon lords – kings, *ealdormen* and bishops/abbots – were landowners whose wealth and power depended upon the labour-services, food-renders and military manpower represented by their estates. The dynamic of the system appears to have been politico-military competition between rival kingdoms (Faulkner 2004). Between the late 5th and late 9th centuries, we see an increasing centralisation of politico-military power as larger states overrun and absorb smaller states, to the point when the kings of Wessex become effectively hegemonic across the whole of Anglo-Saxon England. The most cursory flick through the pages of the *Anglo-Saxon Chronicle* underlines how relentlessly violent this process was, with warfare more or less endemic, and a huge premium therefore placed on effective organisation of each political unit as, essentially, a war-making state. Kings divided up their territories into administrative units and great estates, setting up kinsmen and other loyalists as regional barons, as a way of securing 'the means of war' – military manpower and military supply. The best evidence for this is the outcome. Late Anglo-Saxon sources indicate a military organisation that evolved in this way.

Let us start with what is essentially a sociological question: who fought? King Alfred (AD 871–99) had a definite view on the matter: '... he [the King] ought to have praying men, fighting men and working men'. As far as the King was concerned, then, the three 'orders' of Anglo-Saxon society were the clergy, the warriors and the peasantry. Louis XVI would have understood. This corresponds to another distinction well attested in the Anglo-Saxon sources: that between 'free men' and the rest. Only free men had a clear obligation to do military service – as members of a community of free men who shared both rights and duties – whereas all who were socially subordinate to various overlords did not. The basic military role of everyone else was to perform the agricultural labour necessary to produce the provisions for war. The military service

classes comprised: athelings (princes), ealdormen (great lords), thegns ('knights') and ceorls ('yeomen'). These groups probably represented about 10% of the population. In theory, the rest – the villans, bordars and cottars recorded in Domesday Book – were 'unfree' in varying degrees, and therefore not subject to military service.

In practice, matters may have been somewhat less clear-cut. Military service was governed by the *trinoda necessitas* – the 'three-knotted obligation' – namely, bridge-service, fort-service and militia-service; respectively, the maintenance and repair of roads and bridges, the construction of fortifications and service in the militia (the fyrd), either on garrison duty or on active campaign. The first two obligations involved navvy work and it seems likely that unfree men were often deployed as substitutes for the free men who owed the service. It is also possible that unfree men sometimes accompanied their social superiors on campaign as servants. It is almost certainly the case, however, that unfree men never actually engaged in armed combat. We can assume that the fyrd was an army of free men and that bearing arms and personal freedom were intimately interwoven in the fabric of Anglo-Saxon society.

In the Early Anglo-Saxon period, when Britain was divided into countless miniature polities, and a much higher proportion of the population likely enjoyed personal freedom, armies were probably formed by a general levy of able-bodied free men. This no doubt worked well enough when territories were small and campaigns local. The consolidation of large-scale kingdoms and the increasing frequency of military campaigns far from home after *c.* AD 600 will have made this system impractical. Petty chieftains could make do with local militia; the kings of major states like East Anglia, Mercia, Northumbria and Wessex needed field armies.

In the Late Anglo-Saxon period, 'the General Fyrd' – the levy of all able-bodied free men – was probably employed to conscript men to work on roads and fortifications and for local garrison and guard duties. The obligation seems to have been a maximum of two months' service per year (and the sources record men simply going home when their terms were up). Field armies were a different matter. Scholars have employed the term 'the Select Fyrd' to describe an organisation that seems to have existed at least from the time of King Alfred. Argument rages about detail – and no doubt things varied in practice and changed over time – but the basics seem clear.

Many sources make reference to the five-hide unit. A hide was a land unit sufficient to support a peasant family. Each five-hide unit was required to provide one militia-man and 20 shillings for his support (4 shillings per hide). It seems likely that what had originally been a service obligation on all men had been commuted into a provisioning obligation for four of the five. As it happens, possession of five hides was the minimum property qualification for a thegn, and the role of warrior seems to have been intrinsic to the status of thegn. Some ceorls also possessed five hides, however, so we can assume that the Late Anglo-Saxon battle-line was formed of both thegns and ceorls.

Hides were grouped into hundreds, and hundreds were the administrative sub-units of the shires. Military organisation probably mirrored this territorial division, with the men of a hundred forming a company of 20 and the men of each shire forming a regiment of the army. We happen to know, for example, that Berkshire comprised 2,500 hides, so we can imagine 'The Men of Berkshire' as a 500-strong unit of the fyrd. A rough-and-ready estimate of the military manpower potential of Anglo-Saxon England south of the River Tees – based on figures derived from the Domesday survey – is around 15,000 field army ('Select Fyrd') and 60,000 local militia ('General Fyrd'). The required period of service seems to have been six months for the former, but remained two months for the latter. Under the King, athelings (royal princes), trusted ealdormen (great landowners) and shire-reeves (royal officials in charge of individual shires) would have held senior command positions.

The purpose of the five-hide system is obvious: it privileged quality over quantity. Instead of a mass levy of poorly equipped, ill-trained and less-than-eager peasant-conscripts, the later Anglo-Saxon kings were able to take the field with semi-professional armies of dedicated warriors equipped with full panoplies of arms and armour. The written sources also imply that the entire field army was mounted. This does not mean the Anglo-Saxons fought as cavalry – we know they fought on foot as a *schildburh* ('shield-wall') – but the evidence is strong that they moved as mounted infantry, and this strategic mobility would have conferred a huge advantage. The provision of pony, harness, and fodder would have been an additional burden on the five-hide unit (Lavelle 2010; Faulkner 2018).

The point to stress here is that the Middle to Late Anglo-Saxon state is best understood as a mechanism for mobilising and supplying armies; that it evolved in response to the pressure of military competition with other such states; and that no adequate account of the evolution, economic form and social structure of these states can be given except in terms of this overarching framework. Anglo-Saxon elites were engaged in a process of politico-military accumulation – they were building up and organising their manpower and resources to defend and seize territory. They were warrior nobles who presided over permanent war economies. They represented an ongoing process of military competition for control over land and labour; a competition in which the cost of failure might be extinction, as it most certainly was for almost the entire Anglo-Saxon elite after their defeat at Hastings in 1066.

A Food-flow Economy

What system of production, distribution and consumption is implied by an Anglo-Saxon war-making state? Certainly one in which the class of small, fairly independent, largely self-sufficient subsistence farmers we tend to assume in the Early Anglo-Saxon period was transformed into a formal peasantry, using that term in a fairly precise sense, i.e. a class of householders who work on the land with their families for much of their

	Stage 1: Production	Stage 2: Processing	Stage 3: Distribution	Stage 4: Consumption*
Resources	Fields; Pasture; Woodland; Meadows; Wetland/ Rivers; Coast/Sea/ Saltmarsh; Pens/ Tracks/Droveways/ Fences/Ditches; Sheds/Barns; Ploughs/Oxen; Weirs/Baskets/ Nets/Traps/Snares; Hives/Coops; Farm Tools; Middens; Dogs/Hawks.	Threshing Floors; Watermills; Malthouses; Breweries; Sheds/ Barns/Granaries; Workshops/Trade Tools; Lathes.	Carts; Roads/Tracks; Oxen; Donkeys/ Mules/Horses; Rivers/Canals; Barges/Boats; Harbours/Quays/ Jetties; Warehouses; Sacks/Barrels/ Ambers.	Tier 1: House/ Hearth/Crocca. Tier 2: Mead-hall/ Refectory/Kitchen; Tables/Benches/ Chairs/Stools; Tableware/Cutlery.
Labour	Sowing; Clearance/ Pruning/Weeding; Ploughing/ Harrowing; Harvesting/ Reaping/Mowing/ Haymaking; Herding/Droving/ Folding; Animal Care/Yard Work; Fowling; Fishing; Beekeeping; Milking; Fleecing; Hunting/Trapping/ Hawking; Gathering; Marling/Manuring; Ditching/Fencing; Woodland Management/ Felling/Cutting; Hauling; Shellfishing.	Grinding/Milling; Malting; Brewing; Spinning/ Weaving/Dyeing; Clothes-making/ Embroidery; Retting; Cheese-making/Butter-making; Skinning/ Tanning/Leather-working; Bone/ Horn/Antler-working; Basketry/ Wicker-working; Building; Carpentry; Coopering; Glass-making; Metal-working; Pot-making; Store-keeping; Salting/ Pickling/Smoking.	Carting/Droving; Canal-digging/ Revetting/Dredging; Boating/Sailing; Road-mending/ Bridge-mending; Cart-making/-repairing; Boat-building/-repairing; Ship-building/-repairing.	Tier 1: Women's Domestic Labour. Tier 2: Store-keeping/Estate-management; Cooking; Serving; Singing/Playing/ Entertaining; Craft-working.

Table 7. Labour and resources in Anglo-Saxon food-flows.
** Tiers 1 and 2 distinguish between the subsistence consumption of home-produce and food-provisions by primary producers (Tier 1) and the surplus consumption of food-renders by the elite and its retainers and dependants (Tier 2). (Sources: Whitelock 1979; Douglas and Greenaway 1968; Faith 1997; Swanton 1985; Leahy 2003; Banham and Faith 2014)*

subsistence, but who also have rights and obligations within a wider economic, social and political system. Most Early Anglo-Saxon farmers were probably not peasants in that sense, whereas most Middle and Late Anglo-Saxon farmers probably were. The Anglo-Saxon peasant was, in varying degrees, subject to exploitation by landowners, the state and the Church, having various obligations to perform labour-service and pay rents, taxes and tithes; he was, therefore, in varying degrees, unfree. This form of unfreedom – in which the farmer lost his independence and became beholden to others

– had to be socially constructed, as an essential prerequisite of the processes whereby the Middle and Late Anglo-Saxon ruling class appropriated the surpluses it required. These surpluses took the predominant form of food supplies, whether they resulted from food-labour (e.g. working the lord's land) or food-render (i.e. paying a proportion of one's own product). Moreover, other kinds of labour-service were inextricable from food production. Estate infrastructure projects, like digging a canal or building a mill, were part and parcel of the food economy. The commutation of military service into tributary payments under the five-hide system was essentially a levy on food surplus. Even investment in craftwork can be understood as a recycling of food-renders in the form of the food-provisions supplied by lords to dependant metal-smiths and the like. It is convenient, therefore, to think of the more complex Anglo-Saxon economies of the 7th century onwards as essentially systems of food-flow and to imagine Anglo-Saxon lords, in economic terms, as essentially food-mountains.

We might compare these food-flows with circuits of capital in a modern economy: they have a similar significance. But they are not the same. For Anglo-Saxon food-surpluses were not reinvested in production to raise the productivity of labour, increase output, reduce prices and thereby achieve capital accumulation – 'the self-expansion of value'. They were recycled in the form of food-provisions to support the state, the lords, the Church and their immediate dependants; they were invested in warfare, elite living and church-building.

To emphasise the centrality of food-flows, Table 7 lists resources/infrastructure and forms of labour as recorded or implicit in the Anglo-Saxon sources, and arranges these in a food-flow sequence. In this model, food-labour and food-renders give rise to food-flows (and to a limited degree flows of other items) and these constitute the primary economic mechanism by which surpluses are accumulated, distributed and consumed. Because we are looking at an agrarian society, not an industrial one, food dominates. Thus:

- most renders were food-stuffs;
- most labour-services were food-production;
- most other work was food-related, e.g. watermills, malthouses, wood for fencing, canal-digging and dredging, boat-building, making pots, sacks and barrels, etc.;
- the production, processing, distribution and consumption of food gave rise to food-flows;
- the economic and social order was primarily a consequence of food-flows;
- control over flows of food surplus was the basis of elite power.

The food surplus was decisive. Critical to any understanding of the political economy of a 'complex' (i.e. class) society is that of *social surplus*. The Middle Anglo-Saxon agro-social revolution really comes down to a set of interrelated changes grounded in a rising social surplus and its appropriation by an increasingly wealthy and powerful elite.

The economies of all pre-industrial complex societies – that is, of all class-based societies with a traditional agrarian base – can be imagined as two-tiered. Tier 1 was the basic foundation of peasant subsistence agriculture. In the case in question, this Tier 1 economy was inherited from the Early Anglo-Saxon period and, indeed, from earlier periods, stretching back to prehistoric times. Susan Oosthuizen (2013), for example, has argued persuasively for very long-term continuities in collective management and exploitation of the land by local agrarian communities; and that these continuities were interweaved with changes driven by the demands of lordship through a process of negotiation and compromise. Much of what we have come to regard as 'medieval' practice, she argues, is really something much older, bound up with the subsistence strategies of peasant communities with their roots in a distant past.

Tier 2, then, is an overlay. It is the process of elite surplus production, appropriation, distribution and consumption imposed on a foundation-block of age-old peasant subsistence agriculture. It provides the material basis for a superstructure of elite activity – the raising and arming of soldiers, the building of palaces, the establishment of minsters, the maintenance of royal retinues and monastic communities, the accumulation, display and gifting of prestige-goods, and so on.

The processes associated with Tier 1 can be thought of as a reproductive cycle. They are endlessly repeated in order to feed, clothe, shelter and otherwise supply the population. The processes associated with Tier 2 are quite different. The social surplus gives rise, so to speak, to a historical 'arrow' (Faulkner 2013: 75–7). It is available for use in ways other than simple reproduction for the precise reason that it is a social *surplus* – that is, it is not necessary simply to sustain the population. The social surplus in traditional societies can be a relatively small proportion of total economic output, but the uses to which it is put may make it highly visible in the archaeological record, and it may have a quite disproportionate historical significance. Tier 1 represents a very slow-changing social substrate of peasant subsistence agriculture, whereas Tier 2, the social surplus appropriated and deployed by dominant elites, may give rise to a rapid sequence of historical events. To understand the Middle Anglo-Saxon period, therefore, we have to focus on the social surplus. We can take Tier 1/the reproductive cycle as a given, a premise, a necessary foundation-block. It is Tier 2's social surplus that is available, as it were, to 'make history'.

But we are in danger of oversimplifying. Theory is grey, but the tree of life is green. Tiers 1 and 2 were liable to interpenetrate in practice. The organisation of labour and resources in mass specialised production – like grain cultivation to supply a malting

Independent small farmer (Tier 1)	Proto-feudal lordship (Tier 2)
Subsistence farming	Surplus production
Family/homestead	Collective/village
Garden/ard cultivation	Heavy ploughing
Smallholder	Estate
Mixed	Specialised
Local	Connected/networked

Table 8. Food Power: Anglo-Saxon England's two main modes of production.

complex – may have reduced the land available for peasant subsistence below the level of essential needs. This has huge sociological implications.

It was usually in the interests of small producers to operate mixed-farming regimes, because this made them self-sufficient and independent. It often suited landowners to create 'one-track food webs' – monoculture systems which, on the one hand, generated the specialised food surpluses they required, and on the other, allowed peasant labour to be more easily measured and regulated, and tied peasant households into the framework of lordship and the village (Jones 2008: 192, 195–6, 240–1).

In his *Feast: Why Humans Share Food*, the archaeological scientist Martin Jones (2008) has synthesised a diverse range of ethnographic examples to provide a compelling analysis of both the politics of food and the anthropology of feasting. Food is power. Control over food means control over people. A tribute-based society of food-renders creates a two-way food chain, whereby food passes up the social hierarchy to the elite, not only to be consumed at the top, but also to flow back down the hierarchy, creating bonds of dependence and obligation. Food-renders to the elite, in other words, lead to food-provisioning by the elite. The movement of food up and down the chain creates a 'tiered connectedness' that endlessly reinforces and reconstructs the social order.

A series of dichotomies can be identified which reflect this basic conflict of interest between a would-be independent small-farmer class (the basis of the Tier 1 mode of production) and an emerging class of proto-feudal lords (creating a new Tier 2 mode of production). This conflict – essentially a class conflict – plays out between the 5th and 9th centuries to produce the Middle Anglo-Saxon society with which we are concerned. It is summarised in Table 8.

Food Power

Food is power. We can imagine the Middle Anglo-Saxon lord as a food-mountain, as the personification of food-surplus. I want to develop this idea a little further by

identifying two crucial ways in which this was true: a) he was the source of food-provisions in general, and b) he was the source of specialised food in particular.

Consider these two contemporary comments:

> *Every steward shall have in his district good workmen – that is, blacksmiths, gold- and silver-smiths, shoemakers, turners, carpenters, shield-makers, fishermen, falconers, soap-makers, brewers who know how to make beer, cider, perry, or any other suitable beverage, bakers to make bread for our use, net-makers who can make good nets for hunting, fishing, or fowling, and all the other workmen too numerous to mention.*

and

> *There are many common rights: in some districts are due winter provisions, Easter provisions, a harvest feast for reaping corn, a drinking feast for ploughing, reward for haymaking, food for making the rick, at wood-carrying a log from each load, at corn-carrying food on completion of the rick, and many other things which I cannot recount.*

The first is taken from the *Capitulare de Villis*, a Carolingian document of the late 8th/early 9th century concerned with the administration of royal estates. The second is from the *Rectitudines Singularum Personarum*, the mid-11th-century English document analysed above. Both extracts imply food-provisioning by lords, in the first case that of various specialists likely to have been attached to the household, in the second presumably ordinary peasants performing labour-services.

Drawing upon a range of such sources, we can imagine the Middle Anglo-Saxon lord presiding at the centre of a web of food-provisioning obligations, where food-renders are recycled in a power-building process of 'tiered connectedness' of the kind envisaged by Martin Jones. An impression of such a web is given in Figure 1.

This, though, is to think only in quantitative terms: the provision of sufficient basic sustenance. There was also a qualitative dimension to 'tiered connectedness', concerned with who had access to which foods and on what occasions: a way not only of creating ties of patronage and dependence, but also of constructing distinctions of rank and status, a literal 'pecking order'.

Economics are embedded in social relations. To understand what is happening with the social surplus, we have to reconstruct the contemporary social order. Middle Anglo-Saxon society might be described as a 'post-heroic' society. This term does not provide a comprehensive definition, but it does capture certain essential features. The implication is that lordship – the accumulation of wealth and power at the top of a traditional (i.e. pre-capitalist) social hierarchy – is legitimised by an ideology that roots the hierarchy in a warrior culture and an imagined past of larger-than-life heroes (whom members of the elite claim as ancestors and see as exemplars). There

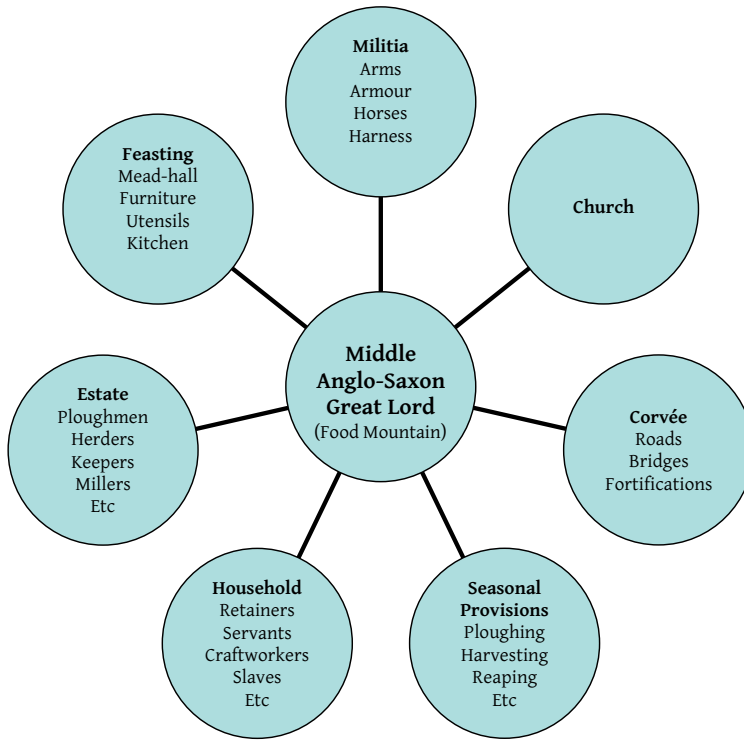


Figure 1. Anglo-Saxon lordship, food-provisioning and 'tiered connectedness'.

are many examples of societies of this kind represented in historical literature and in anthropological case-studies. On the evidence of Homer's two epics, *The Iliad* and *The Odyssey*, Early Archaic Greece was such a society: the poems as we have them (they had evolved over some four centuries) were intended for an 8th-century BC audience of Hellenic chieftains and their retinues; but they reference an earlier, imagined age populated by heroic warrior-adventurers capable of mixing with the gods and performing superhuman deeds.

There is, of course, an Anglo-Saxon equivalent of Homeric literature: the Old English oral epic *Beowulf*. The poem describes events which listeners – it would, of course, have been recited by a bard – presumably considered to have been historical, but which were in fact mythological. It is quintessentially 'post-heroic', in that it concerns events distant in both time and place from the audience, but with which, it is safe to assume, the audience imagined a connection. The poem offers answers to questions like: 'Who are we?', 'Where do we come from?', 'What sort of people are we?' and 'Who are our friends and who our enemies?'.

Implicit in the poem is the anthropology of a specific social group – the secular warrior elite of Middle Anglo-Saxon society – and this can be summarised in terms

of lordship, fighting, feasting and gift-giving. Great men – kings and heroes – have retinues of warrior companions: they are the leaders of 'bands of brothers'. The king's warriors both feast in the royal mead-hall and also sleep there: they form a household retinue in the most literal sense. Royal patronage both attracts a retinue and binds it together, and loyal and constant service is the cardinal virtue of the retainer. Great store is set by treasure – precious objects that confer honour, status and rank on the holder, but which also serve to create and sustain social relationships. Gift exchange is the currency of elite social networks. Kings are 'treasure-guardians', 'gold-friends' and 'ring-givers'. A bad king hoards wealth; a good one gives it away.

When Beowulf slays Grendel, he is rewarded with a gold-ornamented banner, a ridged helmet, an ancient sword, a coat of mail and eight horses with richly decorated harness. The social order implicit in the poem must, then, be actively constructed and continually reconstructed. Social relationships are not states of being, but states of becoming; not fixtures, but processes. That is why precious objects must be gifted, must change hands, must circulate through the social matrix. Thus, the gift is not inert, a mere material form, but an object alive with meaning, obligation and an imperative to further action. It implies a contract and can be considered either a payment for services rendered, an advance on services to come or a present which must at some point be returned in kind. Though the gift, once given, may seem to be 'owned' by another, that ownership is compromised by the gift's connection with the giver and the recipient's consequent obligation to reciprocate (Mauss 1967).

Marcel Mauss, who wrote the seminal study of gift exchange, noted the especial potency of a gift in the form of food (1967: 58). Consider this discussion of elite practice in the Hindu Classical Period:

> *The gift is something that must be given, that must be received, and that is, at the same time, dangerous to accept. The gift constitutes an irrevocable link, especially when it is a gift of food. The recipient depends upon the temper of the donor; in fact each depends upon the other. Thus a man does not eat with his enemy.*

Now this brings us to the matter on which I wish to focus: the anthropology of food and feasting. This is, of course, a form of gift-exchange – and in Mauss's judgement an especially potent one – and also a species of giving that is wholly dependent on the production, appropriation and distribution of agricultural surpluses. When Hrothgar, the lord of Heorot, bestowed gifts on Beowulf, it was not some backroom affair. It took place amid the communal splendour of 'a feast in honour of Beowulf and the Geats' in a mead-hall specially prepared for the occasion:

> *Then it was quickly commanded that Heorot should be decked within with hands. There were many there, men and women, who made ready the wine-building, the guest-hall. Woven hangings gleamed, gold-adorned, on the walls, many wondrous sights for all men who look on such things. (Beowulf XVI)*

We can imagine the metal-smiths and armourers, the embroiderers and wood-sculptors, the artisans of numerous crafts who supplied the material culture of Middle Anglo-Saxon 'high society'; and we can imagine the way in which precious objects, prestige goods, circulated as a currency of social relationships. But our focus must be on the feast itself, and for two good reasons. First, because communal eating is the most basic of social actions, such that the giving and sharing of food creates bonds of exceptional strength. Thus, when introducing himself to Hrothgar's herald, Beowulf describes himself and his followers as 'Hygelac's table-companions'. The social group – an elite group of warriors led by a hero destined to be king – was, by definition, those who feasted together in the same royal mead-hall. Second, our focus is on the feast because its creation is inseparable from our primary concerns – the land, the village, and the Middle Anglo-Saxon agro-social revolution.

Let us take the concept of food power – i.e. elite control of food in the construction of social relations – and place it in the context of what we might regard as its primary expression: the feast. Little read nowadays but still very valuable in this respect is William Edward Mead's *The English Medieval Feast* (1967). It is an historical study based almost entirely on Late Medieval documentary sources, so it is the general anthropological insights it contains that concern us here. Mead shows the exceptional value placed on foods that were special, rare, even exotic, and on those that were expensive, hard to obtain and brought in from a distance. He also describes the elaborate recipes employed, involving many ingredients and much pounding and mixing, to create elaborate concoctions the contents of which had become unrecognisable. And he reports the demand for variety and surprise, both in the foods themselves and in their preparation.

Reading the recipes, much of the food sounds revolting, with the deliberate disguising of the taste of the individual ingredients ending up in a generalised mush. This is, of course, an aesthetic judgement (hardly an academic one), but I suggest that what mattered here was not that the results tasted *better* than simple fare, but that they were more *special, expensive* and *elaborate*. A social distinction was being made between those who ate 'refined' food at a feast and those who ate simple fare at home. A host of meanings were thereby communicated. As Mead (1967) explains:

> *The poor ate to live ... the rich lived to eat. ... A great feast ... was incomparably the greatest attraction of medieval life. ... As social life grew more complex and luxury increased, the feast became more and more a favourite means of manifesting the wealth and social importance of the donor.*

Philip Stubbes, a critical commentator in the Elizabethan period, would have agreed. Remarking on the escalating cost of conspicuous consumption at the summit of the social order in his own day, he had this to say:

> *There are three cankers which in process of time will eat up the whole commonwealth of England ... dainty fare, gorgeous buildings, and sumptuous apparel. (Quoted in Pye 2015: 131)*

Basse Cuisine	Haute Cuisine
Cheap local produce	Expensive imported produce
Few ingredients	Many ingredients
Simple recipes	Complex recipes
One dish and one course only	Many dishes and many courses
Women's work	Men's work
'Having one bowl'	Elaborate etiquette

Table 9. Food language: two ways of eating, two states of being. (Source: Goody 1982)

All would have been on display at the feast, which required a grand setting ('gorgeous buildings'), appropriate dress ('sumptuous apparel') and an over-abundance of over-processed food ('dainty fare'). And were we present at the feast, we would receive a barrage of subliminal (and not so subliminal) messages: about the relative ranks of those assembled; about the wealth and power represented; and about the cultural identity and social status of the feasters. The occasion, moreover, would enhance the social cohesion of these 'table-companions' – both the peer-group solidarity of those on the top table, and the sense of place of those lower on the ladder but still present at the feast. But the influence of the feast would have reached further still, beyond the dining-hall, for the food chain that descended from it would have reached to the servants in their quarters and to the poor at the back door. Food power involves an accumulation of surplus that then cascades back down the social order, fixing everyone who wants to eat in their place.

At the root of this complex social process is a distinction between *basse cuisine* (the everyday food and way of eating of the common people) and *haute cuisine* (the elaborate food and ritualised eating of the elite). The anthropologist Jack Goody's classic study, *Cooking, Cuisine and Class* (1982), is helpful here. Drawing heavily on African ethnographic examples, but then panning across a range of other cultures, he draws out some recurring characteristics of this meaning-laden food dichotomy. Some of the key contrasts are summarised in Table 9.

As Table 9 makes clear, Goody looked beyond the immediate eating experience to view the whole process of food production, distribution and consumption. What he discovered was that cooking and cuisine were inseparable from class, and that every aspect of food provisioning could be read as a cultural *koine* – a language for talking about rank, status, culture and the moral order. What becomes clear is that we are concerned with a process that is fundamental to *both* human subsistence *and* the social hierarchy. Indeed, precisely because food provisioning is the essential bedrock of human existence, it necessarily becomes the bedrock of social differentiation as more complex, class-based societies develop. What, how and where you eat determines who

you are. It is this that gives the strongest possible signal – because it concerns the most basic of human functions – regarding social position.

And if this is true to some degree in all societies, it was especially so in pre-industrial societies with a relatively low level of material culture. In a world where a first-class sword was a prized possession that might pass from father to son, the proportion of the surplus devoted to the production, distribution and consumption of food was relatively much greater than in the modern world, with its superabundance of mass-produced material culture. Moreover, in that pre-industrial world, it was not simply a matter of the food itself. As we have noted, when Stubbes complained that 'three cankers' were consuming the wealth of Elizabethan England, he was referring to three essential requirements of the feast – 'dainty fare, gorgeous buildings, and sumptuous apparel'. Or, to translate this into the language of *Beowulf*, it is the consumption of surplus represented by the feast, the mead-hall and the military kit on display there.

Have we not arrived at an understanding of one of the key drivers of the agro-social revolution of the Middle Anglo-Saxon period? Food was both power and *koine*: it meant both control over others and a symbolic language to define the social order in which that control was embedded. Above all, there was the feast, with its displays of rank, patronage, peer solidarity and the gradations of the food chain. All this depended upon surplus accumulation in the form of high-status food. Was not the essential corollary increased output, specialised production and long-distance connectivity?

Conclusion

The key features of my model of Middle Anglo-Saxon political economy can be summarised as follows:

- Control over land and labour was the foundation of the system.
- The transformation of independent subsistence farmers into dependent peasants was a precondition of surplus appropriation by a class of lords.
- Surplus was appropriated mainly in the form of labour-services and food-renders.
- Food-flows were the revolving wheels of the economic mechanism.
- Food-flows – food-labour, food-renders, and food-provisions – meant food-power, 'tiered connectedness' and social relationships based on rights, obligations and dependence.

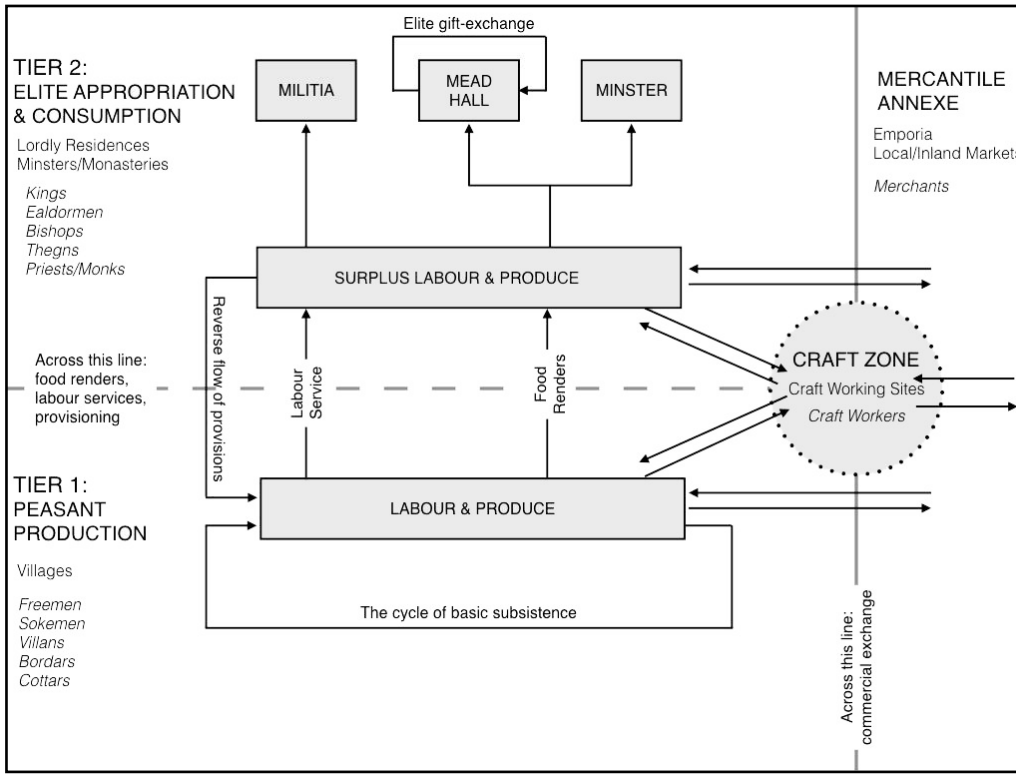


Figure 2. A model of the political economy of Middle Anglo-Saxon England.

- Food-consumption – in mead-halls and refectories, at agricultural feasts and around the peasant hearth – involved a multi-faceted anthropology of power, patronage, dependence, rank, peer solidarity and cultural identity.

- The core dynamic of the system – the ultimate driver of the Middle Anglo-Saxon agro-social revolution – was politico-military competition between rival warrior elites organised into war-making polities.

In the light of this, we might return to the questions about Sedgeford with which we began. In this regard, I would make the following points:

- The Sedgeford maltsters were not 'marketing' malt; they were producing a food-render.

- Nor were they 'buying' whatever was arriving in Ipswich ware pots; they were recycling containers used for food disbursements/provisioning.

- The coins on the site were elite artefacts – like styli, book clasps or vessel glass – that they occasionally saw, but rarely handled.

- Sedgeford *c.* AD 800 was part of a tributary economy based on food-renders, labour-services, great estates and a regional network of production, processing, distribution and consumption. It was not part of a proto-capitalist economy based on merchants, markets and money. Sedgeford's secular and ecclesiastical lords, not an embryonic merchant bourgeoisie, controlled food-surpluses.

The proposed model is represented in Figure 2. Though it has been published elsewhere, it is worth publishing again here, since it encapsulates the ideas developed at length in this paper.

References

Banham, D. and R. Faith. 2014. *Anglo-Saxon Farms and Farming*. Oxford: Oxford University Press.

Birch, W. de G. 1885–93. Cartularium Saxonicum*: A Collection of Charters Relating to Anglo-Saxon History*. London: Whiting and Company Ltd.

Blackburn, M. 2011. Coinage in its archaeological context, in H. Hamerow, D. Hinton, and S. Crawford (eds) *The Oxford Handbook of Anglo-Saxon Archaeology*: 580–99. Oxford: Oxford University Press.

Blinkhorn, P. 1999. Of Cabbages and Kings: Production, Trade, and Consumption in Middle-Saxon England, in M. Atherton (ed.) *Anglo-Saxon Trading Centres: Beyond the Emporia*: 4–23. Glasgow: Cruithne Press.

Blinkhorn, P. 2012. *The Ipswich Ware Project: ceramics, trade, and society in Middle Saxon England*. Dorchester: Medieval Pottery Research Group.

Douglas, D. and G. Greenaway (eds) 1968. *English Historical Documents, Vol II, 1042–1189*. London: Eyre and Spottiswoode.

Faith, R. 1997. *The English Peasantry and the Growth of Lordship*. Leicester: Leicester University Press.

Faulkner, N. 2004. The Case for the Dark Ages, in R. Collins and J. Gerrard (eds) *Debating Late Antiquity in Britain, AD 300–700*: 5–12. British Archaeological Reports British Series 365. Oxford: Archaeopress.

Faulkner, N. 2008. *Rome: Empire of the Eagles*. London: Pearson.

Faulkner, N. 2013. *A Marxist History of the World: from Neanderthals to Neoliberals*. London: Pluto.

Faulkner, N. 2018. The Anglo-Saxon Army. *Military History Monthly* 97.

Faulkner, N. 2022. An Agro-Social Revolution in a Mid Saxon Village: Making Sense of the Sedgeford Excavations, in M. McKerracher and H. Hamerow (eds) *New Perspectives on the Medieval 'Agricultural Revolution'*: 161–78. Liverpool: Liverpool University Press.

Faulkner, N. and E. Blakelock. 2020. The Excavation of a Mid Anglo-Saxon malthouse at Sedgeford, Norfolk: An interim report. *Anglo-Saxon Studies in Archaeology and History* 22: 68–95.

Finberg, H.P.R. 1961. *The Early Charters of the West Midlands*. Leicester: Leicester University Press.

Finley, M. 1992. *The Ancient Economy*. London: Penguin.

Goody, J. 1982. *Cooking, Cuisine and Class: A Study in Comparative Sociology*. Cambridge: Cambridge University Press.

Grierson, P. 1959. Commerce in the Dark Ages: a critique of the evidence. *Transactions of the Royal Historical Society* 9: 123–40.
Hagen, A. 2006. *Anglo-Saxon Food and Drink*. Little Downham: Anglo-Saxon Books.
Hilton, R. 1977. *Bond Men Made Free*. London: Routledge.
Hobsbawm, E. 1969. *Bandits*. London: Weidenfeld and Nicholson.
Hodges, R. 1982. *Dark Age Economics: The Origins of Towns and Trade AD 600–1000*. London: Duckworth.
Jackson, T.A. 1946. *Ireland Her Own: An Outline History of the Irish Struggle for National Freedom and Independence*. London: Cobbett Press.
Jones, M. 2008. *Feast: Why Humans Share Food*. Oxford: Oxford University Press.
Lavelle, R. 2010. *Alfred's Wars: Sources and Interpretations of Anglo-Saxon Warfare in the Viking Age*. Woodbridge: Boydell.
Leahy, K. 2003. *Anglo-Saxon Crafts*. Stroud: Tempus.
Mauss, M. 1967. *The Gift: Forms and Functions of Exchange in Archaic Societies*. New York: Norton.
Mead, W.E. 1967. *The English Medieval Feast*. London: George Allen and Unwin.
Morton, A. 1999. Hamwic in its context, in M. Anderton (ed.) *Anglo-Saxon Trading Centres: Beyond the Emporia*: 48–62. Glasgow: Cruithne Press.
Naismith, R. 2014. The social significance of monetisation in the Early Middle Ages. *Past and Present* 233: 3–39.
Oosthuizen, S. 2013. *Landscapes Decoded: The Origins and Development of Cambridgeshire's Medieval Fields*. Hatfield: University of Hertfordshire.
Prebble, J. 1963. *The Highland Clearances*. London: Secker and Warburg Ltd.
Pye, M. 2015. *The Edge of the World: How the North Sea Made us Who we Are*. London: Penguin.
Reece, R. 1991. *Roman Coins from 140 Sites in Britain*. Cirencester: Cotswold Studies.
Ryan-Collins, J., A. Greenham, R. Werner and A. Jackson. 2012. *Where Does Money Come From?* London: New Economics Foundation.
Sampson, R. 1999. Illusory emporia and mad economic theories, in M. Anderton (ed.) *Anglo-Saxon Trading Centres: Beyond the Emporia*: 76–90. Glasgow: Cruithne Press.
Stenton, F.M. 1970. *Anglo-Saxon England*. 3rd Edition. Oxford: Clarendon Press.
Swanton, M. 1975. *Anglo-Saxon Prose*. London: Everyman/Dent.
Thompson, E. 1980. *Customs in Common*. London: New Press.
Whitelock, D. (ed.) 1979. *English Historical Documents, Vol I, c. 500–1042*. 2nd Edition. London: Eyre and Spottiswoode.

In the 25 years since the Sedgeford Historical and Archaeological Research Project (SHARP) began fieldwork in north-west Norfolk, Sedgeford has emerged as a major site for investigating the agricultural revolution of 'the long 8th century'. The period between *c*. AD 650 and 850 saw the consolidation of kingdoms, the rise of the Church, the creation of great estates, the transformation of agriculture, and the development of emporia, craftwork, and long-distance trade in prestige goods. These proceedings present the results of a day conference held in 2020 which reviewed the results of 25 years' work at Sedgeford in the context of new discoveries and changing ideas about the Middle Anglo-Saxon period in Norfolk, England as a whole and the wider contemporary world.

Dr Richard Hoggett is a freelance heritage consultant, lecturer and writer specialising in Anglo-Saxon East Anglia and monastic landscapes. He first attended SHARP in 1997 and was responsible for the project's work on the parish church and wider landscape studies until 2022.

Dr Neil Faulkner was an archaeologist, historian, writer, lecturer, broadcaster and political activist. He was founder-director of SHARP and of the Great Arab Revolt Project (GARP), and a former editor of *Current Archaeology* and *Military History Matters*. Neil died in February 2022.

ARCHAEOPRESS ARCHAEOLOGY
www.archaeopress.com