

Post-Roman Towns,
Trade and Settlement in Europe and Byzantium

Vol. 1



Millennium-Studien

zu Kultur und Geschichte des ersten Jahrtausends n. Chr.

Millennium Studies

in the culture and history of the first millennium C.E.

Herausgegeben von / Edited by
Wolfram Brandes, Alexander Demandt, Helmut Krasser,
Hartmut Leppin, Peter von Möllendorff

Volume 5/1

Walter de Gruyter · Berlin · New York

Post-Roman Towns,
Trade and Settlement in Europe
and Byzantium

Vol. 1

The Heirs of the Roman West

Edited by
Joachim Henning

Walter de Gruyter · Berlin · New York

Diese Publikation wurde im Rahmen des Fördervorhabens 16TOA021 – *Reihentransformation für die Altertumswissenschaften („Millennium-Studien“)* mit Mitteln des Bundesministeriums für Bildung und Forschung im Open Access bereitgestellt. Das Fördervorhaben wird in Kooperation mit dem DFG-geförderten *Fachinformationsdienst Altertumswissenschaften – Propylaeum* an der Bayerischen Staatsbibliothek durchgeführt.



Dieses Werk ist lizenziert unter der Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International Lizenz. Weitere Informationen finden Sie unter <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Die Bedingungen der Creative-Commons-Lizenz gelten nur für Originalmaterial. Die Wiederverwendung von Material aus anderen Quellen (gekennzeichnet mit Quellenangabe) wie z.B. Schaubilder, Abbildungen, Fotos und Textauszüge erfordert ggf. weitere Nutzungsgenehmigungen durch den jeweiligen Rechteinhaber.

Ⓢ Printed on acid-free paper which falls within the guidelines of the ANSI to ensure permanence and durability.

ISBN 978-3-11-018356-6

ISSN 1862-1139

Library of Congress Cataloging-in-Publication Data

A CIP catalogue record for this book is available from the Library of Congress.

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

© Copyright 2007 by Walter de Gruyter GmbH & Co. KG, D-10785 Berlin
All rights reserved, including those of translation into foreign languages. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any information storage and retrieval system, without permission in writing from the publisher.

Printed in Germany

Cover design: Christopher Schneider, Berlin

Agrarian production and the *emporium* of mid Saxon England, ca. AD 650-850

HELENA HAMEROW

Introduction

Ever since the excavations at Hamwic (Saxon Southampton) – the first Anglo-Saxon *emporium* to be investigated archaeologically – there has been speculation regarding the manner in which such settlements were provisioned, and what economic impact their presence had on agrarian production in the countryside.¹ The following study investigates these questions from two perspectives: first, it considers faunal and botanical evidence from within the *emporium* themselves as indicators of agrarian production in their hinterlands. In practice, this means examining results from the four main *emporium* to have been archaeologically investigated on any scale, namely Hamwic, London, York and Ipswich (Fig. 1). The same questions will then be considered from the perspective of the rural hinterland: is there evidence for intensification, expansion or specialisation of agrarian production in the countryside of late seventh- to ninth-century England and can these changes be connected with the rise of the *emporium*, or, as has recently been argued, were these trading settlements essentially ‘divorced from the rural economy’?²

The provisioning of the *emporium*

There is ample evidence from the *emporium* to suggest that they were provisioned from the surrounding countryside. The first study to identify such evidence was a pioneering analysis of the animal bones from Hamwic by Jennifer Bourdillon.³ She noted that most of the meat consumed by the inhabitants of the *emporium* – up to 75 % – was beef, with

1 Hodges 1982. Whether any of the seventh- to ninth-century North European trading settlements loosely termed *emporium* or *wics* merit the term ‘town’ is a vexed question, although by the eighth century they undoubtedly displayed many urban characteristics. See Scull 1997.

2 Saunders 2001, 13.

3 Bourdillon/Coy 1980; Bourdillon 1988; *idem* 1994.



Fig. 1. Location map showing the main sites mentioned in the text

mutton being somewhat less important, and pork being a relatively minor component. Furthermore, of the sheep and cattle represented in the assemblage, over half were older animals (i.e. with molars in full wear).

Subsequent work on animal bones from other *emporium* has suggested similar patterns. A study by Terry O'Connor of the faunal assemblage from the eighth- to ninth-century *emporium* at York (*Eoforwic*) has revealed that here too mature cattle – i.e. 3-8 years old – provided as much as 80 % of the meat consumed, and that there is virtually no evidence of neonate or very young domesticates. It is thus a classic ‘consumer’ assemblage and, like Hamwic, the presence of all major body parts indicates that

animals arrived at the *emporium* on the hoof, with the possible exception of pigs, some of which may have arrived as dressed carcasses.⁴

As for Ipswich, little has so far been published concerning the animal bone assemblage, yet the provisional results look rather similar to those from Hamwic and York, with a clear dominance of cattle, around half of which survived beyond the age of four.⁵ This emphasis on cattle is of course not entirely restricted to English *emporia*, but is also seen at Ribe and Dorestad, for example.⁶ It thus appears that the populations of Hamwic, York and Ipswich had a relatively plentiful supply of meat, but primarily from cattle that were beyond prime market age.

What does this evidence suggest about the way in which the provisioning of these *emporia* operated in practice? The rather monotonous meat diet shared by the occupants of Hamwic, Ipswich and York have led to the suggestion – first put forward by Bourdillon some fifteen years ago – that they were not in direct contact with the producers of meat and that access to meat was in some way constrained since, given a choice, people would not buy the tougher meat from older animals that had experienced a full working life in the countryside.⁷ According to this model, the animals reached the *emporium* from surrounding estates – in other words, the *emporia* were provisioned with renders in kind paid to the king.⁸ This ‘redistributive’ model has since been tested by O’Connor against a wider range of faunal data from both wics and non-wic settlements, and been reaffirmed.⁹ In short, it is argued that the inhabitants of these three *emporia* were inhibited from trading directly with food producers. Further support for this inference comes from the fact that the faunal assemblages from the *emporia* are characterised by a paucity of poultry, wild fowl and, to some extent, pig – precisely the kind of animals that people could relatively easily have obtained for themselves.¹⁰

When we turn to mid Saxon London (*Lundenwic*), however, a somewhat different picture emerges. The faunal assemblages, like those of Hamwic, Ipswich and York, are characterised by low diversity, with cattle as the dominant meat animal followed by pig and sheep. Animals were likewise brought in on the hoof and butchered in the *emporium* but, crucially, a broader age structure is indicated, including many sub-adult animals,

4 O’Connor 1994, 139. Currie has identified, based on evidence contained in Late Saxon charters, ‘one of the main provisioning routes into the *Hamwic*’ from a large area of common pasture at North and South Stoneham (Currie 1994, 117). However, while North Stoneham was a royal estate by 932, we cannot be certain that this was already the case in the eighth century, when Hamwic was at its peak.

5 Crabtree/Stevens forthcoming.

6 Hatting 1991; Prummel 1983.

7 Bourdillon 1988.

8 *Ibid.*, 188-191; see also Crabtree/Stevens forthcoming.

9 O’Connor 2001.

10 *Ibid.*, 60.

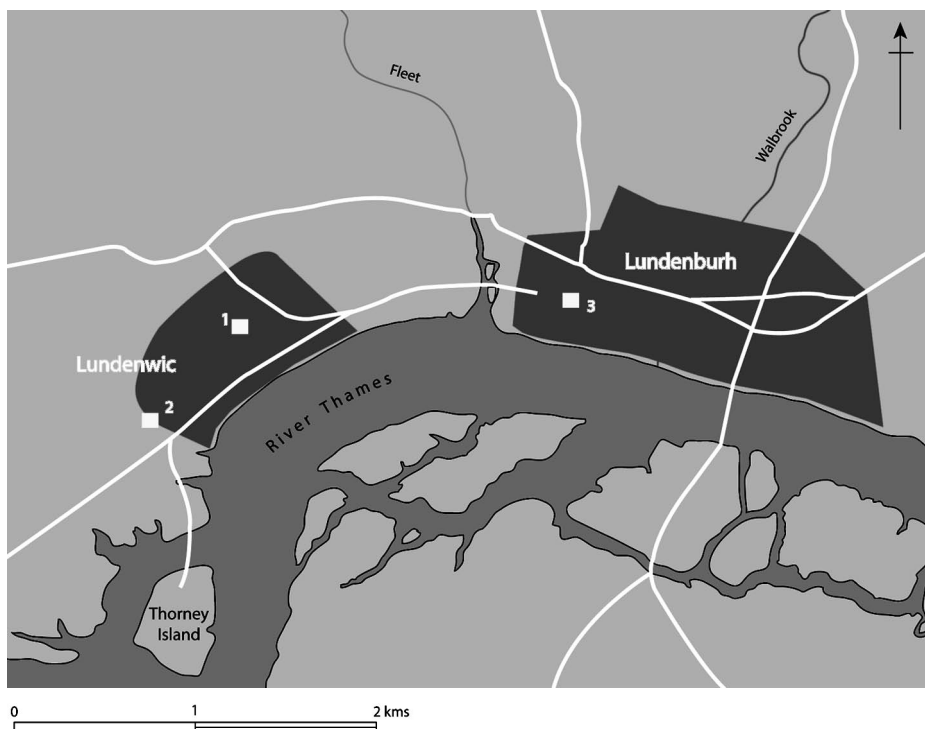


Fig. 2. Lundenwic.

Key: 1. The Royal Opera House; 2. The National Gallery; 3. St Paul's Cathedral

suggesting that these were obtained at market, unlike the ostensibly controlled supplies seen elsewhere.¹¹

There is, furthermore, evidence to suggest that at least some of the animals consumed in *Lundenwic* were reared in nearby farms. First, excavations at the Royal Opera House in Covent Garden – i.e. within *Lundenwic* itself – have produced neonate and very young cows, pigs and sheep, suggesting at least some locally reared animals, while faunal remains unearthed at the site of the National Gallery suggest the presence here of a farm at the fringes of the *emporium* (Fig. 2).¹² The site yielded a high proportion – up to 7% – of newborn and very young calves and lambs.¹³ A comparable situation may be indicated for Ipswich, where a mid Saxon farm within a ditched enclosure was identified at the Whitehouse Estate, near good grazing

11 Malcolm/Bowsher/Cowie 2003, 160-161.

12 *Ibid.*, 185.

13 Rackham 1994, 131. The National Gallery site also diverges from the pattern seen elsewhere in that sheep predominated over both cattle and pig.

land on the outskirts of the *emporium* (Fig. 3). This arrangement is reminiscent of the Carolingian *emporium* at Dorestad where, behind the densely packed harbour area, lay a number of farms which could have generated enough surplus protein to provision the traders and craftspeople of the *wic*.¹⁴

Furthermore, an unpublished report on the animal bones from a ninth-century site at the Treasury in London concludes, based on the age profile of the animals slaughtered and the large quantity of cattle 'waste' bones recovered, that this too was a farm where some slaughter and marketing of dressed meat took place, as well as the rearing of animals for marketing on the hoof.¹⁵ This interpretation has recently been questioned by Cowie, however, who argues that the Treasury site could equally have been a royal vill which both collected and redistributed food renders.¹⁶

Evidence for the supply of cereals to the *emporium* is far scarcer. The preservation of botanical remains from Hamwic and York was too poor for any significant conclusions to be drawn, although enough plant remains were recovered from excavations within *Lundenwic* to suggest that cleaned or semi-cleaned grain – mainly wheat and barley – was imported from the surrounding countryside.¹⁷ The weed seeds present indicate that the cereals were grown in damp ground, suggesting that they may have come from farmland situated in the river valley.¹⁸ Botanical remains from Ipswich suggest that the *emporium* was in receipt of cleaned, processed grain supplied by farms in the surrounding region, including some on reclaimed heathland as well as boulder clay soils.¹⁹

Agrarian production in mid Saxon England

What are the implications of these findings for the organisation of farming in the mid Saxon countryside? A consideration of the population sizes of the *emporium* is clearly central to this question: Hamwic is estimated to have contained between 2,000-3,000 people and Ipswich is likely to have been of a similar size (Pl. 19).²⁰ *Lundenwic*, at its peak, housed between 8,500-13,700;²¹ *Eoforwic* was the smallest of the four main *emporium* and is likely to have had a population of around 1,000-1,500. Provisioning

14 Martin/Pendleton 1996 and J. Caruth pers. comm.; Prummel 1983, 248-259.

15 Chaplin 1971, cited in Rackham 1994, 131.

16 Cowie 2004.

17 Rackham 1994, 129.

18 Malcolm/Bowsher/Cowie 2003, 184. It is interesting to note in this connection the discovery of a water mill, dated by dendrochronology to the early eighth-century, at the Saxon monastery of Barking, a few miles downriver from *Lundenwic* (Anon. 1996).

19 Murphy forthcoming.

20 Andrews 1997, 253; Wade pers. comm.

21 Malcolm/Bowsher/Cowie 2003, 193.

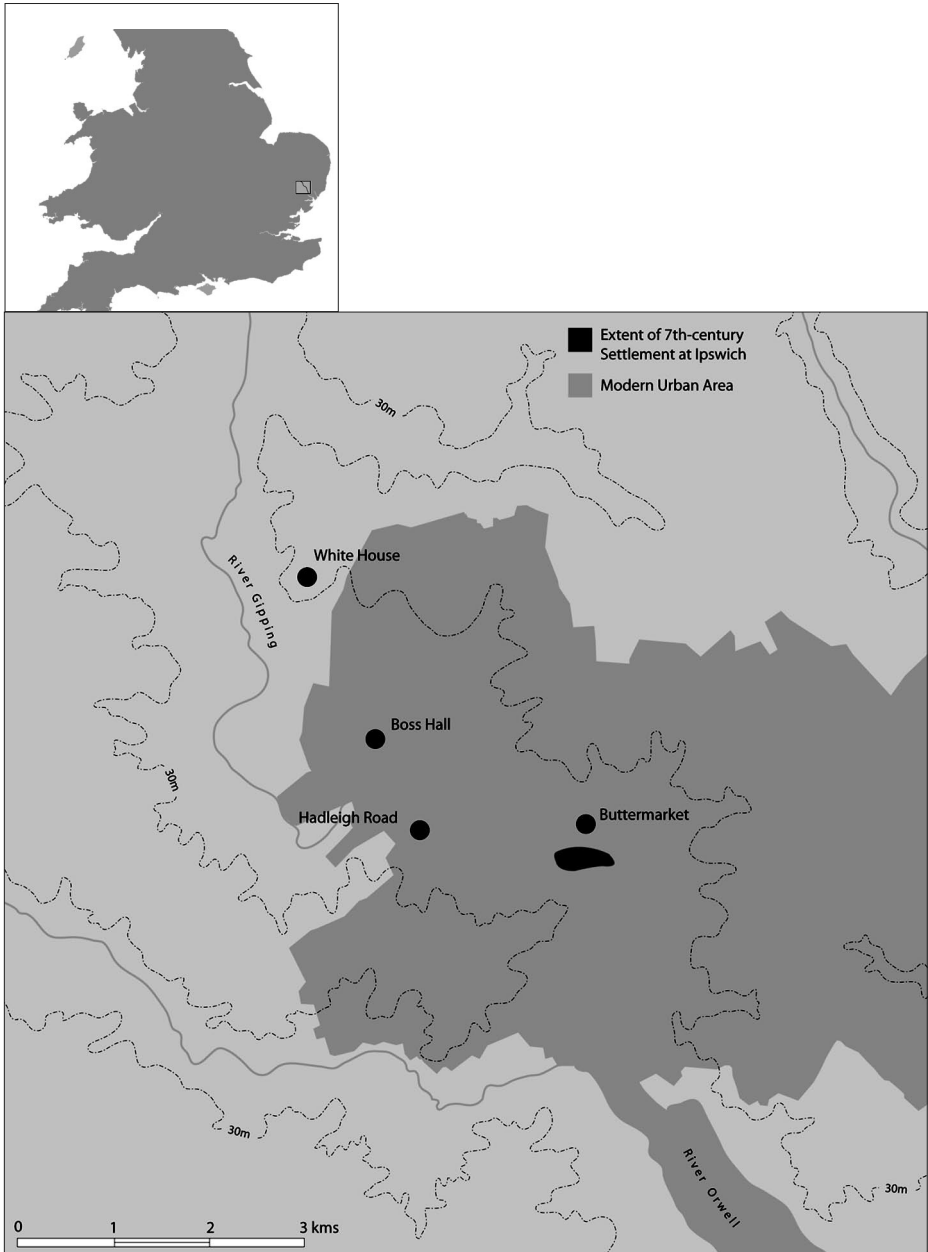


Fig. 3. Mid Saxon Ipswich and surrounding cemeteries/settlements

the occupants of the *emporia* was thus no small matter, especially as the meat being supplied was predominantly beef, and cattle are the most labour-intensive, high-risk of the meat mammals. One might expect, therefore, that the requirement to provision the *emporia* would have had an observable impact on the animal husbandry practices of farming communities in their immediate hinterlands.

Certainly, there are signs that some Anglo-Saxon farmers were modifying their food production strategies during the eighth and ninth centuries, moving away from a diverse regime geared essentially towards self-sufficiency, and towards a more specialized strategy oriented towards emerging markets for meat and wool. The sheep bones from Hamwic itself suggest 'the running of a wether flock for wool' and a 'new and serious emphasis on wool'.²² Further evidence for specialized livestock rearing has been uncovered at a number of fen-edge settlements in Norfolk; their faunal assemblages suggest that these communities specialized in cattle-rearing, as well as salt production.²³ They lie only a few kilometres from probable monasteries or estate centres at Bawsey and Wormegay; a possible *wic* at Burnham lies 30-40 km away, while the major *wic* at Norwich lay over 50 km distant.²⁴ Surplus production of beef and hides is also indicated at the mid Saxon settlement at Pennyland in Buckinghamshire, where the age profile of the cattle suggests they were raised primarily for meat: 70 % were slaughtered before the age of three, namely on reaching their full weight.²⁵ Pennyland, however, lies over 200 km from the nearest major *emporium*. Intensification of animal rearing is also indicated by the fact that the first Anglo-Saxon hay-meadows appear to date to this period as well as the increasing importance of oats.²⁶

The evidence for surplus production of cereals is less clear, however. Bread wheat had replaced barley as the dominant cereal by the ninth century, and this would have required a greater investment of labour in terms of cultivation and manuring in order to obtain the potentially high yields. Intensification of cereal production is also hinted at by evidence for deep cultivation and improved weeding techniques in the eighth and ninth centuries from settlements such as Yarnton (Oxfordshire) and Pennyland.²⁷

An indirect yet powerful indication that Anglo-Saxon farmers were producing a regular surplus is the increasingly widespread distribution amongst mid Saxon rural settlements of a number of commodities either produced in, or traded through, the *emporia*. Most notably, there is Ipswich Ware, the first post-Roman pottery type to be

22 Bourdillon 1988, 182.

23 Andrew 1992.

24 Although the *wic* at Norwich may not have been established until c 900 (Hill/Cowie 2001, 99-100).

25 Williams 1993. Changes in the kill patterns of cattle and sheep at a mid Saxon settlement at Quarrington, Lincolnshire, also hint at surplus production (Taylor 2003, 273).

26 Hooke 1998, 133; Hey 2004, 47.

27 Hey 2004, 82; Williams 1993, 171-174.

mass-produced using a turntable (Figs 4 and 5). This was manufactured in Ipswich, primarily from the early eighth to mid-ninth centuries, and provides a rare example of a commodity for which both the production site and distribution have been studied in detail. A kiln and large quantities of potting debris associated with the production of Ipswich Ware have been found in Ipswich itself, while Ipswich Ware is found very widely on settlements within the kingdom of East Anglia, and must have been distributed by an efficient marketing system.²⁸

The distribution of quernstones imported from the Rhineland is of particular interest as they relate directly to food processing. A study by Parkhouse indicates that these were widely distributed within mid Saxon England, indeed much more widely than imported pottery.²⁹ A dump of over 200 fragments of lava querns exported to England as rough-outs at the Late Saxon waterfront embankment in London suggests that this material was transported up the Thames, and indeed such querns have been recovered from rural settlements as far upriver as Oxfordshire.³⁰ By far the most compelling evidence for widespread trade and surplus production in eighth-century England is, however, the impressive spread of *sceatta* coinages, estimated to have numbered in their millions.³¹

The widespread appearance of coins and of relatively low-value bulk imports such as quernstones and pottery in rural settlements of the eighth century reflects the increased access of farmers to an exchange network that ultimately connected them to the *emporia*. The clear eastern focus of the distribution of coinage and imported goods is a further indication that the rural economy was somehow integrated with that of the major *emporia*, which lie near the eastern and southern English coasts. It can hardly be a coincidence, for example, that the eighth century saw a doubling in the size of Ipswich, the establishment of a major pottery industry capable of marketing Ipswich Ware in large quantities throughout East Anglia, and the rapid development of a money economy within the kingdom.³²

Conclusion

It is nevertheless necessary to look beyond the *emporia* if we are to understand the re-organization of food production in mid Saxon England. The need to provision growing numbers of estate centres and monasteries was increasing sharply in this period. Faunal evidence from the Northumbrian royal vill at Yeavinger and high status settlements

28 Scull 1997, 277-278; Wade 1988, 95-96; Blinkhorn 1999.

29 Parkhouse 1997.

30 Freshwater 1996; Hey 2004, 292.

31 Metcalf 1993; *idem* 1994.

32 Scull 2002, 304.



Fig. 4. Ipswich Ware

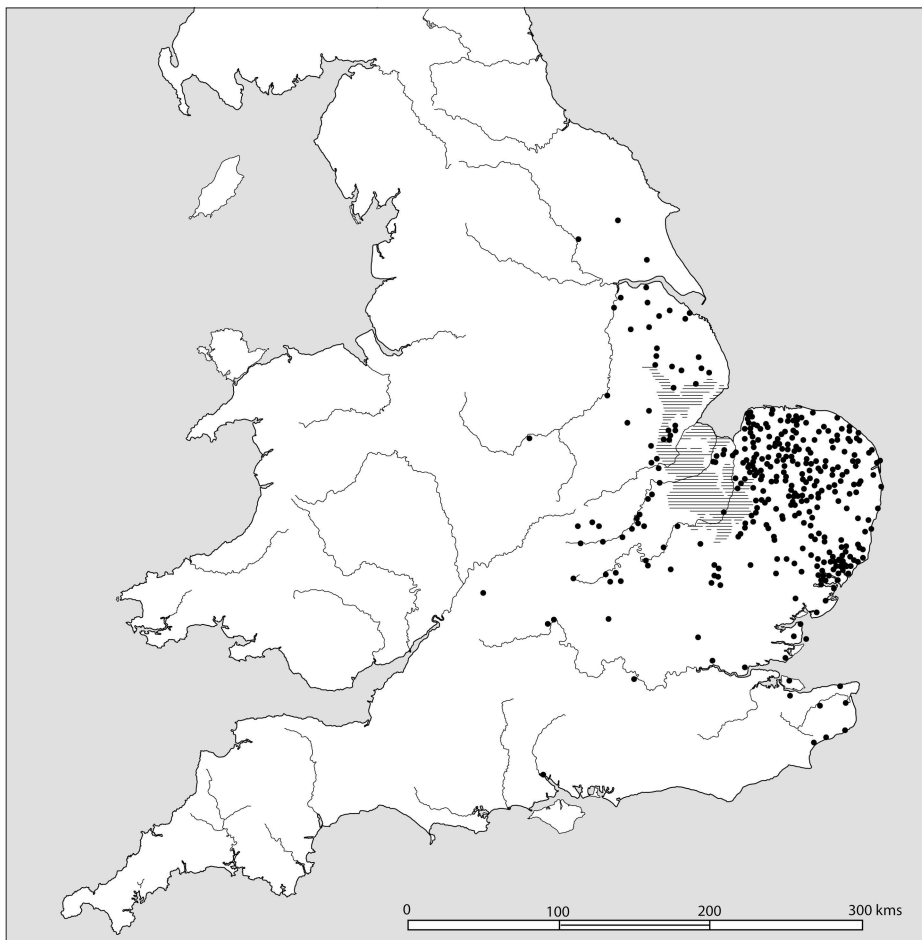


Fig. 5. Distribution of Ipswich Ware

such as Flixborough (Lincolnshire), Eynsham (Oxfordshire) and Wicken Bonhunt (Essex) support written sources that describe how religious and aristocratic communities drew upon a system of tribute that involved the movement of agricultural produce and live-stock around the countryside.³³ Indeed, the cattle herds associated with some monastic estates must have been enormous, to judge from the scale of manuscript production; on one recent estimate, some 1,500 acres of pasture would have been necessary to sustain a herd large enough to produce enough skins for one gospel book of the size of the Lindisfarne Gospels per year.³⁴ These communities would certainly have been in direct contact with meat producers. Furthermore, recent work on the distribution of so-called ‘productive sites’, which yield significant quantities of coinage and metalwork, has revealed a thriving network of inland regional markets in this period, whose chief commodities must have been agricultural produce.³⁵ It is probably safe to assume, furthermore, that the intensification, specialisation and almost certainly expansion of agrarian production seen in this period sprang not only from the requirements of so-called ‘consumer communities’ like those mentioned above, but also from a general increase in population, although direct evidence for this is bound to be elusive.

Saunders has recently argued that kings established the *emporia* in order to control the exchange of ‘prestige goods’ – a system on which their power fundamentally depended.³⁶ He believes that they were essentially ‘specialized centres for the regulation of prestige goods, such as precious metals and decorated metalwork, high quality ceramic tableware and wine’, economically quite separate from rural production, and therefore not the forerunners of medieval market towns.³⁷ The animal bone evidence plays a key role in his argument. Yet it is salutary to note that the slaughter patterns seen at the Anglo-Saxon *emporia* are not very different from those of twelfth- and thirteenth-century towns where older animals also predominate and where ‘many of the cattle eaten ... may have served several years as plough beasts before being fattened up for the table’.³⁸ We should not, therefore, rule out the possibility that many, perhaps most, of the cattle consumed in the *emporia* in fact represent locally marketed produce and were simply the by-products of arable and dairy farming, as in later medieval towns.³⁹

33 Faith 1999; Faith in: Banham/Faith forthcoming; Loveluck 2001; Hardy/Dodd/Keevill 2003; Wade 1980. There is some debate about the exact status of Wicken Bonhunt. It appears either to have been a royal centre where food rent was collected (cf. Hodges 1982, 142), or a farm that specialised in pig rearing (Crabtree 1996, 63).

34 Härke 1999. For a consideration of the cost of maintaining a mid Saxon monastery, see Campbell 2003, 17-18.

35 Ulmschneider/Pestell 2003.

36 Saunders 2001.

37 *Ibid.*, 11-12.

38 Grant 1988, 156. See also Albarella 2005.

39 The potentially important role played by petty producers marketing their surplus animals is stressed by Faith (in Banham/Faith forthcoming).

While it may be true that the *emporia* were not ‘nodal points in the rural economy’,⁴⁰ the combined weight of the evidence of Ipswich Ware, continental quernstones and *sceatta* coinages indicates that the economies of the *emporia* must have been in some way bound up with those of rural producers, even if the precise economic mechanism that linked the traders of the *emporia* with peasant farmers toiling in their hinterlands remains ill-defined.⁴¹ The difficulty of defining this link is inevitable given that evidence for agricultural production remains patchy at best and that most of the objects manufactured in the *emporia*, such as antler combs and simple brooches, are not sufficiently distinctive to enable their provenance to be established if found in a rural context.⁴² Yet the ‘R’ series of *sceattas*, minted in Ipswich, also circulated in significant numbers within its immediate hinterland and beyond, leading Scull to postulate that the *emporium* ‘was linked to its hinterland through markets with a significant element of monetary exchange’ (Fig. 5).⁴³

While the animal bone evidence may point to a form of ‘command economy’ for some of the *emporia* – most clearly for Hamwic – it also suggests that the economic relationship between *emporia* and their hinterlands varied. The apparent differences in provisioning seen at *Lundenwic* may hint at different structures of landholding in the surrounding region compared with the other three *emporia*; a system, perhaps, in which some meat was specially produced on royal farms, or *tuns*, for consumption in the *emporium*.

Despite the relatively large populations of the major *emporia*, we must bear in mind the possibility that they were provisioned in part by means of a system of royal tribute, as Saunders has argued, and as a result had relatively little impact on farming practices in their hinterlands. Yet it seems highly unlikely that the *emporia* were entirely divorced from the rural economy. The faunal evidence from London and the widespread circulation of low-value imports and *sceatta* coinages challenges the assertion that ‘no specialized processes ... [linked] the *emporia* to the countryside’⁴⁴.

One thing at least is clear: what is needed are targeted studies of botanical and faunal assemblages from settlements near the major *emporia*, informed from the outset by the kinds of questions outlined above.⁴⁵ Only through primary research of this kind

40 Saunders 2001.

41 Cf. Scull 2002, 309.

42 Hinton 1996, 99.

43 Scull 2002, 309. This contrasts however with the highly restricted distribution of certain of the series ‘H’ *sceattas*, which were minted at, and almost entirely restricted to, Hamwic (Andrews/Metcalf 1997, 212).

44 Saunders 2001, 13.

45 This may be more difficult than it sounds, however. Efforts to identify mid Saxon settlements within a 5 km radius of Hamwic have proven largely fruitless (A. Morton pers. comm.; Brisbane 1988, 107). Thus large-scale excavations 4 km to the north of Hamwic uncovered evidence for farming and/or settlement from late prehistory through to the fourteenth century, but none for the early and mid Saxon periods (Crockett 1996).

will we be able to understand the economic relationship between the *emporia* and the communities in their hinterlands.

Acknowledgements

I am grateful to the following for providing access to unpublished or forthcoming reports: Jo Caruth, Pam Crabtree, Keith Wade and Peter Murphy. John Newman, Alan Morton, Duncan Brown helpfully provided access to illustrative material. I am particularly grateful to Terry O'Connor, Umberto Albarella and Ros Faith for their comments on an early draft of this paper – the final version has benefited greatly from their insights and suggestions. Finally, I should like to extend special thanks to Joachim Henning for providing a stimulating international forum in which to present the ideas contained in this paper.

Bibliography

- Albarella 2005: Umberto Albarella, "Meat production and consumption in town and country", in: Katherine Giles/Christopher Dyer (Eds), *Town and Country in the Middle Ages: Contrasts, Contacts and Interactions 1100-1500*, Leeds 2005.
- Andrew 1992: P. Andrew, "Middle Saxon Norfolk: evidence for settlement 650-850", in: *The Annual 1992: Norfolk Archaeological And Historical Research Group*, 1992, pp. 13-28.
- Andrews 1997: Phil Andrews, *Excavations at Hamwic 2*, York 1992.
- Andrews/Metcalf 1997: Phil Andrews/David M. Metcalf, 'The coins', in: Phil Andrews (Ed.), *Excavations at Hamwic 2*, York 1997, pp. 210-215.
- Anon. 1996: Anon., "Barking Abbey", in: *Current Archaeology* 149, 1996, pp. 172-178.
- Banham/Faith forthcoming: Debby Banham/Ros Faith, *Anglo-Saxon Farms and Farmers*, Oxford forthcoming.
- Blinkhorn 1999: Paul W. Blinkhorn, "Of cabbages and kings: production, trade and consumption in middle-Saxon England", in: Mike Anderton (Ed.), *Anglo-Saxon Trading Centres: Beyond the Emporia*, Glasgow 1999, pp. 4-23.
- Bourdillon 1994: Jennifer Bourdillon, "The animal provisioning of Saxon Southampton", in: James Rackham (Ed.), *Environment and Economy in Anglo-Saxon England*, York 1994, pp. 120-125.
- Bourdillon 1998: Jennifer Bourdillon, "Countryside and Town: the animal resources of Saxon Southampton", in: Della Hooke (Ed.), *Anglo-Saxon Settlements*, Oxford 1988, pp. 176-196.
- Bourdillon/Coy 1980: Jennifer Bourdillon/Jenny P. Coy, "The animal bones", in: Philip Holdsworth (Ed.), *Excavations at Melbourne Street, Southampton 1971-76*, London 1980, pp. 79-121.
- Bisbane 1988: Mark Brisbane, "Hamwic (Saxon Southampton): an 8th century port and production centre", in: James Rackham (Ed.), *Environment and Economy in Anglo-Saxon England*, York 1994, pp. 101-108.
- Campbell 2003: James Campbell, "Production and distribution in early and middle Anglo-Saxon England", in: Tim Pestell/Katharina Ulmschneider (Eds), *Markets in Early Medieval Europe: Trading and 'Productive' Sites, 650-850*, Macclesfield 2003, pp. 12-19.

- Cowie 2004: Robert Cowie, "The evidence for royal sites in Middle Anglo-Saxon London", in: *Medieval Archaeology* 48, 2004, pp. 201-208.
- Crabtree 1996: Pam Crabtree, "Production and consumption in an early complex society: animal use in Middle Saxon East Anglia", in: *World Archaeology* 28, 1996, pp. 58-75.
- Crabtree/Stevens forthcoming: Pam Crabtree/P. Stevens, *The Animal Bone Remains from Ipswich*, forthcoming.
- Crockett 1996: Andrew Crockett, "Excavations at Montefiore New Halls of Residence, Swaythling, Southampton 1992", in: *Hampshire Studies* 51, 1996, pp. 5-57.
- Currie 1994: Christopher K. Currie, "Saxon charters and landscape evolution in the south-central Hampshire basin", in: *Proceedings of the Hampshire Field Club and Archaeological Society* 50, 1994, pp. 103-125.
- Faith 1999: Ros Faith, "Feorm", in: Michael Lapidge/John Blair/Simon Keynes/Donald Scragg (Eds), *The Blackwell Encyclopaedia of Anglo-Saxon England*, Oxford 1999, pp. 181-182.
- Freshwater 1996: T. Freshwater, "A lava quern workshop in Late Saxon London", in: *The London Archaeologist* 8/2, 1996, pp. 39-45.
- Gardiner 2002: Mark Gardiner, "Continental trade and non-urban ports in Mid-Saxon England: excavations at Sandtun, West Hythe, Kent", in: *The Archaeological Journal* 158, 2002, pp. 161-290.
- Grant 1988: Annie Grant, "Animal resources", in: Grenville Astill/Annie Grant (Eds), *The Countryside of Medieval England*, Oxford 1988, pp. 149-185.
- Hardy/Dodd/Keevill 2003: Alan Hardy/Anne Dodd/Graham Keevill, *Aelfric's Abbey: excavations at Eynsham Abbey, Oxfordshire 1989-92*, Oxford 2003.
- Härke 1999: Heinrich Härke, *Saxon warriors and Viking kings*, Oxford 1999.
- Hatting 1991: Tove Hatting, "The Archaeozoology", in: Mogens Bencard/Lise Bender Jørgensen/Helge Brinch Madsen (Eds), *Ribe Excavations* 3, Esbjerg 1991, pp. 43-58.
- Hey 2004: Gill Hey, *Yarnton: Saxon and Medieval Settlement and Landscape*, Oxford 2004.
- Hill/Cowie 2001: David Hill/Robert Cowie (Eds), *Wics: The Early Medieval Trading Centres of Northern Europe*, Sheffield 2001.
- Hinton 1996: David Hinton, *The Gold, Silver and Other Non-Ferrous Alloy Objects from Hamwic*, Stroud 1996.
- Hodges 1982: Richard Hodges, *Dark Age Economics: the origins of towns and trade AD 600-1000*, London 1982.
- Hooke 1998: Della Hooke, *The Landscape of Anglo-Saxon England*, Leicester 1998.
- Loveluck 2001: Chris Loveluck, "Wealth, waste and conspicuous consumption: Flixborough and its importance for mid and late Saxon settlement studies", in: Helena Hamerow/Arthur MacGregor (Eds), *Image and Power in the Archaeology of Early Medieval Britain: Essays in Honour of Rosemary Cramp*, Oxford 2001, pp. 78-130.
- Metcalf 1993-94: David M. Metcalf, *Thrymsas and Sceattas in the Ashmolean Museum* 1-3, London 1993-1994.
- Malcolm/Bowsher/Cowie 2003: Gordon Malcolm/David Bowsher/Robert Cowie, *Middle Saxon London: excavations at the Royal Opera House 1989-1999*, London 2003.
- Martin/Pendleton 1996: Edward Martin/Colin Pendleton, "Archaeology in Suffolk", in: *Proceedings of the Suffolk Institute of Archaeology and History* 38, 1996, pp. 476-77.
- Murphy, forthcoming: Peter Murphy, *The environment and agrarian economy of Saxon and medieval Ipswich*, forthcoming.
- O'Connor 1994: Terry O'Connor, "8th-11th century economy and environment in York", in: James Rackham (Ed.), *Environment and Economy in Anglo-Saxon England*, York 1994, pp. 136-147.

- O'Connor 2001: Terry O'Connor, "On the interpretation of animal bone assemblages from *Wics*", in: David Hill/Robert Cowie (Eds), *Wics: The Early Mediaeval Trading Centres of Northern Europe*, Sheffield 2001, pp. 54-60.
- Parkhouse 1997: Jonathan Parkhouse, "The distribution and exchange of Mayen lava quernstones in early medieval northwest Europe", in: *Papers of the 'Medieval Europe Brugge 1997' Conference 3*, Zellik 1997, pp. 97-106.
- Prummel 1983: Wietske Prummel, *Excavations at Dorestad 2: an archaeozoological study*, Amersfoort 1983.
- Rackham 1994: James Rackham, "Economy and environment in Saxon London", in: James Rackham (Ed.), *Environment and Economy in Anglo-Saxon England*, York 1994, pp. 126-135.
- Reichstein/Tiessen 1974: Hans Reichstein/Maike Tiessen, *Berichte über die Ausgrabungen in Haithabu 7: Untersuchungen an Tierknochenfunden*, Neumünster 1974.
- Saunders 2001: Tom Saunders, "Early mediaeval *emporia* and the tributary social function", in: David Hill/Robert Cowie (Eds), *Wics: the Early Mediaeval Trading Centres of Northern Europe*, Sheffield 2001, pp. 7-13.
- Scull 1997: Christopher Scull, "Urban centres in pre-Viking England?", in: John Hines (Ed.), *The Anglo-Saxon from the Migration Period to the Eighth Century*, Woodbridge 1997, pp. 269-97.
- Scull 2002: Christopher Scull, "Ipswich: development and contexts of an urban precursor in the seventh century", in: Brigitta Hårdh/Lars Larsson (Eds), *Central Places in the Migration and the Merovingian Periods*, Lund 2002, pp. 303-316.
- Taylor 2003: Gary Taylor, "An early to middle Saxon settlement at Quarrington, Lincolnshire", in: *The Antiquaries Journal* 83, 2003, pp. 231-80.
- Ulmschneider/Pestell 2003: Katharina Ulmschneider/Tim Pestell, "Introduction: early medieval markets and 'productive' sites", in: Katharina Ulmschneider/Tim Pestell (Eds), *Markets in Early Medieval Europe: Trading and 'Productive' Sites, 650-850*, Macclesfield 2003.
- Wade 1988: Keith Wade, "Ipswich", in: Richard Hodges/Brian Hobley (Eds), *The Rebirth of Towns in the West*, York 1988, pp. 93-100.
- Williams 1993: Robert Williams, *Pennyland & Hartigans: Two Iron Age and Saxon sites in Milton Keynes*, Aylesbury 1993.