



*The Horningsea Roman
Pottery Industry in
Context*

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Dedicated to Joyce Pullinger

The Horningsea Roman Pottery Industry in Context

Volume 1: Production, Distribution and the Old Tillage

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Cover illustration

Front: Horningsea grey ware necked jar (R02), with an out-curving rim and rilled decoration on the shoulder. Type J10.5, similar combing on illustrated type series J2.2 and J2.4. Hadrianic to early Antonine. From the Great Chesterford archive (courtesy of the Cambridge Museum of Archaeology and Anthropology)

Rear: Large handmade storage jar from Horningsea (probably R021), with everted bifid rim (Type SJ2), with a distinctive chevron of incised herringbone design on lower part of vessel. Antonine to mid 4th century AD. (Walker 1912, Kiln 7, fig. 50; now held in the Cambridge Museum of Archaeology and Anthropology)

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Finally, the authors would like to dedicate this volume to the memory of Joyce Pullinger.

Abbreviations

Pottery classification codes

Class A	Amphorae
Class B	Black Burnished wares
Class C	Shell-tempered wares
Class E	Early 'Belgic' tradition wares
Class F	Colour-coated and other finewares (excluding samian)
Class M	Mortaria
Class O	Oxidised wares
Class P	Handmade Iron Age tradition fabrics
Class Q	White-slipped oxidised wares
Class R	Wheelmade reduced wares (grey wares)
Class S	Samian ware
Class W	Whitewares

Horningsea wares (Class R)

Fabric R02	Horningsea grey ware
Fabric R021	Handmade Horningsea grey ware
Fabric R04	Black-surfaced Horningsea grey ware, mainly Black Burnished copies

Form codes

See Table 1.2

Fabric and related codes

(see also Table 1.1 and Digital Appendix 2)

BB	Black Burnished wares
CC	Colour coat
CCW	Colour-coated ware
CG	Central Gaulish
CGS	Central Gaulish samian
COL	Colchester
EG	Eastern Gaulish
G	Gaulish

GW	Grey ware
HAD	Haddon
LG	La Graufesenque South Gaulish samian
LIASG	Late Iron Age South Gaulish
LNV	Lower Nene Valley
MAH	Mancetter-Hartshill
MDV	Les Matres-de-Veyre Central Gaulish Samian
MK	Milton Keynes
NOG	North Gaulish
OXF	Oxfordshire
RHL	Rhineland
RSG	Roman Shell Grittled
SG	South Gaulish
SVW	Severn Valley Ware
TSG	Fine shell gritted ware (see Digital Chapter 4 for definition)
TS	Terra sigillata
UNV	Upper Nene Valley
VER	Verulamium
WS	White slip
WH	Whiteware

Other abbreviations

AGO	Stonea context
AGK	Stonea context
Ant	Antonine
BA	Bronze Age
BD	Base diameter
BE	Base equivalent
BS	Body sherd
C	Century (<i>e.g.</i> MC2 = mid 2nd century)
CAM	Cambridgeshire
Ctxt	Context

Dec	Decorated
Dia	Diameter
E	Early
Flav	Flavian
Grp	Group
H	Height
Hadr	Hadrianic
IA	Iron Age
Indet	Indeterminate
L	Late
LPRIA	Late pre-Roman Iron Age
M	Middle
MNR	Minimum number of rims
MNV	Minimum number of vessels
MSW	Mean sherd weight
MVR	Minimum vessel rims
M%R	Mean percentage of rim
Nosh	Number of sherds
N	Number
Per	Period
PRIA	Pre-Roman Iron Age
RB	Romano-British
RD	Rim diameter

RE	Rim equivalent
RS	Red slipped
Wt	Weight

Site Codes

See Table 2.1

Contracting units and individuals

AS	Archaeological Solutions
BUFAU	Birmingham University Field Archaeology Unit
CAU	Cambridge Archaeological Unit
CCC AFU	Cambridgeshire County Council Archaeological Field Unit
EASL	Engineering Archaeological Services Ltd
FAT	Fenland Archaeological Trust
JE	Jeremy Evans
NVRC	Nene Valley Research Committee
PM	Philip Mills
SPM	Stephen Macaulay
OA East	Oxford Archaeology East (formerly CCC AFU, CAM ARC)

Summary

This report provides the first complete study of the Horningsea pottery industry and a commentary on Roman pottery supply in southern Cambridgeshire. Examination of Horningsea ceramic material, including all known kiln sites, has now provided a full chronology and type series for the industry, beginning in the Flavian period (AD 60–70) and ending in the late 4th century AD (*c.*AD 370). The distribution network of Horningsea wares is now understood and provides an important piece of missing ceramic information for the region as a whole, and Cambridgeshire in particular. This report has also generated – for the first time – a baseline and general synthesis for Roman pottery supply in the eastern region. In addition, this study sheds light on the nature of the Roman fens and Romanisation, and on the role of the putative ‘imperial estate’ in the fenland. The project has

sought to examine the relationship between the ‘urban’ ceramic supply of Roman Cambridge and its hinterland, the results of which now cast doubt on the nature of Cambridge as an urban centre *per se*, while identifying a new small urban site at Littleport, in the fens. Finally, this study has determined a complete chronology for the Cambridgeshire Roman canal at Waterbeach, formerly known as part of the Car Dyke: it is now clear that this did not form part of the same route as that found in Lincolnshire and that the Cambridgeshire section should henceforth be referred to by its ancient local name of Old Tillage. Analysis has confirmed that, although the dyke’s function as a canal is not disputed, Horningsea ceramics were not a significant trade item distributed along this route.

Résumé

Ce rapport présente la première étude complète de l'industrie de la poterie à Horningsea ; il contient également un commentaire sur l'approvisionnement en poteries romaines dans le sud du Cambridgeshire. L'examen des céramiques de Horningsea portait également sur tous les sites de fours connus et il a permis de dégager une chronologie complète ainsi que des séries de types pour l'industrie depuis l'époque de Flavius (entre 60 et 70 de notre ère) jusqu'à la fin du 4ème siècle (aux environs de 370). Le réseau de distribution des poteries de Horningsea est désormais compris, ce qui permet de compléter une part importante des informations manquantes concernant la céramique de la région dans son ensemble et dans le Cambridgeshire en particulier. Ce rapport constitue également, et pour la première fois, un point de départ ainsi qu'une synthèse générale portant sur l'approvisionnement en poteries romaines dans la région de l'est. De plus, cette étude éclaire la nature des marais romains et de la romanisation, ainsi que le rôle d'un hypothétique « domaine impérial » dans le Fenland. Le projet visait à examiner la relation à l'époque romaine

entre la ville de Cambridge et son arrière-pays en termes d'approvisionnement en céramiques « urbaines ». Or les résultats obtenus jettent un doute sur la nature de Cambridge comme centre urbain en tant que tel, alors même qu'est révélée l'existence d'un nouveau petit centre urbain à Littleport dans le Fenland. Finalement, cette étude a permis de déterminer une chronologie complète pour le canal romain du Cambridgeshire à Waterbeach, qui était auparavant connu comme appartenant au Car Dyke : il est maintenant clair que ce dernier ne faisait pas partie de la même voie de communication que celle qui a été trouvée dans le Lincolnshire. De même, il est devenu évident que la partie du Cambridgeshire devrait désormais être désignée par l'ancien terme local de Old Tillage. L'analyse ne remet pas en cause la fonction du Dyke comme canal, mais elle confirme que les céramiques de Horningsea ne constituaient pas des articles de commerce importants que l'on trouvait le long de la voie.

(Traduction: Didier Don)

Zusammenfassung

Dieser Bericht enthält die erste vollständige Untersuchung zur Keramikindustrie von Horningsea und einen Kommentar zur Verbreitung römischer Keramik im Süden von Cambridgeshire. Die Untersuchung des keramischen Materials von Horningsea, einschließlich aller bekannten Brennstätten, erbrachte eine vollständige keramische Chronologie und Typenreihe, die in der flavischen Zeit (60–70 n. Chr.) beginnt und im späten 4. Jahrhundert (ca. 370) endet. Das Verteilernetz für Töpferwaren aus Horningsea ist nun bekannt; es bildet einen wichtigen Teil der bislang fehlenden keramischen Informationen für die Region als Ganzes und insbesondere für die Grafschaft Cambridgeshire. Der Bericht generiert – erstmals – auch ein Basisszenario und gibt eine zusammenfassende Übersicht über die Verbreitung römischer Keramik in dieser östlichen Region. Darüber hinaus erhellt die Untersuchung den Charakter der römischen Moorlandschaft und der Romanisierung sowie die Rolle des mutmaßlichen „kaiserlichen Anwesens“ im Fenn. Das Projekt diente dazu, die Beziehung zwischen der „urbanen“

Keramikversorgung in Cambridge und in seinem Hinterland während der Römerzeit zu untersuchen. Die Ergebnisse ziehen den Charakter von Cambridge als urbanes Zentrum per se in Zweifel, während in den „Fens“ eine neue städtische Kleinsiedlung bei Littleport gefunden wurde. Außerdem etablierte die Untersuchung eine vollständige Chronologie für den römischen Kanal in Cambridgeshire bei Waterbeach, der vormals als Teil des „Car Dyke“ bekannt gewesen war. Es ist nun klar, dass der Kanal nicht Teil der in Lincolnshire gefundenen Route war, weshalb der Streckenabschnitt in Cambridgeshire von nun an mit seinem alten Ortsnamen „Old Tillage“ belegt werden sollte. Obwohl die Kanalfunktion des Deiches nicht angezweifelt wird, bestätigte die Analyse, dass die Töpferwaren aus Horningsea unter den Handelsgütern, die über diese Route vertrieben wurden, keine große Rolle spielten.

(Übersetzung: Gerlinde Krug)

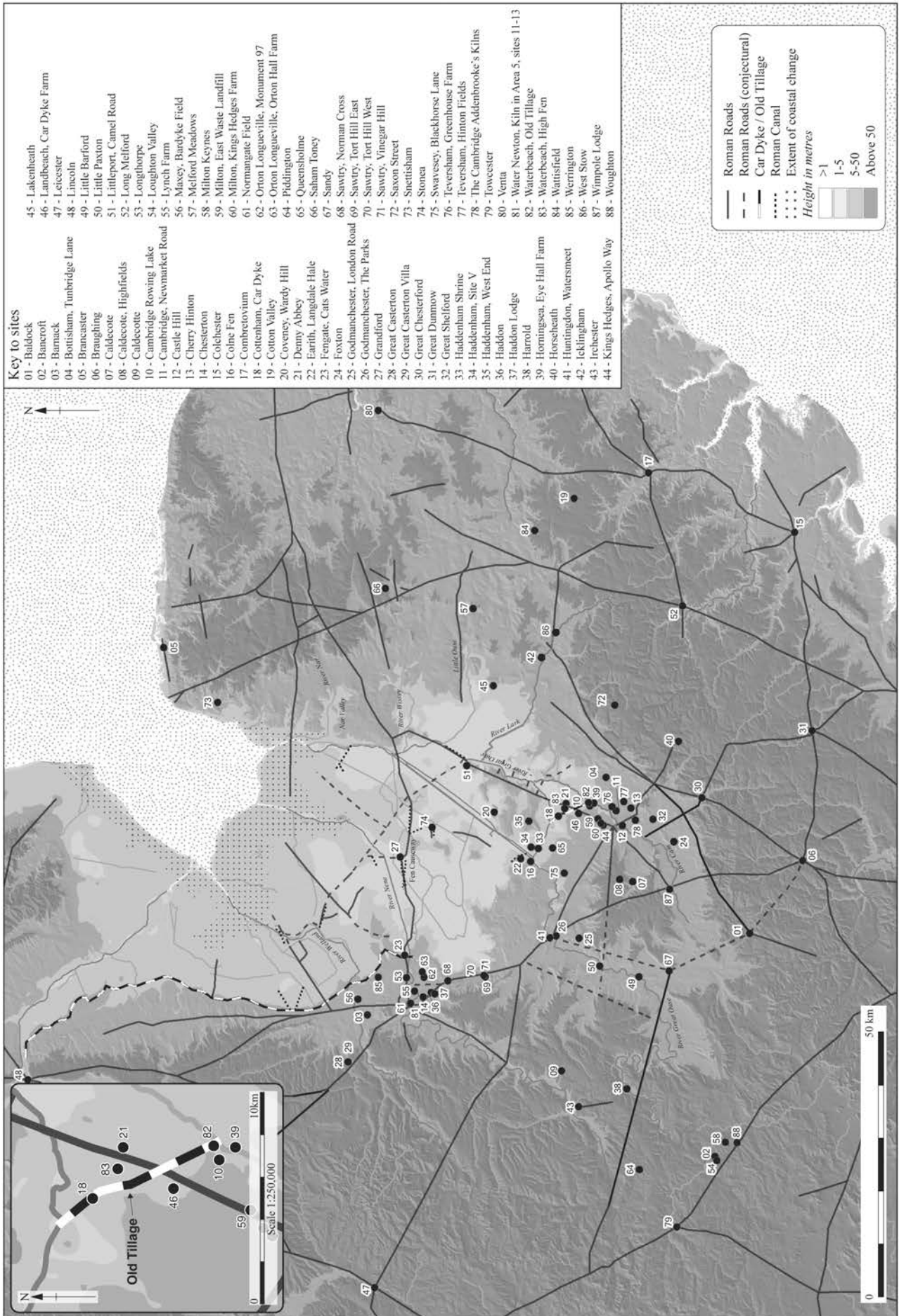


Figure 1.1 Main sites mentioned in the text showing the location of the fens, Roman roads, the Car Dyke (Lines) and the Old Tillage at Waterbeach. Scale 1:1,000,000

Chapter 1. Introduction

I. Project Background

This project – a study of Roman pottery in Cambridgeshire and in particular the Horningsea pottery industry – originated from research into the Cambridgeshire ‘Car Dyke’ canal (correctly, the Old Tillage; as explained in Section III below) and archaeological investigations in 1993 and 1997 associated with part of this monument at Waterbeach, near Cambridge. A section was excavated through the canal at the point where it joined the River Cam and flood defences were also found along the gravel terrace, which overlooked the river’s floodplain. A complete profile of the waterway and its banks was investigated; the only other time such an investigation had been possible was to the north at Cottenham in 1947. Horningsea style pottery kilns were discovered on the banks of the canal, along with a nearby timber building interpreted as a warehouse. During this work, substantial amounts of Roman pottery, mainly Horningsea ware, were recovered. The 1997 investigation in particular uncovered a large ceramic assemblage (6107 sherds, 106.625kg) from a very small area, which was in effect a trenching evaluation. A complete Horningsea style kiln was excavated, potentially one of eight within the examined field.

In order to record the ceramic assemblage and examine it in the context of material from other southern fen-edge sites, a subsequent research project was agreed with English Heritage in 2002; its objective was to study not only the Old Tillage pottery but also the Horningsea industry on the southern fen edge. Using the Cambridgeshire Old Tillage and excavated material from previous investigations (at Waterbeach and Cottenham) as a starting point, other sites were considered for inclusion on the basis of their proximity to the Waterbeach excavation and the presence of Horningsea wares. This process identified various other sites from which the original excavated material would be assessed and included in the study: Cambridge Rowing Lake, Waterbeach (1996), Milton East Waste (1994–5), Car Dyke Farm (Akeman Street), Landbeach (1996), Castle Hill, Cambridge (1960–80s), Hinton Fields, Teversham (1978–86), Camel Road, Littleport (1998) and Eye Hall Farm, Horningsea (fieldwalking in 1978). These sites generally lay in the south of Cambridgeshire, along the southern fen edge and around Cambridge city.

Subsequent to submission of the study proposal, and in the light of increasing data from developer-funded investigations, additional site archives were earmarked for consideration as it became clear that Horningsea material was present within them but had not originally been identified as such. The number of sites considered therefore increased and their geographical spread widened considerably (see Figs 1.1 and 2.1). The sites which now form the basis of this study extend across almost the entire county of Cambridgeshire, along with the Nene Valley, taking in Peterborough and southern Lincolnshire (Fig. 1.1). Sites along the Bedfordshire

(Sandy) and Essex (Great Chesterford) borders have also entered the study in general terms. It is worth noting, however, that the distribution of Horningsea material has remained largely consistent with the original plot of sites, along the southern Cambridgeshire fen edge, west towards Sandy and north to Littleport, with Horningsea material not reaching the north-west of the county. (Those site assemblages that were examined by Jeremy Evans as project-based studies (as yet unpublished) or were re-examined as part of this project are indicated using the abbreviation (JE) at the start of each period chapter or text section.)

In addition to the increase in the number of sites considered, the nature of the study also changed as it became apparent that, for a reconsideration of the Horningsea industry to be meaningful, it would be useful to understand the overall picture of ceramic supply and distribution in the region during the Roman period. This work has created a baseline for interpreting patterns of pottery supply for the entire Roman period for Cambridgeshire, which is presented in full detail in a digital volume as a supplement to the study of Horningsea pottery that is the focus of this research. The relationship between the two volumes is detailed in Section VI below.

II. Roman Cambridgeshire

Figs 1.1–1.3

Overview

The traditional framework for understanding the Roman period in Cambridgeshire is based on the minor or ‘small’ Roman towns of *Durovigutum* (Godmanchester), *Duroliponte* (Cambridge) and *Durobrivae* (Water Newton/Peterborough), the legionary fortress at Longthorpe and the Roman roads that cross the county – Ermine Street (the Great North Road or A1), Akeman Street (A10), the so-called Via Devana (A14) and the Fen Causeway (Fig. 1.1). These were set within a pattern of rural settlement, particularly in the fens, where the presence of an imperial estate was hypothesised (Salway 1981; Potter 1996a). Archaeologists continued to understand Roman Cambridgeshire on this basis as recently as the 1990s. Indeed with the exception of the imperial estate hypothesis, this way of viewing the Roman period in Cambridgeshire could have been taken from Cyril Fox’s *Archaeology of the Cambridge Region* written almost a century ago (Fox 1923). This established view of the Roman period – of towns (and small towns), their hinterlands and the relationship of town and country, roads and communications – does not, however, accord with the archaeological evidence for Cambridgeshire; and indeed whether this interpretation actually reflects the situation in other parts of the country is highly debatable. This is not to say that the small towns and the discussion of an imperial estate are not important, but rather that the understanding of the area needs to begin in the Iron Age and run through to the Anglo-Saxons.

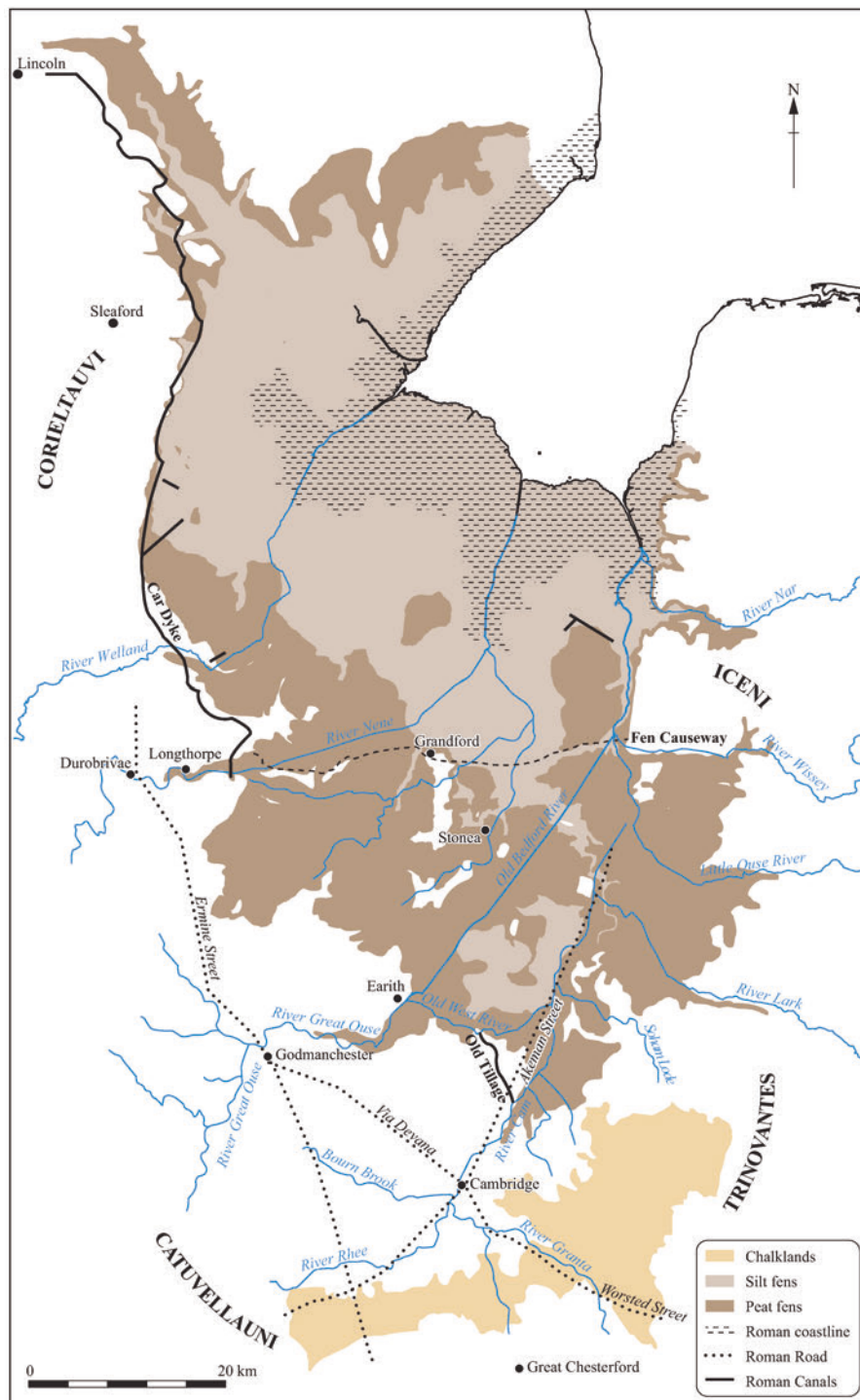
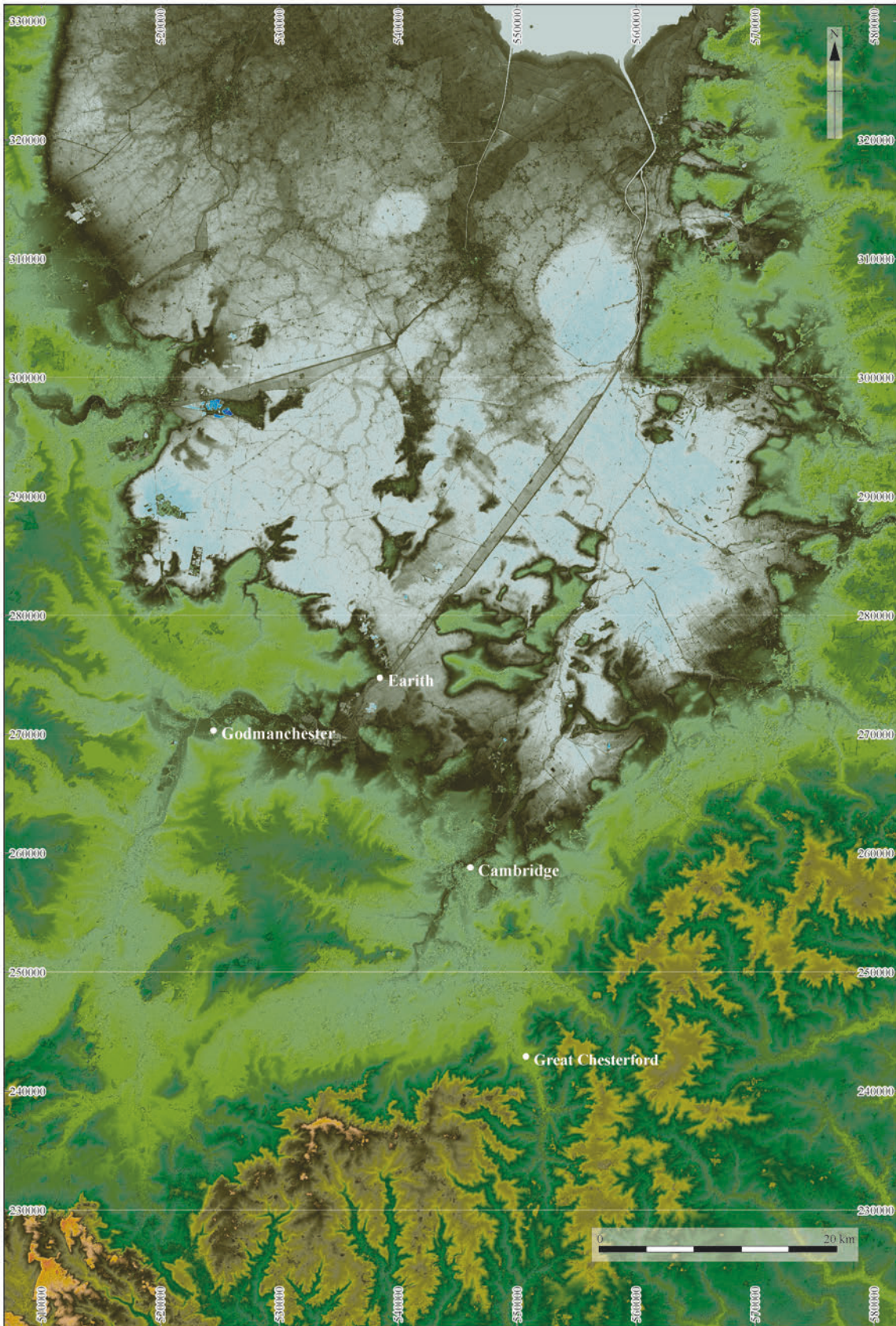


Figure 1.2 The local geology, showing late Iron Age tribal boundaries. Scale 1:750,000

The fens and fen-edge occupy almost half of modern Cambridgeshire, whilst the major rivers (Nene, Great Ouse and Cam) to a large extent mould the landscape and the nature of settlement within the rest of the county. The latter is divided into three clear geological zones – clay uplands to the west and south-west, chalk highlands to the south-east and the fens to the north-east (Figs 1.2 and 1.3).

In considering what constitutes ‘Roman Cambridgeshire’, we must understand that the political entity of the county is in itself a construct of little historical validity before the 10th century. The defining factors of the county and what Roman Cambridgeshire was are two-fold: first,

its geography and topography – the fens, fen-edge and rivers – and secondly the geo-political nature of its location, notably the borderland created between four major Iron Age polities (Fig. 1.2). The modern county covers parts of the territories assigned to each of four late Iron Age groupings recorded as the *Catuvellauni*, *Trinovantes*, *Iceni* and *Corieltauvi*. The *Catuvellauni* occupied the claylands to the south and west, the *Trinovantes* the chalk to the south-east, the *Corieltauvi* and the *Iceni* the north. The east to west boundary between the *Iceni/Corieltauvi* crosses Cambridgeshire and is an important cultural division reflected within the



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Figure 1.3 Terrain model of Cambridgeshire, showing the impact of the fens. Scale 1:500,000

archaeological record. The *Corieltauvi*, *Catuvellauni* and *Trinovantes* share the Aylesford–Swarling tradition (also referred to as ‘Belgic’) arguably typified by close associations with the ‘Belgic peoples’ of the continent (see Cunliffe 2005, 149–68). Further discussion on these issues is given in Digital Chapter 4.II.

The initial impact of the Roman Conquest on this part of Britain, particularly in relation to everyday activities and in the context of rural settings, appears minimal, the continuation and further establishment of client kingdoms probably ensuring this. In the years following the Conquest the most notable changes would have been the establishment of the Roman infrastructure of roads, forts and towns. These types of monuments are the most easily recognised in the archaeological record and, as has already been mentioned, it is around the framework they created that an understanding of Roman Cambridgeshire has traditionally been based.

As noted above, an important element in current debates on the nature of Roman Cambridgeshire is the theory of an ‘imperial estate’, which it has been proposed was created in the fens on the order of Emperor Hadrian, with its putative centre at the Roman town of Stonea Grange. The south and east of England have relatively high numbers of villas, the fens being one of the notable exceptions (Fig. 2.1). The low number of villa-type buildings here has been proposed as evidence for the existence of such an estate, where the opportunities for local noble families to gain status and wealth would have been compromised. This theory is, however, increasingly called into question by the evidence derived from the substantial body of developer-funded work carried out over the past fifteen years. The recent data indicate that the Roman settlement of Cambridgeshire arose from a complex combination of Iron Age to Roman continuity as well as the development of new settlements. Archaeologists currently working in the county are also debating the urban nature of Cambridge and Godmanchester. Later re-alignments in the 2nd century AD are often apparent as Romanisation of the province developed. The theory of an imperial estate within the fenland has been reconsidered within this study, and evidence sought that might support or refute the interpretation of Stonea Grange as the centre of such an estate.

Settlement patterns in the study area

The study area essentially comprises what is now the county of Cambridgeshire and parts of southern Bedfordshire (see Chapter 2, Fig. 2.1). The ‘town’ of Cambridge (*Duroliponte*), discussed in detail in Digital Chapter 10, commenced as a series of late Iron Age enclosures (*oppidum* does not seem an appropriate description) which developed into something morphologically like a Roman ‘small town’, with a street grid. However, the settlement seems consistently to lack strip buildings (Alexander and Pullinger 1999) and it appears to have had more of a religious focus than an urban one. Structural activity seems to be mainly 1st to 3rd century. It was walled in the 4th century, at which point there is scant evidence of any great level of settlement within the walls, although there may have been extensive dark earth deposits.

South-south-east of Cambridge, in northern Essex on the upper reaches of the Cam, was the town of Great

Chesterford. The town has its origins in the late Iron Age and subsequently a large Neronian fort is believed to have been constructed (Burnham and Wachter 1990, 138). It is not known if the fort was built prior to the Boudiccan revolt or in response to it, but regardless it was in use for only a very short period of time (Medlycott 2011, xiii). A street grid succeeded that of the fort, and civilian occupation developed from the later 1st century onwards. Burnham and Wachter (1990, 140) suggested that activity on the site peaked in the 2nd and 3rd centuries, and the pottery reported on by Martin (2011) confirms this. There were few stone buildings, but a 2nd-century extra-mural temple lay 1.6km east of the town (Medlycott 2011, 130–167). The extensive defences are dated to the early to mid 4th century, enclosing 14.2 ha. It is suggested that these were constructed as part of an inland component of the Saxon Shore defences, reflecting the increased role as a local centre of administration at this time (Medlycott 2011, xiv). Later 4th-century activity is attested from cemetery evidence, however, the fate of the town at the end of the Roman period is not clear (Medlycott 2011, xiv).

South-west of Cambridge was the small town of Wimpole Lodge (Horton *et al.* 1994). Here, there was a ribbon settlement stretching over a distance of about 1km, at the junction of Ermine Street and Akeman Street. The only area excavated was peripheral and comprised enclosures or house plots, while other reports suggest some stone buildings (Smith 1987, 181). The site had no defences. Excavations revealed activity from the later 2nd to later 4th centuries, although it is unclear at what date the settlement as a whole originated. North of Cambridge, Akeman Street seems to be of Antonine date, but there is no evidence for this southern stretch. Were it to be of this date then presumably the settlement would have started at a similar date, which is not inconsistent with the evidence thus far recovered from the site.

North-west from Cambridge a road runs along the fen edge to Godmanchester (*Durovigutum*) on the Ouse. Here, evidence of two early forts has been found: the first identified as Claudian and the second Neronian (Burnham and Wachter 1990, 125). The town had a road grid and the town centre seems to have been gridded out in the Flavian period. In the later 1st century, structures laid out parallel to the road in enclosures were evidently the norm. In the Hadrianic period a courtyard building with bathhouse, interpreted as a *mansio*, was constructed, along with a temple. Strip buildings also appeared in numbers. In the early 3rd century a stone basilican building facing onto Ermine Street was constructed. The town seems to have had a largely agrarian basis, but metalworking and quite large scale pottery production were present. Activity seems to have declined in the 4th century, and after the last resurfacing of Ermine Street in the early 4th century ‘a thick layer of rubbish accumulated containing late 4th century finds’ (Burnham and Wachter 1990, 129). The town defences were first constructed in the later 3rd century with a 3m wide wall and contemporary rampart. However, a later set of defences seems to have been constructed, onto which at a later stage a fan-shaped tower was added over the earlier ditch with a broad defensive ditch added with the tower. The latter changes are thought to date to the mid to later 4th century.

To the east, on the fen edge at Earith, a possible Roman port on the banks of the River Ouse at Camp Ground, Colne Fen was examined in 2001 with a nearby farmstead

at Langdale Hale (C. Evans *et al.* 2013). Settlement was present at Camp Ground from the 1st century but appears to have flourished in the 3rd and 4th centuries, serving as a transhipment point for goods including grain: the site may also have been associated with the distribution of Nene Valley pottery. This may be the port that has long been postulated to have existed in the fenland, perhaps supplemented by other such sites that remain to be found or that have now been lost.

North of Godmanchester the next urban site on Ermine Street would appear to be Water Newton (*Durobrivae*), the site at Sawtry having produced no evidence that it ought to be regarded as urban in any way. Here the important early feature was the vexillation fortress at Longthorpe, occupied *c.*AD 48–61/62, and its works depot. This clearly occupied a strategic river crossing on Ermine Street with access north and south, but could also watch over the fens to the east. There was a second fort on the outskirts of the walled town of *Durobrivae* 3.2km upriver of Longthorpe. Little is known of the date of this, although it would seem logically to post-date Longthorpe and it is possible the later settlement developed from its *vicus*. Although little material has been excavated from the walled area of the town (a single section of the defences; Perrin 1999), extensive pottery has been published from Billing Brook, Water Newton and Chesterton (Perrin 1999). This material, like the local pottery industry, mainly post-dates the first quarter of the 2nd century, and there currently seems little evidence to date the settlement before this. The layout of the town is well-known from aerial photography. There were plentiful strip buildings and larger town houses, along with the later palatium style building at Castor. The defences seemed to be later 2nd century in origin (Perrin 1999, 46): although they are not well understood, they enclosed a massive 18ha and included a number of towers, perhaps later additions.

Durobrivae has been suggested by Mackreth (1996a, 234) to be the administrative centre of the fenland, in contrast to Potter's (1996a) claims of this role for the site at Stonea. It is clearly a major centre, but one with only minimal examination of its substantial walled area (Burnham and Wachter 1990, 81–91). Recent reviews of the archaeology of *Durobrivae* and its surroundings include those of Fincham (2004) and Upex (2008).

Running east from *Durobrivae* was the Fen Causeway, which crossed the fens and the Nene to March island landing at Grandford before continuing across the fens and the Cam to Norfolk. The date of the fort at Grandford suggests that the Fen Causeway might be dated to *c.*AD 60 (see Chapter 5.VII), although Fincham (2002) proposed that part of it was constructed earlier. This would presumably suggest that it was constructed or completed in the aftermath of the Boudiccan revolt to enable troop movements into the fens and Norfolk from the west. Fincham also notes the possibility of a fort, or a sequence of them, at Eldernell which also lies on the route of the Fen Causeway, and he concludes that 'this would strengthen the impression of a military road secured by forts, perhaps occupied by units responsible to Longthorpe' (Fincham 2002, 59). However, this cannot be the case since Longthorpe was abandoned before there is evidence for occupation of the fort at Grandford, whilst there is no dating evidence for the putative fort at Eldernell. It might, however, provide a context for the fort at *Durobrivae*.

Roman Grandford was described by its excavators as a village (Potter and Potter 1982). The excavated site consists of a number of enclosures and buildings of the later 1st to 3rd centuries which developed adjacent to and over a putative early fort. Potter and Potter (1982, 3) note that the site as a whole extended over 30 acres, lying on the gravel island of March at the landing of the Fen Causeway. The early samian ware from the site is clearly from a military associated assemblage, given its very high levels of decorated ware, and the fort would seem to have been occupied in the Flavian–Trajanic period, whilst this may have extended into the Hadrianic era, but not later (see Chapter 2). The *vicus* appears to have continued life as a small town or village into the 3rd and 4th centuries, and Potter and Potter (1982, 9) recovered evidence of a building with stone footings in Barnack stone of 3rd-century date and a 4th-century stone building. There seems to be some indication that occupation tailed off in the 4th century. The animal bone assemblage shows that the commonest species was sheep, generally mature individuals likely to have been kept for wool, and, perhaps, milk.

South-east of Grandford, and south of the Fen Causeway, lay Stonea Grange to the north of the Iron Age 'hillfort' at Stonea Camp. According to the excavators (Jackson and Potter 1996), Roman activity commenced here in Period III, dated *c.*AD 140–220 by them, and is followed by Period IV which they date *c.*AD 220–400. The widely discussed 'tower/basilica' building (R1) belongs to Period III apparently being constructed *c.*AD 130–50 along with the rest of the settlement, and the building was abandoned perhaps in the Severan period. The Stonea Grange settlement was small (perhaps about 9ha). There was a temple on its outskirts. Jackson and Potter (1996) wished to see the site as some form of administrative centre for the putative imperial estate in the fenlands, a theory that seems to originate with Salway (1981, 603–4). New research presented in this volume indicates that the excavators' dating from the ceramics is, however, mistaken and there is no evidence that activity on the excavated site outlasted the 3rd century, although the coins and crossbow brooches suggest 4th-century activity elsewhere on the site. Stallibrass (1996, 591–4) argues for a relatively un-Romanised diet based on a high proportion of sheep bones compared to the consumption pattern suggested for different types of site by King (1988). At the same time the bones were seen as indicating production of 'a highly marketable commodity; prime meat from lambs and sheep and, possibly, from pigs too' (Stallibrass 1996, 605). This appears to be clear evidence associating a large part of the economy of the site with agricultural production and sale. Overall the material evidence for the Roman period, particularly when seen in the context of the site's Iron Age assemblage, indicates a site which was of more than basic rural level, but does not fully show urban characteristics. The site does, however, have strong ritual associations. Green's (2005) suggestion that Structure R1 was a temple and that the site was a shrine complex, perhaps associated with periodic markets, like others in Gaul and Britain, perhaps makes the best fit with the Roman material evidence. It also accords by far the best with the Iron Age material from the site (see further discussion in Chapter 5.VIII).

North-east of Stonea Grange on the Fen Causeway, where it reaches higher ground in Norfolk and joins

Akeman Street running across the fens from Cambridge, was the settlement of Denver. There, Roman material has been recovered from a 2.75km stretch of the Fen Causeway, in agricultural land in the parishes of Denver (TL5700), Downham West (TL5800) and Nordelph (TL5900). Aerial photographs show a number of rectilinear enclosures, the majority of which lie to the north of the causeway. Pottery ranging from the late 1st to the 4th centuries was found. There were also hypocaust and roof-tiles concentrated at one point, indicating the presence of a substantial Roman building in the area. Too little is known about the settlement to assert that it functioned as a small town, although its location on a significant road junction would tend to suggest it ought to have been. A saltern, excavated by Charles Green in 1960 on the Fen Causeway just to the west of the main settlement, does, however, offer some more hints about the nature of the Denver settlement (Gurney 1986). For example, fine wares seem to have amounted to 22.9% of the entire site assemblage, most being Nene Valley colour-coated ware (17.5%). These levels are rather high, greater than at Stonea and Littleport, and would suggest something more than just a basic level site supply – perhaps confirming that Denver was indeed a small town.

Running south-south-west from Denver is Akeman Street, which crossed the Cam at Littleport and proceeded along the ridge of fen islands to Cambridge. At Littleport the excavated material from the Camel Road site (of mid 2nd- to mid 4th-century date) suggests that this was part of a wider small town, rather than just a simple rural site. The settlement may have been constructed in the 2nd century, probably in the early Antonine period.

III. Horningsea Pottery and the Old Tillage

The Horningsea ware kilns

The kilns producing Horningsea ware pottery lay on either side of the River Cam, c.8km to the north-east of Cambridge. A total of perhaps 23 or 24 kilns have been recorded thus far, either by excavation or non-intrusive means such as fieldwalking. Of the known kilns, nine lie on the eastern (Horningsea) side of the river and fourteen lie to the west (in the parishes of Waterbeach and Milton). These include two kilns excavated at Waterbeach in 2010, too recently to be considered in detail for this project (Newton and Peachey 2012).

Of the known kilns, the most detailed information comes from Horningsea. Here, following on from Professor McKenny Hughes' investigations (1902; 1903a), the Rev. F.G. Walker excavated seven kilns in 1911 close to Eye Hall Farm (CHER 05546) and it is these kilns – published in detail by Walker (1912) – which formed the basis of the 'Horningsea' pottery industry. Walker uncovered late Iron Age 'Celtic' and Roman artefacts and suggested that the kilns were in use from the 1st to late 3rd centuries AD: he postulated that there was perhaps a pre-Roman pottery industry on the site.

Further kilns and kiln debris have been found in the surrounding area during observations which began in the 19th century (CHER 05459; 07818; 05741; 05548; 05549). On the western bank of the river in Waterbeach, two kilns were found at the Cambridge Rowing Lake site (CHER 11561; Robinson and Guttman 1996), while another has recently been found further north at Twelve Pieces Lane (Peachey 2010). Further south, close to the

junction of the Old Tillage (formerly Car Dyke) with the river, lie further kilns, many of which are associated with complex areas of cropmarks. Three kilns were recorded at the OAE excavation site that also investigated the Old Tillage (see below), while the remains of five further kilns were noted along the canal banks or in the surrounding fields. Further south in the parish of Milton, amongst a complex system of rectilinear enclosures, other kilns were found at Penfold Farm (CHER 08313; Frend 1999). At Milton Fen End, gravel working at Green's Pits during the 1950s revealed another kiln (CHER 05679).

Further details of the excavated kilns at Eye Hall Farm, the Old Tillage and the Cambridge Rowing Lake are provided in Chapter 3.IV.

Car Dyke and the Old Tillage

Introduction

Given that a key component, and indeed the origin, of this research project was the investigation into the Cambridgeshire Car Dyke (correctly, the Old Tillage) at Waterbeach, this study aims to understand the role of the putative canal (including its relevance to the theory of an imperial estate in the fenland), to identify how the monument was used for trade and communications and whether this can be determined from a study of the Horningsea pottery industry and, in particular, the distribution of its products. As is detailed above, the location of the Horningsea potteries appears to be related to the River Cam and its connections to the fenland waterways by the Old Tillage and the Old West River (Fig. 2.1). The function of nearby Roman Cambridge (*Duroliponte*) and the Roman roads of Akeman Street and the *Via Devana*, an antiquarian name given to a sequence of Roman roads including Margary's road 24 (Margary 1973, 210), would also seem to be possible factors in the industry's success.

The Car Dyke is a monument which has at turns baffled and intrigued archaeologists and historians in Cambridgeshire and Lincolnshire for the past century, an enigma which has resulted in the monument being hotly debated locally, whilst being little known outside the eastern region. It has previously been interpreted as a Roman watercourse, perhaps a canal, which ran discontinuously for 122km from the River Cam at Waterbeach (10km north-east of Cambridge) to Washingborough (4km east of Lincoln). It has been thought that the monument was constructed to supply the Roman 9th Legion in the early AD 70s, when it moved from Lincoln to York, an interpretation first suggested by John Morton (1712), and then by William Stukeley (1776). Although there was little evidence to support this theory, it was not until the 1980s that archaeologists began to question the hypothesis.

Investigations at the Car Dyke/Old Tillage at Waterbeach, Cambridgeshire in the 1990s (Macaulay and Reynolds 1994; Macaulay 1997a), along with a review and revision of the previous investigations into the Lincolnshire Car Dyke, superbly summarised in Heritage Lincolnshire's publication – *The Car Dyke* (Simmons and Cope-Faulkner 2004) – have now begun to unpick the problem of interpretation and, for Cambridgeshire at least, a function, date and interpretation have been established. The key to this is that a separation of the Car Dyke in Lincolnshire and Car Dyke in Cambridgeshire is now

necessary; they cannot continue to be seen as a single continuous monument: rather the Car Dyke runs from Peterborough to Lincoln, whereas the Cambridgeshire canal (the Old Tillage) connects the River Cam to the Old West River and the fens. The Cambridgeshire watercourse was a separate and distinct Roman engineering work and should no longer be called the Car Dyke to avoid confusion with the Lincolnshire monument of that name. The name Old Tillage is therefore used throughout this report to refer to the Cambridgeshire canal.

Background

Two excavations at Waterbeach on the Old Tillage – in 1993 and, more significantly, in 1997 – have produced some important results for the understanding of the function and purpose of the monument, and in particular its relation to the Lincolnshire Car Dyke. As noted above, early interpretations of the Car Dyke saw it as a military canal to supply the army with cereals produced in the south. An alternative explanation for the feature is that it acted as a catch-water (Fox 1923, 179; Hall 1987, 28; Simmons 1975 and 1979) and was an essential part of the drainage works undertaken by the Romans to produce an imperial estate in the fens in the 2nd century AD (Astbury 1958; Phillips 1970). Recently the Lincolnshire Car Dyke's function has been interpreted as serving some or all of the following functions: transportation (canal), drainage (Roman or part of Ringvart system), imperial estate boundary, Roman saltern-related feature, a later Roman Saxon shore defence and even an Anglo-Saxon kingdom boundary (Simmons and Cope-Faulkner 2004). Such interpretations are reviewed in Chapter 5.V.

The Old Tillage and the Lincolnshire Car Dyke comprise major channels of varying size, and profiles, with banks which can occur on either or both sides. There are occasional gaps in the banks and in some places causeways appear to have been constructed across the channels. The monuments are in varying states of preservation having suffered from infilling, ploughing, re-cutting and dredging. Roman artefact scatters occur in many places along the routes. Their construction and subsequent decay have had profound effects on both drainage and transport along the fen edge, thus affecting the local development of these areas in later times. In Cambridgeshire, the monument has been used to define parish boundaries.

Place name evidence

The section of the Car Dyke north of Peterborough, running to Lincoln was known as Kari's Dyke in 1245 (Astbury 1958), probably after a local Danish landowner named Karr. Ravensdale (1974) refers to the term *Car* to mean overgrown with marshes, reeds, shrubs, *etc.* and in north Lincolnshire *Car* is a term used to refer to an area of low-lying land, apt to be flooded, whilst in south Lincolnshire it simply means 'fen'. As noted above, the waterway between Waterbeach and the River Cam is more properly known as the Old Tillage. The latter has been known by this name since at least 1235 (Reaney 1943) and the term is thought to derive from *Twilade*, a dialect word meaning to load, unload and go for a second load (Babington 1883).

Route

The putative routes of the Car Dyke and the Old Tillage are well described elsewhere (Fowler 1932; Astbury 1958; Phillips 1970; Simmons 1975; Wilkes and Elrington 1978; Simmons and Cope-Faulkner 2004) and are therefore not discussed at length here. There are two main sections of earthwork/cropmarks: the southernmost (Old Tillage) running between the River Cam at Waterbeach and the Ouse at Earith via the Old West River (see Figs 1.1 and 2.1), and the northern one (Car Dyke) running from the River Nene at Horsey (south-east of Peterborough) to the River Witham near Lincoln. Previous interpretations envisaged a major gap in the 'route' between the Earith and Horsey. Astbury (1958) suggested that the missing section was 'lost' to a more modern waterway such as Conquest Lode or Whittlesea Dyke, whilst Cnut's Dyke was also a possibility. However, recent survey work has failed to locate such a watercourse (Hall and Coles 1994) and it was therefore suggested that the main river systems of the Ouse and Nene were used for transport, instead of an artificial water course through the fens. It must be remembered that if, as the authors of this volume argue, we should consider the two monuments to be separate then there is no 'missing link'.

The Old Tillage runs north-west from the River Cam south-east of Waterbeach to join the Old West River at Lockspit Hall, north-east of Cottenham. It continues westwards by making use of the Old West River, along which many Roman finds have been identified, until this tributary joins the Ouse at Earith (Fowler 1932; Phillips 1970), where what appears to be a Roman port has recently been identified (C. Evans *et al.* 2013). To the east of Lockspit Hall the present course of the river (called the 'Old West' or 'Ouse') appears to be a late post-Roman natural cut through dry land to join with the River Cam east of Stretham, whence they flowed together northwards around the east of the isle of Ely (Fowler 1933; Worsam 1969).

Dating

Excavations at Bullock's Haste, Cottenham (Clark 1949) yielded Belgic pottery sealed beneath one of the banks of the Old Tillage. These finds were originally used by Clark to suggest a date of AD 50–60 for construction of the canal. The recovery of later 1st-century pottery from the basal silt of the channel could support this hypothesis, but Hartley suggested that this typological dating needed review in the light of more recent finds (Phillips 1970). Clark's 1st-century date would have tied the date of construction to the military function originally suggested by Stukeley in the 18th century. More recent excavations (detailed in Chapter 2) recovered conclusive information pertaining to the construction of the monument. Large quantities of Antonine pottery (AD 140–180) were recovered from the basal fills of the ditch, although a complete stratigraphic sequence was not recorded as later layers had been lost through truncation from later re-use of the ditch. The investigations at Waterbeach in 1997, however, have provided a complete and secure stratigraphic sequence for the monument. This investigation excavated undisturbed deposits which indicate an Antonine date (AD 140–150) for the construction of the Old Tillage and abandonment by the late 4th century, around AD 370 (see Chapter 3.IV).

Old Tillage was certainly blocked at Cottenham after AD 375, since pottery of this date was found in a causeway deliberately constructed across the canal at Bullock's Haste (Clark 1949) and this is consistent with the *terminus post quem* for the end of use of the monument at Waterbeach. Tebbutt (1957), however, quotes Clark's data but suggests that the watercourse was abandoned at the end of the 2nd century. The significance of the causeway for indicating the disuse of the canal is not clear. From constructional details observed by Simmons (1979; Simmons and Cope-Faulkner 2004) at a section of the Car Dyke at Billingborough, in Lincolnshire, a possible causeway was noted and perhaps was always present, formed by leaving an upstanding baulk of natural gravel whilst digging out the dyke channel. This is confirmed by later work at Baston (Thorpe and Zeffertt 1989). Regardless of whether the Lincolnshire and Cambridgeshire sections are viewed collectively or individually, the presence of causeways across the canal is not evidence either of disuse or that a canal function was not possible; causeways can act as simple locks, allowing different water levels to be maintained in adjacent lengths of waterway (Simmons and Cope-Faulkner 2004, 163).

Excavations by Lethbridge at Waterbeach in 1927 located an Anglo-Saxon grubenhaus near to the Old Tillage, and Anglo-Saxon pottery was discovered in the upper fills of the, by then, silted up canal (Lethbridge 1933). Pottery from this site included unabraded Romano-British sherds and it seems that this site is of very early Anglo-Saxon date.

A channel running from the centre of the medieval village of Cottenham links with the route of Old Tillage and its postulated use was to bring building stone to the village (Ravensdale 1974). This suggests that at least one stretch of the canal was functioning as a routeway into the medieval period, or that the wetter conditions during the medieval period allowed Old Tillage to be re-used. Hall (pers. comm.) suggests that the Old West River to the south of the Isle of Ely was formed in the wetter environment of later Anglo-Saxon times, or most likely, during the medieval period. Again, the local place name of Old Tillage (*Twilade*) for the Cambridgeshire route resonates with continued use and it is noteworthy that the Car Dyke in Lincolnshire does not have a similar name to link its use to that of a canal.

IV. Aims and Objectives

Project aims

The original overall aims set out for this project in the Project Design (Macaulay 2002a) were to:

1. quantify and record the excavated Horningsea ceramic material, including that from excavated kiln sites and collections;
2. examine pottery from other related assemblages to enhance the development of a chronology for Horningsea products and to compile and produce quantitative evidence of their distribution;
3. examine the relationship between urban ceramic supply at Cambridge and that on local rural sites;
4. investigate the supply, degree of 'Romanisation' and the nature of assemblages from rural sites (along the Cambridgeshire southern fen edge);
5. enable the examination of the function of the Old Tillage and its chronology.

Potential contributions in the context of national (N) and regional (R) research priorities for the project were identified in relation to the following agenda:

- N1 *Briton to Roman & Empire to Kingdom c.300 BC to AD 700* (English Heritage 1997, 44);
- N2 *Military and civilian interaction* (English Heritage 1997, 49);
- N3 *Settlement hierarchies and interaction* (English Heritage 1997, 51);
- N4 *Patterns of craftsmanship and industry* (English Heritage 1997, 54);
- N5 *Rural Sites* (Willis 1997, section 4.5.1–5; Evans and Willis 1997, table 1, 22);
- R1 *Catuvellauni and the Horningsea industry* (Martin and Wallace 1997, 43–44);
- R2 *The need to study settlements in relation to their hinterlands within the eastern region* (Going 1997, 37);
- R3 *Further work on Cambridgeshire Horningsea complex and supply to the fens* (Going 1997, 40).

In addition, the East Anglian Research Strategy provides the following key themes to which the present project contributes:

- R4 *Lack of analysis and publication of regional and local pottery production centres, critical gaps in dating and marketing patterns in the region* (Going and Plouviez 2000, 19);
- R5 *The impact of the development of towns on the surrounding countryside* (Going and Plouviez 2000, 21);
- R6 *Production and exchange in the Iron Age, Roman and Anglo-Saxon periods* (Brown *et al.* 2000, 45).

Local research priorities (L) to which the project might contribute were identified in the Project Design as:

L1 Roman Canal (Old Tillage)

While the existence of the Car Dyke and the Old Tillage have long been known, their full interpretation is uncertain and understanding of function and impact are still poor. The evidence from excavations in Lincolnshire (Simmons 1975; Simmons 1979; Thorpe and Zeffertt 1989) contrasts starkly with that from Cambridgeshire (Clark 1949; Macaulay and Reynolds 1994; Macaulay 1997a; Lyons forthcoming). The excavated sections in Cambridgeshire have produced far greater quantities of pottery than – and are morphologically very different to – those of the Car Dyke in Lincolnshire, whose function is seen as linked to the local saltern industries. The canal in the southern fens (the Old Tillage) has a much clearer role in relation to transportation and supply. The pottery and associated remains excavated at the entrance to this part of the canal in 1997 have provided crucial data on the monument.

L2 Roman pottery assemblages

There is a significant gap in the understanding of the Roman ceramic traditions in Cambridgeshire. No quantified assemblages have been published from the south of Cambridgeshire, and there are few from Cambridge.

L3 Roman kiln sites

No material has been excavated from the Horningsea kiln site (Eye Hall Farm) since 1912. More recent investigations, most notably in the 1990s, have now determined that the pottery kilns of the 'Horningsea'

industry lie on both banks of the River Cam running from Milton to Clayhithe/Horningsea, and that the potteries were not purely centred around Horningsea itself.

L4 The Romano-British landscape along the southern Cambridgeshire fen edge

Well-documented from aerial photographs, the land to the north of Cambridge is densely occupied with Iron Age and Romano-British rural settlements and field systems. These settlements are linked, in part, to the development of roads, the Old Tillage canal and River Cam and the development of urban centres as well as the fens in general. There is still, as yet, no clear chronology for this landscape and a need for a greater understanding of the nature of trade, supply, industry and overall development during the period.

L5 The nature of trade and supply in the fens during the Roman period

The role of the fens and the nature of Romanisation there are still not fully understood. Existing models such as that of an imperial estate centred on Stonea Grange have yet to be fully tested. There is a clear requirement to increase the understanding of the nature of contact between fen and fen-edge settlements, which may shed more light on the area as a whole.

Project objectives

The project-specific objectives (P) as originally defined were as follows:

- P1 *To produce a fuller type series of Horningsea products and enable the development of a chronology for them;*
- P2 *To investigate the role of Cambridge as a potential market centre and its relationship with its hinterland;*
- P3 *To understand the role of the Roman canal in trade and supply to the fenland and the southern Cambridgeshire fen edge;*
- P4 *To examine the canal in relationship to the chronology of the fenland settlements;*
- P5 *To integrate with existing archaeological research.*
It was envisaged that the proposed study would further complement (then ongoing) developer-funded quantified work on pottery from Godmanchester (Jones 2003), enabling comparisons of supply in the Cambridge region with this. It was also expected to co-ordinate well with the work at Great Chesterford (Medlycott 2011) which has a major element of Horningsea products in its ceramic assemblage;
- P6 *To study Roman trade routes through the fenland.*
This aspect was anticipated to complement the similar proposed study for the medieval period (Spoerry 2016), allowing useful comparisons which it was expected might enable separation of cultural and geographical constraints on pottery distributions in the area;
- P7 *To develop an overview of pottery supply in southern Cambridgeshire and its relationships with better understood assemblages such as those from the Nene Valley and Essex, and Cambridgeshire and East Anglia as a whole.* This aspect was anticipated to permit the development of an

extensive overview of ceramic supply in the fenland in the 1st to 2nd millennia AD.

V. Methodologies

Development of the methodology

Tables 1.1–1.2

The method of studying pottery presented here is built on the work carried out on quantification studies in the subject from the 1970s to the 1990s; (*e.g.* Orton 1989; Booth 1991; Evans 1991a; Orton *et al.* 1993). The recording method is based on an hierarchical fabric and form system, following the Warwickshire Museum and Oxford Archaeology pottery coding structure (Booth 2000) of dividing fabrics into ware classes and individual fabrics. Data entry was largely directly into the Roman pottery database, based on the one developed for the Hayton pottery trainee project (Mills 2008). Fabrics are broadly classified into ware groups: A (Amphorae), B (Black Burnished wares), C (Shelly wares), E (grog-tempered ‘Belgic’ type wares), F (colour-coated, polished or mica dusted fine wares); M (Mortaria), O (Oxidised coarse wares), P (Iron Age tradition wares), Q (White-slipped wares), R (Reduced coarse wares), S (Samian wares), W (White wares) and Z (Post-Roman and medieval wares). Class T has been used when discussing CBM fabrics. Within the ware groups, fabric groups are classified by main inclusion type and given specific fabric codes. Horningsea ware itself has been classified as Class R, fabrics R02, R021 (handmade) and R04 (black surfaces).

Fabrics are listed in Table 1.1 (which shows a concordance with the National Standard; Tomber and Dore 1988) and they are detailed in Digital Appendix 4. Vessel types are defined by rim forms within each fabric group – with a coding system based on letter(s) denoting vessel function (Table 1.2), and numerical code for rim type, *i.e.* ‘J1.0’ would refer to the class of jars with everted rims, and ‘J1.1’ would refer to a specific rim type within that class. The base level of recording for a stratified context is to record sherd families to individual fabric code level, with sherds with evidence such as sooting recorded separately, as are individual rims, bases, handles and unusual sherds. The rims are used to define the form type, following the coding system stated above. A record is made of number of sherds (Nosh), weight in grammes (Wt), minimum number of rims (MNR), rim equivalent (RE), base equivalent (BE), presence and types of sooting and other deposits, and any other comments. Derived values include estimated vessel equivalent (EVE), given as $((RE+BE)/2)$; average sherd weight (MSW) given as $Wt/Nosh$; average percentage of rim, given as RE/MNR .

Analysis and presentation of data

The distribution maps of Horningsea ware presented in Chapter 4 show its presence/absence on the study sites. In these instances, the ‘absent’ category means that assemblages of the relevant date were present at a particular site, but the fabric in question was absent. Full details of the wider aspects of the project (including other ware types) are given in the digital report (Volume 2), and in the project database (see below).

The vertical scales on the distribution plots (Figs 4.1–4.4) indicate the proportion of the fabric in the relevant site assemblage, while the contour plots (Figs

<i>Fabric Code</i>	<i>National Standard Code</i>	<i>Fabric name</i>
<i>Class A, Amphorae</i>		
A01	BAT AM	Dressel 20 amphorae
A11	GAL AM	Gallic amphorae
A21	-	Carrot amphorae
A31	-	Amphora stopper
A32	-	Amphora stopper
A33	-	Amphora stopper
A34	-	Amphora stopper
<i>Class B, Black Burnished wares</i>		
B01, BB1	DOR BB1	Dorset Black Burnished Category 1
B11, BB2	-	Kent/Essex Black Burnished Category 2
<i>Class C, Shell-tempered wares</i>		
C11	HAR SH	Largely Harrold Shell-tempered ware
C12	HAR SH	Largely Harrold Shell-tempered ware
C13	-	
C15	-	
C151	DAL SH	Dales ware
C191	BOG SH	Bourne/Greetham Shell-tempered ware
C21	-	
C22	-	
<i>Class E, 'Belgic' wares</i>		see Digital Appendix 4
<i>Class F, Colour-coated and other fine wares</i>		
F01	LNV CC	Nene Valley colour-coated ware
F02	LNV CC	Nene Valley colour-coated ware
F03	HAD OX	Hadham red ware
F04	-	Local red ware
F06	OXF RS	Oxford red colour-coated ware
F073	COL CC	Colchester colour-coated ware
F074	COL CC	Colchester colour-coated ware
F08	KOL CC	Köln colour-coated ware
F12	-	Mica-dusted ware
F13	-	Mica-dusted ware
F31	LON FR	London fine reduced ware
F41	CNG BS	Central Gaulish 'Rhenish' ware
F42	MOS BS	Trier 'Rhenish' ware
F52	-	Black-slipped roughcast ware
F53	COL CC	Roughcast ware
F61	SOB GL	SE English lead-glazed ware
<i>Class M, Mortaria</i>		
M01	UNV WH	?Upper Nene Valley
M02	MAH WH	Mancetter-Hartshill
M03	LNV WH	Lower Nene Valley
M031	UNV WH	Upper Nene Valley
M04	VER WH	<i>Verulamium</i> region white ware
M05	COL WH	Probably Colchester white ware
M051	COL WH	Primarily Colchester white ware
M06	COL WH	Probably Colchester white ware
M07	-	East Anglia
M09	OXF WH	Oxfordshire white ware mortaria
M11	OXF RS	Oxfordshire red colour-coated ware

<i>Fabric Code</i>	<i>National Standard Code</i>	<i>Fabric name</i>
M12	HAD OX	Hadham oxidised ware
M13	OXF WS	Oxfordshire white slipped mortaria
M21	-	Horningsea(?) mortaria
M31	RHL WH	Rhenish
M32	RHL WH	Rhenish(?)
M33	-	Colchester or Ellingham
M43	-	Oxidised East Anglian(?)
<i>Class O, Oxidised wares</i>		see Digital Appendix 4
O14		Horningsea?
<i>Class P, Iron Age traditions</i>		see Digital Appendix 4
<i>Class Q, White-slipped oxidised wares</i>		
Q01		
Q02		
Q03		
Q031		
Q05		
Q06		
Q07		
Q11	OXF WS	Oxfordshire fabric WC
<i>Class R, Reduced wares</i>		
R01		
R011		
R02	HOR RE	Horningsea grey ware, wheelmade
R021	HOR RE	Horningsea grey ware, handmade
R04	HOR RE	Black-surfaced Horningsea grey ware
R05		
R06	HAD RE	Hadham grey ware
R07		
R08		
R083		Nar Valley?
R084		Nar Valley?
R085		Nar Valley
R086		
R11=R16		
R12		
R14		Possibly a Horningsea grey ware variant
R15		
R151		
R18		
R19		'London-type' ware
R21		Black-slipped Lower Nene Valley grey ware
R22	LVN GW	Lower Nene Valley grey ware
R23		Coarse sandy Lower Nene Valley grey ware
R31		
R311		
R33	WAT RE	Wattisfield grey ware
R35		'London-type' ware
R361		'London-type' ware
R38		
R42		

<i>Fabric Code</i>	<i>National Standard Code</i>	<i>Fabric name</i>
R43		
R51		
R53		
R54		
R55		
R61		
<i>Class S, Samian ware</i>		
S10	LGF SA	South Gaulish, La Graufesenque ware
S11	MON SA	South Gaulish, Montans ware
S20	LEZ SA	Central Gaulish, Lezoux ware
S21	LMV SA	Central Gaulish, Les Martres-de-Veyre ware
S31	RHZ SA	East Gaulish, Rheinzabern ware
S32	CHF SA	East Gaulish, Chemery-Faulquemont ware
S33	TRI SA	East Gaulish, Trier ware
S34	ARG SA	East Gaulish, Argonne ware
<i>Class W, Whitewares</i>		
W01		
W02		Godmanchester?
W021		
W03		Northants(?)
W04	LNV WH	Nene Valley cream ware
W05	VER WH	Verulamium region white ware
W06		
W081		
W09		
W092		
W13		
W14		
W21		
W41	OXF PA	Oxfordshire parchment ware

Table 1.1 Fabric codes, showing concordance with National Standard (Tomber and Dore 1998), where appropriate

<i>Code</i>	<i>Type</i>	<i>Definition</i>
A	Amphora	Large two-handled container with rounded or pointed base
B	Bowl	Vessel with a height more than a quarter and less than two-thirds of its diameter
Bk	Beaker	Vessel with a height greater than its diameter, of a suitable size and shape for drinking
CJ	Constricted-necked jar	A jar with a pinched neck – similar to flagons and used to contain liquids
Cu	Cup	A simple vessel, of a suitable size and shape for drinking
D	Dish	Vessel with a height of less than a quarter of its diameter. This category also includes 'Platters'
F	Flagon	Vessel with a constricted neck, generally with height greater than twice diameter.
J	Jar	Vessel with a height of more than two-thirds of its rim diameter and less than twice its diameter
L	Lid	Shallow vessel similar to dish, but with a handle on exterior in the centre of the base
Lag	Lagena	A flat-based vessel with a slightly pinched neck
M	Mortarium	Thick-walled bowl usually with a deliberately gritted interior
O	Other	Vessels not covered in the other definitions e.g. candlestick
SJ	Storage jar	A thick-walled (greater than 10mm) vessel for the long-term storage of food
WMJ	Wide-mouthed jar	A jar with a mouth wider than its waist diameter

Table 1.2 Form codes and definitions

5.2–5.7) show the proportion of the fabric of the phase group *etc.* as a whole.

VI. Publication and Digital Dissemination

Publication strategy

The project report is presented at two levels. In the present text the emphasis is on the background to the Horningsea industry, the site assemblages considered as part of this project, the range of products of the industry itself and their chronological evolution. This is supplemented by more extended treatment in digital form.

The following chapters begin with an overview of the sites included in the study (Chapter 2) and their chronology, of which there is a more detailed discussion in Digital Appendix 1, providing supplementary information on the sites' samian ware lists and chronology. There then follows a consideration of pre-Flavian kiln sites in the region to provide a background for the following section on the Horningsea kiln sites, which includes evidence from the excavated Waterbeach kiln and its kiln furniture and products (Chapter 3). This is followed by Horningsea fabric descriptions, an examination of the functional analysis of Horningsea ware groups, a discussion of the dating of the Horningsea ware forms, the form catalogue of the Horningsea wares in the study and a summary discussion of the distribution of the Horningsea wares. Chapter 4 summarises the evolving repertoire and distribution of Horningsea products in a series of chronological phases. A final chapter (Chapter 5) relates the development of the industry to a range of general questions concerning the Roman archaeology of the region and its wider context, discussing aspects such as the chronological development of pottery supply, moving on to outline the new understanding of the development of Cambridgeshire and the eastern region during the Roman period engendered by this research.

The text is supplemented by a digital version. In this, Chapters 1–3 are as presented in the text version, with the addition of a more detailed account of chemical analysis of the Horningsea pottery fabrics in Chapter 3. The final chapter (Digital Chapter 12) replicates the general discussion of the printed text (Chapter 5). Digital Chapters 4–9 discuss by ware class the occurrence and distribution of the principal fabrics in the study area by period: the pre-Flavian regional ceramic background out of which the Horningsea industry emerged (Digital Chapter 4), the Flavian–Trajanic period (Digital Chapter 5), the Hadrianic–Antonine period (Digital Chapter 6), the 3rd century (Digital Chapter 7), the early to mid 4th century

(Digital Chapter 8), and the later 4th century onwards (Digital Chapter 9), providing a detailed assessment of the assemblages of which Horningsea ware formed a part. Sites in the 'town' of Roman Cambridge are considered in Digital Chapter 10, with other aspects of pottery study (from the sites recorded in the study) not covered in the earlier chapters being dealt with in Digital Chapter 11. Additional data are provided in a series of digital appendices, which include site chronologies (Digital Appendix 1), details of the important samian assemblage from Foxton (Digital Appendix 2), the illustrated form series for non-Horningsea pottery from the study sites (Digital Appendix 3), fabric descriptions (Digital Appendix 4), followed by supplementary details on other aspects of the pottery, which link to Digital Chapter 11 (Digital Appendix 5).

The project database

The project database (*Pottery Analysis 3.0 – Cambridge.mdb*) has been developed in relation to the structure designed for the English Heritage Roman pottery specialists and trainee project, based at the University of Cambridge 2003–4 (Mills 2008). The original database was designed following relational principles (Date 2003) in Access 2000. This comprised a number of data input screens, for the recording of pottery sherds, as well as additional screens to allow the entry of data about the site, phases and contexts from which the pottery was recovered. It also includes data relating to the fabrics and forms.

Within the database user interface there are calculation screens for the analysis of the data relating to dating, taphonomy, fabric supply, the catalogue forms, use deposits, samian and functional analysis. The summary data were formatted to facilitate transference to a spreadsheet for further analysis, or straight to a word processor for publication. Subsequent development of the database has seen the addition of increased error trapping in the data entry screens, simplification of some redundant data structures, and development of the calculation screens.

An additional Access 2007 database (Cambridge Type Series) has been created, with tables linked from *Pottery Analysis 3.0 – Cambridge.mdb* with form drawings and fabric photograph positions in the data archive also linked to a separate table, as an attachment data form. This allows the interrogation of the fabric and form data accumulated for the project alongside relevant images. The database is held in the project archive.

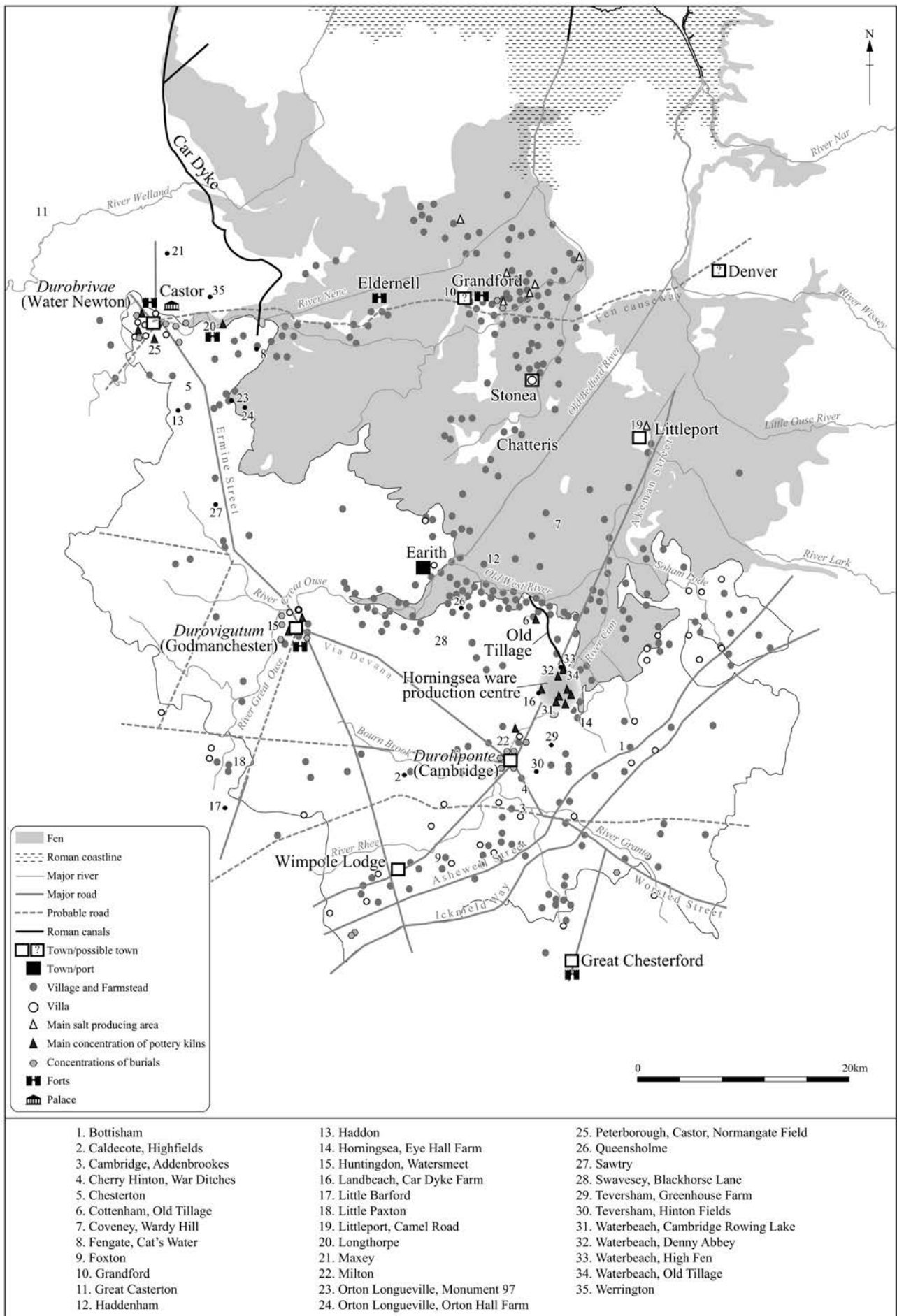


Figure 2.1 Locations of the main sites in the study area against the backdrop of Roman Cambridgeshire. Scale 1: 500,000

Chapter 2. The Sites Considered

I. Introduction

Fig 2.1; Table 2.1

Summaries of the majority of the sites contributing to this study are presented below, with additional details of their ceramic sequences given in Digital Appendix 1. The major sequence is that excavated at Waterbeach, Old Tillage (formerly Car Dyke) which is reported in some detail here: full details of the Horningsea ware kiln found at the site are presented in Chapter 3. Relevant information about the other sites containing kilns also appears in Chapter 3, although aspects of some of these sites are summarised below, since their entire pottery assemblages contribute to the analysis of pottery supply and distribution presented in Digital Chapters 4–9.

The kiln sites and related excavations considered in Chapter 3 include the pre-Flavian kilns in the Cambridge area at Teversham (Greenhouse Farm), Cambridge Addenbrooke's and the War Ditches at Cherry Hinton. Other pre-Flavian kilns in Cambridgeshire considered here are those at Longthorpe, Water Newton, Haddon, Tort Hill West and Swavesey Blackhorse Lane. The Horningsea kilns themselves were found at Eye Hall Farm (Horningsea), Waterbeach, Old Tillage, Cambridge Rowing Lake and in the parish of Milton. In addition, nine groups of material from the area of Castle Hill in Cambridge (Alexander and Pullinger 1999) were re-examined in this study, and data were taken from the unpublished New Hall Quarry assessment (Going 1996) and Brenda Dickinson's samian ware archive. These sites and their ceramic assemblages are detailed in Digital Chapter 10.

The following gazetteer entries provide the site grid reference; the site code used in the database and/or the catalogues, appendices and tables (note that these codes are not necessarily the same as those used in the original excavations); and the organisation that excavated the site (NB: not all sites appear in the database). The contributing sites are shown in Table 2.1 and plotted in Figs 1.1 and 2.1. They are presented alphabetically below for ease of reference, but geographically in Chapter 4 and in the extended text of Digital Chapters 4–9.

II. Site Gazetteer

Bottisham

Tunbridge Lane

Grid ref: TL 5442 6092

Database Site Code: BOT TL

Excavated by: OA East

The site at Tunbridge Lane, Bottisham (Kenney 2003) is part of a possible villa estate, more of which lies further south-east across Tunbridge Lane, near Tunbridge Hall (MacDonald 2000; McConnell *et al.* 2012; see below). Excavations at Tunbridge Lane in 2002 revealed five phases of Roman activity, spanning the mid 1st century AD until the early 5th century AD (see Digital Appendix

1), although the most intensive activity was in the 1st and early 2nd centuries. It was after this time (in the 2nd and 3rd centuries) that the focus of activity evidently moved to the south. Excavations revealed a sequence of ditches, pits, post-holes and a corn dryer or malting oven. Roman pottery was recovered from many features, most notably from the site's major northern boundary ditch. No buildings were identified, although there is evidence for the destruction by fire and subsequent demolition of a nearby Roman building, probably in the mid 3rd century.

The site yielded a large and important ceramic assemblage, despite the small area of investigation, which has been examined by the present author (JE). Some 3,984 sherds weighing 80.475kg were fully recorded from all the stratified deposits excavated from the site: this is detailed in Digital Appendix 1.

Land South of Tunbridge Hall, Tunbridge Lane

Grid ref: TL 5460 6090

Excavated by: AS

Between August 2006 and December 2007, Archaeological Solutions conducted two open area excavations on land south of Tunbridge Hall (McConnell *et al.* 2012; hereafter referred to as Tunbridge Hall). A trial trench evaluation (in 2003) had indicated the high potential of the site for Roman remains, including the possibility of a villa estate (the same as that at the adjacent Tunbridge Lane site detailed above).

The excavations identified four phases of later Roman activity. The earliest remains (Phase 1; pre-/early 3rd century AD) comprised two stone buildings of probable agricultural function. During Phase 2 (3rd century AD), the site was divided into ditched enclosures and fields, with a possible track or small driveway. In Phase 3 (late 3rd to early 4th century AD), the site boundaries were reorganised and several new enclosures were established, including a large rectangular field/paddock with a small ?timber building in its centre. During Phase 4 (4th century AD), land use on the site changed, with several large chalk quarry pits and numerous scattered rubbish pits suggesting an area of peripheral wasteland. The moderately large quantity of finds from the site suggests that it lay adjacent to areas of occupation during all four phases, but there are few indications of high-status settlement. An assemblage of 4457 pottery sherds was recovered from phased contexts associated with the 3rd- to 4th-century 'villa'-related activity (Peachey 2012). While the structural remains in themselves (and the absence of stone buildings) indicate the presence of a wealthy farmstead, the nature of the pottery and other finds from this site, and others nearby, suggest that a villa lay in the near vicinity.

Caldecote, Highfields

Grid ref: TL 35 58

Database Site Code: CAL HF

Excavated by: OA East

Excavations on the claylands at Caldecote, 9km to the west of Cambridge, in 2000–2001 revealed a late Iron Age

<i>Site name</i>	<i>Map reference (Fig. 1.1)</i>	<i>Project code</i>	<i>Site summary</i>
Bottisham, Tunbridge Lane	04	BOTTLII	Chapter 2
Bottisham, Tunbridge Hall	04	-	Chapter 2
Caldecote, Highfields	08	CALHF	Chapter 2
Cambridge, Addenbrooke's	78	-	Chapter 3
Cambridge, Castle Hill	12	CH	Digital Chapter 10
Cambridge, Castle Hill, Shire Hall Car Park	12	SF	Digital Chapter 10
Cambridge, Castle Hill, Comet Place	12	CP	Digital Chapter 10
Cambridge, Castle Hill, Free School (Albion Row)	12	AR	Digital Chapter 10
Cambridge, Castle Hill, Gloucester Terrace	12	GT	Digital Chapter 10
Cambridge, Castle Hill, Harris' Corner	12	HC	Digital Chapter 10
Cambridge, Castle Hill, Law Courts (Castle Street)	12	C LCS	Digital Chapter 10
Cambridge, Castle Hill, Mount Pleasant	12	MP	Digital Chapter 10
Cambridge, Castle Hill, Ridgeons Garden	12	PG	Digital Chapter 10
Cambridge, Castle Hill, Ridgeons Garden	12	RG	Digital Chapter 10
Cambridge, Castle Hill, Ridgeons Gardens North	12	RGN	Digital Chapter 10
Cambridge, Castle Hill, Ridgeons Gardens South	12	RGS	Digital Chapter 10
Cambridge, Castle Hill, Shelly Row	12	SR	Digital Chapter 10
Cambridge, Castle Hill, Shire Hall Car Park	12	SH	Digital Chapter 10
Cambridge, Castle Hill, Storey's Orchard	12	SO	Digital Chapter 10
Cambridge, Castle Hill, Storey's Paddock	12	SP	Digital Chapter 10
Cambridge, Newmarket Road	11	CAMNR	Chapter 2
Chatteris, Langwood Farm	-	-	Chapter 2
Cherry Hinton, War Ditches	13	-	Chapter 3
Chesterton	14	-	Chapter 2
Cottenham, Car Dyke/Old Tillage	18	-	Chapter 2
Coveney, Wardy Hill	20	-	Chapter 2
Earith, Camp Ground, Colne Fen	22	-	Chapter 2
Earith, Langdale Hale	22	-	Chapter 2
Fengate, Cat's Water	23	-	Chapter 2
Foxton	24	-	Chapter 2
Godmanchester, London Road	25	-	Chapter 2
Godmanchester, The Parks	26	PGO98	Chapter 2
Grandford	27	-	Chapter 2
Great Casterton	28	-	Chapter 2
Haddenham Shrine, Site III	33	-	Chapter 2
Haddenham, Site V	34	HAD V	Chapter 2
Haddenham, West End	35	-	Chapter 2
Haddon	36	-	Chapters 2 and 3
Horningsea, Eye Hall Farm	39	-	Chapter 3
Huntingdon, Watersmeet	41	-	Chapter 2
Landbeach, Car Dyke Farm (Akeman Street) 1996	46	LANCDF96	Chapter 2
Little Barford	49	-	Chapter 2
Little Paxton 1992	50	LP92	Chapter 2
Littleport, Camel Road	51	LITCR	Chapter 2
Longthorpe	53	-	Chapter 3
Maxey, Bardyke Farm	56	-	Chapter 2
Milton East Waste Landfill	59	MILEW95	Chapter 2
Milton, Fen End (Green's Pits)	-	-	Chapter 2
Milton, King's Hedges, Apollo Way	44	MILTONKH	Chapter 2
Orton Longueville, Monument 97	62	-	Chapter 2
Orton Longueville, Orton Hall Farm	63	OHF	Chapter 2

<i>Site name</i>	<i>Map reference (Fig. 1.1)</i>	<i>Project code</i>	<i>Site summary</i>
Peterborough, Normangate Field, Castor	61	-	Chapter 2
Queensholme	65	QH	Chapter 2
Sawtry, Norman Cross	68	NC	Chapter 2
Sawtry, Tort Hill East	69	THE	Chapter 2
Sawtry, Tort Hill West	70	THW	Chapters 2 and 3
Sawtry, Vinegar Hill	71	VH	Chapter 2
Stonea Grange	74	-	Chapter 2
Swavesey, Blackhorse Lane	75	-	Chapter 3
Teversham, Greenhouse Farm	76	-	Chapter 3
Teversham, Hinton Fields	77	HFT	Chapter 2
Water Newton	81	-	Chapter 3
Waterbeach, Cambridge Rowing Lake	10	WATRL95	Chapter 3
Waterbeach, Denny Abbey	21	-	Chapter 2
Waterbeach, High Fen	83	-	Chapter 2
Waterbeach, Old Tillage (formerly Car Dyke)	82	WATCD97	Chapter 3
Werrington	85	-	Chapter 2
Wimpole Lodge	87	-	Chapter 2

Table 2.1 Contributing projects, showing site codes used in text, tables and database

banjo enclosure and associated settlement (Kenney and Lyons 2011). Although this type of monument has been occasionally identified as far north as Cumbria and Yorkshire most examples are concentrated in the southern counties of England, with the greatest number found in Hampshire. The Caldecote example is one of only five known in Cambridgeshire and the only one to have been archaeologically investigated. Excavation revealed the almost complete ground plan of three distinct phases of such an enclosure. In its initial and final phases, the Caldecote example appears to have enclosed roundhouses, while in its middle phase it may have served as a stock enclosure. Pottery indicates that the settlement associated with the enclosure originated *c.* 100–75 BC and continued until *c.* AD 50. Post-dating the banjo enclosure, although not directly overlying it, a Roman farmstead dating to the 1st to 2nd centuries AD was established, with adjacent evidence for a possible vineyard or other agricultural system. The site contributes to the growing corpus of evidence for early use of the Cambridgeshire claylands – an area until relatively recently considered ‘barren’ in archaeological terms.

Sealey (2011, 70–79) reports on 623 sherds of Iron Age pottery weighing 4.474kg from Caldecote Highfields. He suggests that the Iron Age pottery all dates to after the 3rd century BC and that it is late in the middle Iron Age sequence. Much of the assemblage was recovered from fills of the banjo enclosure ditch, while a notable group of middle Iron Age to early Roman pottery came from a nearby quarry (Quarry 2; M428). Further details of the site’s pottery assemblage appear in Digital Appendix 1.

Cambridge, Newmarket Road

Grid ref: TL 48 59
Database Site Code: CAM NR 02
Excavated by: OA East

Evidence revealed by excavations in 2002 suggests the presence of a domestic timber building, possibly with a stone tiled roof and a quarry pit for chalk extraction (Casa-Hatton 2003). Some 463 sherds of Roman pottery were recovered from an evaluation undertaken on this site in 1992. The assemblage as a whole is reasonably datable, with a probable Trajanic start date and the bulk of the pottery being deposited in the first half of the 2nd century. It is unlikely that the site continued in use after the mid 3rd century. Further details on the ceramic sequence appear in Digital Appendix 1 (Evans 2002a).

Chatteris, Langwood Farm

Grid ref: TL 4180 8520
Excavated by: CAU

Excavations at this site on Langwood Ridge, a spur of Chatteris island, in 1993 revealed a substantial multi-period ‘in-fen’ settlement (C. Evans, 2003a). An open Iron Age settlement was followed by substantial Roman occupation, including a large aisled stone building. The quantity of stratified pottery is not stated in the published report (Hill and Lucas 2003).

Chesterton

Grid ref: TL 12 97
Excavated by: Ministry of Works

Perrin (1999) reported on the structural sequence and groups of the pottery from sites at Chesterton, excavated by Greenfield in advance of widening of the A1. These excavations took place during the late 1950s and concentrated in areas on and adjacent to the southern and western defences of the Roman town of *Durobrivae*. This work investigated part of the defensive wall of the town and a nearby cemetery. Several buildings were also uncovered which fronted onto the road to the west of the town: these included a barn and a shrine (Perrin 1999). The pottery sequence from these buildings starts in the

Hadrianic period, but most is Antonine or later, the sequence extending until the end of the 4th century or later. Perrin reports on a very large quantity of pottery, which is quantified by RE, but samian ware is excluded. Full tabulation of the samian ware is not provided.

Cottenham, Old Tillage (formerly Car Dyke)

Grid ref: TL 470 699

Excavated by: Clark 1947

Clark reported on his excavation in 1947 of a driveway crossing the Old Tillage at Cottenham (Clark 1949). Here, a gravel causeway connecting two driveways was constructed across the canal, blocking it. The evidence from the site, and particularly its samian ware, indicates a later Hadrianic to early Antonine date. Further details of the ceramic sequence appear in Digital Appendix 1.

Coveney, Wardy Hill

Grid ref: TL 478 820

Excavated by: CAU

This site was excavated in 1991–2 and comprised a double-ditched defensive enclosure with several hut circles within it, set on a promontory into the fen from the Isle of Ely (C. Evans 2003b). The site was probably occupied from the 3rd century BC until the start of the Flavian period. Some 5,311 sherds of pottery weighing 60,988kg were excavated with an average sherd weight of 11.5g. The assemblage is of plain wares, contrasting with the scored ware assemblage at nearby Haddenham V (Hill and Horne 2003).

Earith

Camp Ground, Colne Fen

Grid ref: TL 3775 7825

Excavated by: CAU

NB: this site is summarised here for reference, but not included in the detailed study

Excavations at this important site adjacent to the River Ouse (close to the site at Langdale Hale, below) were conducted by the CAU in 2001–2 and are now published (C. Evans *et al.* 2013, 179–452). The settlement had a significant late Iron Age phase, followed by early Roman features on new alignments. Activity intensified in Phase II (c.AD 120–180), when a series of enclosures and associated structures flanked a north to south aligned road. A less regularly aligned trackway to the west supplemented the ‘east road’ and eventually replaced it entirely from about the middle of the 3rd century. Phase IV, from c.AD 325 onwards, saw some contraction of the core area settlement, but activity remained at a high level. Overall almost 70 Roman timber structures were recorded, displaying a remarkable variety of construction technique and plan, some of which have been interpreted as residential or administrative buildings and warehouses/granaries. The potential character of the site as a fen edge port was based on the identification of at least five channels as docking ditches. It perhaps had a role relating to the transhipment of Nene Valley wares amongst other commodities.

A substantial quantity of pottery, 60,621 sherds excluding fieldwalking material, was recovered of which a subset consisting of rim and base sherds (15,392 sherds) was fully analysed (Anderson 2013). Horningsea wares amounted to 2.5% of this total, grey ware fabrics contributing 2.2% and the black burnished ware imitation fabric R04 (detailed in Chapter 3.V) just 0.3% of sherd

count (Anderson 2013, 303 table 4.3). Nene Valley colour-coated wares constituted 17.7% of the fully analysed sherds, reflecting the site’s proximity to the production centre.

Langdale Hale

Grid ref: TL 39 77

Excavated by: CAU

This site, investigated in 1999, lay to the south-east of the Camp Ground excavations outlined above. It appears to have started with a late pre-Flavian enclosure and ditches, without any Iron Age predecessor (C. Evans *et al.* 2013). The Colne Dyke canal linking the West Water to the Ouse runs adjacent to the site. A farmstead existed here from the early 2nd century, with associated evidence for salt working. An assemblage of 14,381 sherds of pottery was recovered (Monteil 2013a), further details of which appear in Digital Appendix 1 along with a note on other finds. While there are a few groups of pre-Flavian and Flavian date, and some early to mid 4th-century material, the ceramic assemblage is mainly of 2nd- and 3rd-century date (Monteil 2013a, 93).

Fengate, Cat’s Water

Grid ref: TL 208 989

Excavated by: FAT

Pryor (1984) reports on 11,600 sherds of Iron Age pottery from Fengate, most of the middle to later Iron Age pottery coming from the Cat’s Water sub-site. The site, which was excavated in the 1970s, is in the outskirts of Peterborough in the Nene Valley, at the junction of the fenland and the clay and limestone upland to the west. An open settlement, consisting of fifty-five roundhouses dating to the Iron Age, with an associated field system was found on this site. Also uncovered were Roman ditches, some of which formed sub-rectangular enclosures (Pryor 2004).

The pottery is divided into Group 1 of early Iron Age date and Groups 2 and 3 of mid to later Iron Age date. Group 2 comprises ‘all handmade Iron Age pottery not included in Group 1’ whilst Group 3 consists of ‘all wheelmade Iron Age’ pottery. Of the former there are 407 sherds and of the latter 11,180 sherds. Despite the large amount of pottery, Pryor (1984, 154) warns that there are few closed groups and little evidence of sequence.

Foxton

Grid ref: TL415 477

Excavated by: EASL

Lucas (1997) reports on 8142% RE of Transitional and Roman pottery from Foxton on the St Neots to Duxford Gas Pipeline, which was excavated in 1994. Cleary (1997) reported on a chalk block-walled room/building (3.2 x 3.5m) with a flue, dated AD 45–140. This would appear to be part of, or all of, a uniquely early bath-house/sweat lodge or massive corn drying oven, the latter interpretation being improbable given that such structures are usually a late Roman phenomenon. Cleary (1997, 31) notes that a large ditch running east to west (Ditch complex 21) located c.4m north of the structure had a profile similar to that of military ditches. Both these features are interpreted as suggesting the presence of a small fort with a bath-house inside it. However, the associated pottery seems to be potentially of pre-conquest date and very high status.

The 2nd to 3rd centuries were represented by a single enclosure ditch. In the 4th century rectangular fields were

laid out over the northern half of the excavated area, one set of small enclosures around a rectangular posthole structure and another apparently at right angles to the line of a stream to the west, beyond which Roman buildings are known to lie (Cleary 1997, 36). The later 3rd- to 4th-century material from Foxton consisted of 4,332 sherds, weighing 76.546kg and comprising 75.23 RE.

The significant assemblage of samian ware from the site is discussed in Digital Chapter 4.I and detailed in Digital Appendix 2.

Godmanchester

The Parks

Grid ref: TL 24 70

Excavated by: BUFAU

At this site, which lay about 300m north of the walled town (*Durovigutum*), the earliest Roman activity examined in 1998 consisted of the cutting of roadside ditches for the *Via Devana* in the 1st century, followed by the laying out of ditched roadside plots. In the mid to late 2nd to 3rd centuries all three plots excavated were used for pottery production (Phase 3). In the early to mid 4th century, pottery production had ceased and the area was used as a cemetery (Phase 4). C.J. Evans (2003) publishes the material from the best groups from Kilns 1 and 4a/b. Kiln 1 is of some importance, producing white wares (fabric P06.1) and white-slipped oxidised wares (fabrics P05.1 and P05.2). These are in the tradition of the *Verulamium* region potters and appear to date from the later 2nd to the earlier 3rd centuries. Further details of the pottery assemblage are given in Digital Appendix 1.

London Road

Grid ref: TL 24 66

Excavated by: BUFAU

The London Road site, excavated in 1997–8, was about 400m south of the walled town on Ermine Street. Plot boundaries were laid out from this in the later 1st to early 2nd century (Phase 2), and further enclosures were dug west of the road frontage in the later 2nd to 3rd century (Phase 3). The site was abandoned for a while and the latest activity is of the mid to later 4th century, when further enclosures were laid out (Phase 4A/B).

The London Road pottery assemblage (Hancocks 2003) is the only published quantified site report from Godmanchester which gives some indication of pottery supply to the town. The assemblage itself is from an extra-mural site and does not have fully urban characteristics. Three groups are available, from Phase 2 (late 1st to early 2nd century), Phase 3 (later 2nd to mid 3rd century), and Phase 4A/B (late 3rd to 4th century). Hancocks (2003) publishes data based on key groups amounting to 4,152 sherds of the 11,403 recovered from the site. Further details appear in Digital Appendix 1.

Grandford

Grid ref: (area centred TL 393 997)

Excavated by: British Museum

The excavated site, investigated in 1958–64 (Potter and Potter 1982), consists of a number of enclosures and buildings of the later 1st to 3rd centuries which developed adjacent to and over a putative early fort. More recent aerial photographs have tended to confirm the existence of the latter. Potter and Potter (1982, 3) note that the site as a whole extended over 12ha. It is on the gravel island of

March at the landing of the Fen Causeway. The samian ware assemblage is detailed in Digital Appendix 1.

Great Casterton

Grid ref: TF 0064 0955

Excavated by: P Corder

Between 1950 and 1958, summer training excavations at Great Casterton (Rutland) were undertaken by Philip Corder with Nottingham University. In 1950 a villa, with a large deposit of pottery associated with the destruction of one of the buildings (referred to as a 'barn'), was recorded (Corder 1951). The pottery was published in detail by John Gillam (1951, 24–40, figs 8–10, nos 1–55); it comprises around 3,000 sherds and 350 rim sherds and is dated after c.AD 395. The material is quantified in the report by MNR and some 343 of these are described in terms of form type and fabric. The presence of 4th-century AD coins secured the dating of this group. This pottery was reconsidered by Rob Perrin (1981) as it remains an important late Roman reference group for the region.

Excavations in subsequent years uncovered a series of other buildings which were published as two main complexes: a large barn with a circular drying floor, later converted into a dwelling; and the south wing of the villa and associated bath-house.

Although other large groups of late Roman pottery were recovered the only group published was from the flues of the drying house (Corder 1954, 66–9, fig. 24, nos 1–15). The final destruction of the villa certainly took place after AD 388 and perhaps as late as AD 395.

Haddenham

Shrine, Site III

Grid ref: TL 409 737

Excavated by: CAU

Haddenham Site III was originally identified by Bromwich in the 1950s as a Roman occupation site (Site 4073 in Phillips 1970). In 1980, the Fenland Survey established that the circle within the square enclosure was a barrow and later investigation revealed that the barrow was later re-used as part of a Romano-Celtic shrine complex (C. Evans and Hodder 2006, 327–417). The sequence of the shrine began in the 2nd century AD (Phases 1–2). It was dismantled during the 3rd century and re-established in the 4th century when a sub-square post-built shrine was constructed. The secondary shrine was abandoned and partially dismantled in the mid 4th century due to freshwater flooding.

Lucas (2006a) has reported on 2648 sherds (c.37.8kg) of Roman pottery from the shrine at Haddenham, 2572 sherds being from stratified contexts, spanning the mid 2nd to the mid 4th centuries. Further details appear in Digital Appendix 1.

Site V

Grid ref: TL 412 751

Database Site Code: HAD V

Excavated by: CAU

The Haddenham V site, excavated in 1984, consisted basically of three hut circles in an enclosure (C. Evans and Hodder 2006, 97–279). It was located on the Upper Delphs at the edge of Willingham Fen. Hill and Braddock (2006) report on an extensive collection of 15,015 sherds, weighing 174.055kg, with an average sherd weight of

11.6g, from this site. The material seems to be largely 2nd- to 1st-century BC in date and is a scored ware assemblage.

West End

Grid ref: TL 46137552

Excavated by: CAU

Peachey (2005) produced an archive report on 2843 sherds weighing 29.875kg from this site, which revealed intercutting ditches and a few pits with several fully articulated horse and cattle burials of potentially ritual significance. The fieldwork took place in 2003. The pottery has been reported in two ceramic phases; Ceramic Phase 1 dated later 2nd to mid 3rd century, and Ceramic Phase 2 dated later 3rd to 4th century. Details of the samian ware assemblage appear in Digital Appendix 1.

Haddon

Grid ref: TL 1374 9390

Excavated by: OA East

The Haddon site (French 1994; Hinman 2003) started as a late Iron Age enclosure and continued as a farmstead into the second half of the 4th century AD. Initial excavations took place in 1989 (French 1994) with subsequent investigations in 1999 (Hinman 2003). The earliest settlement, dating to some time earlier than AD 20, consisted of a single hut and associated structures which were placed within two sub-rectangular enclosures. This field system was subsequently expanded by the digging of further ditches (French 1994). It was over the infilling of one of these ditches that a kiln was constructed which contained well preserved kiln furniture and vessels (see Chapter 3). The settlement was reorganised after a period of abandonment in the 1st century AD into a farmstead centred on animal husbandry. Further reorganisation took place during the 3rd and 4th centuries with the construction of new houses and an associated malting oven (Hinman 2003). Around 7,000 sherds of pottery were recovered from the site, mostly of latest Iron Age and early Roman type. Further details are given in Digital Appendix 1.

Horningsea, Eye Hall Farm

Grid ref: TL 4945 6325

Excavated by: J. Evans (fieldwalking)

A small group of pottery was fieldwalked from Eye Hall Farm in 1978 (J. Evans 1991b and Chapter 3, this volume) when the kiln field and the field to its west, towards the Cam, had been harrowed for reseeding. Locations of several kilns were observed and all sherds were collected in a random walk of the area. Some 291 sherds were recovered (weighing 3.863kg), including twenty rim sherds, representing 1.13 RE. The sherds were generally quite eroded. The date of the assemblage extends from the Flavian period to the later 4th century with an emphasis on the Antonine period and the 4th century. Further details are given in Digital Appendix 1.

Huntingdon, Watersmeet

Grid ref: TL 241715

Excavated by: AS

The site at Huntingdon, Watersmeet, examined in 2003, is reported only in the grey literature (Peachey 2004). It contained an early Roman rectangular ditched enclosure which became an inhumation cemetery, containing 72 burials, during the late Roman period. A system of field boundary or drainage ditches dating to this period was also found (Nicholson 2004). Pottery groups of the late 1st to

mid 2nd century, mid to late 4th century and late 4th to early 5th century are tabulated, amounting to 1,346 sherds.

Landbeach, Car Dyke Farm (Akeman Street)

Grid ref: TL 475 661

Excavated by: OA East

Investigations on Akeman Street Roman road took place in 1996 on low lying land to the north of the village of Landbeach, which itself lies 5–6km north of the city of Cambridge (Macaulay 1997b). The area of investigation focused on the known route of Akeman Street which ran through the field. The road appeared to overlie earlier trackways and was associated with nearby enclosures, all presumed to be of late Iron Age or Roman date. The investigation was part of the management programme on the Cambridgeshire County Farms Estate and comprised a trenching evaluation. There is therefore no detailed stratigraphic matrix to allow accurate phasing of the site as it has only been partially explored.

A trench through the Roman road revealed its constructional sequence. No pre-Flavian pottery was recovered, the earliest material being of Antonine date (c. AD 160) suggesting a mid 2nd-century or later date for the construction of the road (rather than a 1st-century military context). Additional trenching sampled a rural settlement enclosure lying west of the road. The Roman road survived in fairly poor condition, with the roadside ditches being the main indicator of its presence. The *agger* was heavily truncated and little survived, other than a thin layer of gravel metalling which overlay a rammed earth layer. The nearby Roman settlement enclosure relates to a broader agricultural landscape with associated trackways, droeways and field systems and, although these are linked to trackways which predate the construction of Akeman Street, the pottery from this settlement also dates to the 2nd to 4th centuries AD.

Some 334 sherds weighing 3.811kg were recovered from this site, spanning the mid 2nd century to the end of the Roman period. Further details appear in Digital Appendix 1.

Little Barford

Grid ref: TL 167547

Excavated by: EASL

The site, which was investigated in 1994, 'consisted of the ditches and gullies of field systems and rubbish pits associated with a settlement. This was probably a villa, but has yet to be found' (Goode 1997, 11). Lucas (1997) reports on 2628 sherds (75.084kg, 56.99 EVEs) of Roman pottery from this site, which date from the 1st to the mid 4th centuries. Further details appear in Digital Appendix 1.

Little Paxton

Grid ref: TL 187 621

Database Site Code: LP 92

Excavated by: BUFAU

The farmstead at Little Paxton, examined in 1992, originated in the middle Iron Age and continued through the Roman period until the later 4th century (Jones 2011). Roman pottery (5275 sherds, 78.387kg) comes from two discrete areas (Area A and Area E/F), each with differing overall date ranges. The material from Area E/F dates from the transitional period up until the early 2nd century, whilst the material from Area A would seem to be chiefly

of 3rd- to mid 4th-century date. Further details appear in Digital Appendix 1.

Littleport, Camel Road

Grid ref: TL 5660 87173

Database Site Code: LIT CR

Excavated by: OA East

Camel Road was part of a substantial settlement site, originally interpreted as a possible villa situated at Littleport at the crossing of Akeman Street over the River Cam. It was excavated between 1996 and 2001 (Macaulay 2002b). Re-evaluation of the ceramic assemblage (this volume) suggests that the site was urban and a small fenland Roman town. The site has five main phases of activity dating from the early to mid 2nd century AD (Hadrianic–Antonine) and continued through to the mid 4th century AD. The site is well stratified and contexts are securely dated. Some 2,373 sherds of pottery have been recorded. Further details appear in Digital Appendix 1.

Maxey, Bardyke Field

Grid ref: TF 125 077

Excavated by: W.G. Simpson

The Roman farmstead at Maxey was occupied discontinuously between the mid 1st and the early 4th centuries (Pryor *et al.* 1985). The excavators distinguished three Roman phases: Phase 7 (earlier 1st century), Phase 8 (later 1st to mid 2nd century) and Phase 9 (later 3rd to mid 4th century). The samian ware groups spatially within Phase 8 features. Some 7,500 stratified sherds are recorded, weighing c.155kg (Gurney 1985), giving a mean sherd weight of about 20.7g. Further details appear in Digital Appendix 1.

Milton

Fen End (Green's Pits)

Grid ref: TL 481621

Excavated by: J. Bromwich, B.R. Hartley and K.F. Hartley

This cropmark site was investigated in the 1950s and only recorded in Phillips' gazetteer (1970, 199–200). Five incomplete skeletons, coins and 'much' pottery were recorded (at TL 4804 6214). The pottery was deposited at CUMAA in 1963 and identified as Roman coarse wares of 1st- to early 2nd- century date, as well as an enormous Hofheim flagon (1st century). Two pottery kilns were located at TL 482 623, excavated in 1955 by Bromwich, Hartley and Hartley who recorded coarse jars, dishes, a kiln waster in the same sandy fabric, and kiln dome-plates, which the excavators dated to the late 1st or early 2nd century AD. Selected Horningsea vessels from the collection are illustrated in Chapter 3.

East Waste

Grid ref: TL 465 625

Database Site Code: MILEW 94–95

Excavated by: OA East

Archaeological work was undertaken at the Milton landfill site between 1990 and 1998 (OA East in prep.). The material considered in this report relates to work in 1994 and 1995, which focused on the Iron Age and Roman settlement. The site lies about 3km from the Horningsea Eye Hall Farm kiln site to the west-south-west. It is close to Akeman Street and about 3km south-west of the Old

Tillage. Collectively the work has produced evidence of multi-period occupation of the area. Iron Age settlement comprised roundhouses and associated field systems. The earliest phase of Romano-British activity has been dated to the late 1st to early 2nd century AD. Romano-British evidence included field systems, timber buildings and a cemetery associated with a mound. Occupation of the area continued into the 4th century, although by this time many of the ditched boundaries had fallen out of use.

Roman site phases:

Phase 1: Late 1st century AD

Phase 2: 2nd century

Phase 3: Late 2nd and 3rd century

Phase 4: 4th century

Some 3,917 sherds weighing 54.549kg were examined from the collections made at Milton East Waste, and at a later point a further seven boxes of material from this site were spot-dated. There are clear indications of pre-Flavian activity on the site, with a distinct Antonine peak, followed by a trough and continued activity until the end of the 4th century. Further details of the samian ware appear in Digital Appendix 1.

Kings Hedges, Apollo Way

Grid ref: TL 45313 61479

Excavated by: HAT

The material from the Apollo Way church centre at Kings Hedges excavated in 2001–2 is from a site reported only in grey literature (Fawcett 2003). The site was adjacent to Akeman Street and consisted of quarry pits and an enclosure dating from the mid 1st century to the 4th. A group of 478 sherds of later 2nd-century material is tabulated, along with 181 of later 3rd- to 4th-century material – the latter being too small to be of much use.

Orton Longueville

Orton Hall Farm

Grid ref: TL 17659555

Excavated by: NVRC

Orton Hall Farm, located about 6km east-south-east of the Roman town of *Durobrivae* and excavated between 1964 and 1975, was a farmstead occupied from around the Conquest until the end of the 4th century, and also had early Saxon occupation (Mackreth 1996a). The period structure is set out below:

Site periods:

Period 1: mid 1st century AD–c.AD 175

Period 2: c.AD 175–AD 225/250

Period 3: AD 225/250–AD 300/325

Period 4: AD300/325–c.AD 375

Period 5: c.AD 375–400+

The site had a series of aisled barns/halls from Period 2 onwards, but no villa-type structures. In Periods 4 and 5 there seems to have been an animal-powered mill on the site. Period 5 was considered to mark the passing of at least part of the farmstead from Roman into Saxon hands, with gradual abandonment of different areas (Perrin 1996, 164). The coin loss pattern sits fairly close to the national mean, running to the end of Roman Britain without any major deviations. Over 32,000 sherds of Romano-British pottery, weighing almost 560kg (426 EVE) were recovered from stratified deposits (Perrin 1996, 114) throughout all five periods. Further details appear in Digital Appendix 1.

Monument 97

Grid ref: TL 16659525

Excavated by: NVRC

The site at Monument 97 (Mackreth 2001) was excavated in 1974. Three enclosures belonging to a small farmstead were in use from at least the late 1st century BC to the mid 2nd century AD. The settlement was probably inhabited by a single family group throughout its existence. It developed in tandem with the growing complexity of division of the surrounding landscape, until eventually being abandoned (probably) in favour of another site nearby. After its abandonment, the earthworks were incorporated into the Roman field system and eventually the corner of the enclosure was used for a small cemetery of nine burials.

Site periods:

Period 1a: 2nd century BC–c.AD 50

Period 1b: c.AD 50–70/80

Period 2a: c.AD 70/80–c. AD 125

Period 2b: c.AD 125–150/75

Period 2c: c.AD 150/175–4th century

Rollo tabulates 3,772 sherds stratified from these phases (Rollo 2001, tables 4–8). The pottery dating (particularly of the samian ware) suggests that habitation peaked in Period 2b, around AD 140–150. Further details appear in Digital Appendix 1.

Peterborough, Castor, Normangate Field

Grid ref: TL 19 76

Excavated by: G. Webster

Excavations close to Ermine Street in 1962–3 effectively comprised kiln hunting, following the discovery of kilns in the vicinity in 1958; these were producing Nene Valley grey ware and colour-coated ware. The excavations revealed large rubbish pits, wells and hearths containing large groups of 2nd- to 4th-century pottery, as well as several rectangular buildings and a Roman road (Perrin and Webster 1990). Although quantified by group, total quantities of pottery are not stated in the published report, which illustrates 312 vessels. The material is published by pit group, rather than by site phase.

Queensholme

Grid ref: TL 41 71

Excavated by: CAU

A training excavation took place between 1985–7 on a Romano-British cropmark complex. The site consisted of a series of inter-connecting droveways, field boundaries and enclosures, with a notable large double-ditched enclosure. It was one of a series of Iron Age/Roman settlements strung out along the fen-edge south of the Old West River. The site was excavated in a series of evaluation trenches and there is no detailed stratigraphic matrix. Hill (2006) reports on 451 sherds (7.895kg) of Iron Age pottery from this site and Lucas (2006b) reports on 604 sherds of mainly Flavian material. The groups are small and there is no quantification of the Roman material. Nonetheless, the assemblages serve to give an impression of the later Iron Age to early Roman sequence. Further details appear in Digital Appendix 1.

Sawtry

Grid refs: see individual entries

Excavated by: BUFAU

Ellis *et al.* (1998) published four sites from the A1(M) Alconbury to Peterborough Road Scheme in and around Sawtry at Norman Cross, Tort Hill East, Tort Hill West and Vinegar Hill, excavated in 1996. The key dating evidence

from the pottery is summarised below. The present author (JE) has based this assessment on the archive and it is not simply a summary of the published report. Further details can be found in Digital Appendix 1.

Norman Cross

Grid ref: TL 15 90

The site at Norman Cross was located on the western side of the A1. Initial excavations recovered 2,470 sherds of pottery (46.910kg; Hancocks *et al.* 1998, table 3), of which 10kg is Roman (mainly 3rd century AD), as well as stone roofing slates and blocks, probably from a nearby settlement or farmstead. It is noteworthy that no trace of Ermine Street, expected to lie to the west of the A1, was found. Unusually for British Roman sites, horse bones were abundant and may indicate a specific function (*e.g.* road-side ranching) conducted by such sites along Ermine Street. A second excavation found a 2nd- to 3rd-century AD enclosure, Roman ditches and gullies, evidence of stone-surfaced yard areas, and large quantities of Roman pottery. Occupation in two main periods from the mid 2nd century to the early 4th century is suggested. Romano-British features were sealed beneath a layer of hillwash.

Site periods:

Period 1: Mid 2nd to early 3rd century AD

Period 2: Late 3rd to early 4th century AD

Pottery was found in large quantities within features relating to both periods.

Tort Hill West

Grid ref: TL 17 84

An evaluation located a probable Roman roadside settlement west of the A1. The settlement began in the late Iron Age and began to expand between the early to mid 1st century when a group of roundhouses was present. During Period 3A, Phase 1, at least four pre-Flavian pottery kilns lay in a separate ditched enclosure (two were probably making grog-tempered reduced wares and two were making oxidised vessels). During Phase 2 of this period a number of individual plots were laid out. The total prehistoric and Roman pottery assemblage amounted to 3,313 sherds (37.984kg; Hancocks *et al.* 1998, table 3).

Site periods:

Period 1: Late Iron Age

Period 2: 1st century AD to pre-Conquest (AD 43)

Period 3A: Late 1st century to 2nd century AD

Period 3B: 3rd to 4th century AD

Tort Hill East

Grid ref: TL 17 84

Evaluation revealed possible footings of a stone wall and quantities of building material, along with a number of ditches, cobbled areas and two ovens. The total prehistoric and Roman pottery assemblage amounted to 6,038 sherds (96.589kg; Hancocks *et al.* 1998, table 3). The Roman pottery ranged from late 1st to 4th centuries in date. The remains probably represent plots to the rear of the roadside settlement along Ermine Street. The BUFAU excavation of 1996 largely confirmed the character of the Roman settlement suggested by the earlier investigations; features again included boundary ditches, pits, surfaces and ovens. The site is probably a continuation of the Roman settlement on the west side of Ermine Street (MCB13711).

Site periods:

Period 1: Late 1st to 2nd century AD

Period 2: Late 2nd to early 3rd century AD

Vinegar Hill

Grid ref: TL 18 77

Evaluation revealed a ditched enclosure. Third-century pottery and animal bone were recovered from a ditch, while later features included ditches and structural beam slots (associated with coinage of Arcadius dated AD 388–95). A total of 0.8kg of pottery was retrieved from Roman features (from a total prehistoric and Roman assemblage of 292 sherds; 3.042kg; Hancocks *et al.* 1998, table 3). Vinegar Hill is quite different from the other Sawtry sites, as it is late Roman in character.

Site periods:

Period 1: Undated

Period 2: 3rd century AD

Period 3: 4th century AD

Stonea Grange

Grid ref: TL 4490 9370

Excavated by: British Museum

The Stonea Grange settlement was a small nucleated site (perhaps about 9ha) with a temple on its outskirts (Jackson and Potter 1996). Excavations in 1980–85 demonstrated that the settlement originated around AD 125 and suggested that its occupation extended into the 4th century. The earliest phase of activity included an administrative block, comprising a ‘tower/basilica’ building, and a temple, both of which went out of use approximately a century after they were founded. The subsequent 3rd- and 4th-century settlement consisted of farmsteads, which for the most part respected the earlier property boundaries and street alignments. There were numerous rubbish pits and latrines.

Cameron tabulates a total of 634.213kg of stratified coarse pottery from the site, both phased and unphased (Cameron 1996, 475, table 21). To this must be added 52.839kg of amphora and the unstated weight of around 3,300 sherds of samian ware; were these to have a mean weight of 10g they would amount to a further 33kg. The assemblage probably represents between 36,000 and 72,000 sherds, assuming that the mean sherd weight is in the normal range of 10–20g (J. Evans 1985). If Jackson and Potter’s (1996, 685) assertion that samian represented 10% of the assemblage is accurate then the sherd total must have been around 30,000.

Site periods:

II. Late Iron Age

III. Roman *c.*AD 140–220

IV. Roman *c.*AD 220–400

V. Early Anglo-Saxon

The widely discussed ‘tower/basilica’ building (R1) belongs to Phase III, apparently being constructed *c.*AD 130–50 along with the rest of the settlement, and it was abandoned probably in the Severan period. Although Period IV is dated from AD 220 onwards by Potter (1996a), the Nene Valley colour-coated ware form series (Cameron 1996, figs 151–2) does not include types which necessarily date later than the end of the 3rd century and there is not very much material which dates to the second half of that century, thus the chronological pattern of the pottery from the excavated area seems to match that of the coins. Shotter (1996, 294) notes a discrepancy between the excavation coin assemblage, which lacks late 3rd- and 4th-century material, and the casual coin finds from elsewhere on the site which suggest continuing activity in the area. It is also of note that all of the glassware from the excavations fits in an early 2nd- to early 3rd-century date bracket (Price 1996).

Digital Fig. App. 1.24 shows the Stonea excavated site coin list plotted by its deviation against Reece’s 140 site mean. The coin list is strong in Periods 4–8 (AD 69–180) but below average after Period 11 (AD 222–35). There is a clear dearth of mid-later 3rd- as well as 4th-century activity on the site as reflected by the coins. Overall it is likely that for the excavated site, Phase IV ends closer to *c.*AD 300 than AD 400.

Teversham, Hinton Fields

Grid ref: TL 49 57

Database Site Code: HFT

Excavated by: Pullinger and White

The material examined from Hinton Fields, Teversham (Pullinger and White 1991) comprises three groups associated with a villa, which was excavated in 1978–86. The three groups chosen for examination are Group 4 from Site B Trench VI (1982) F9, comprising 808 sherds weighing 6.239kg, Group 3 from Site B, Trench IV F2, containing 1,761 sherds weighing 15.874 kg, and Group 2 from Site B (1986) F12, of 1,497 sherds weighing 20.731kg. The illustrated sherds from the report were examined, and the markings on these used to find the remainder of the material in these contexts in the CUMAA stores. Further details appear in Digital Appendix 1.

Waterbeach

Cambridge Rowing Lake

Grid ref: TL 49 64

Database Site code: WAT RL 96

Excavated by: OAE

Trenching evaluation at the proposed site of the Cambridge Rowing Lake in 1995 took place on the low-lying land immediately to the south of the Old Tillage at Waterbeach and north of the village of Milton (Robinson and Guttman 1996). The site lies some 7–8km north-east of the city of Cambridge and comprises approximately 100ha in an area of known cropmarks of predominantly Roman date. The investigations revealed a dense ribbon of Roman settlement which lay in a narrow strip along the western side of the River Cam, located on the edge of the First and Second Terrace river gravels on the edge of the floodplain. The remains consisted of a series of farmstead enclosures (ladder settlement) with associated field systems, at least two inhumation cemeteries and a Horningsea-style pottery production area to the north of the site (in Trench 44; see Chapter 3.IV). Anglo-Saxon settlement was also recorded, restricted mainly to the far north-east of the site. The ribbon of Roman features extended from the south-west to the north-east, meeting the south-eastern end of the Old Tillage close to where it connects to the River Cam. The Roman settlement remains relate to agriculture, proto-industry and burial, with a peak of activity during the 2nd and 3rd centuries AD (based on pottery information from Chris Going).

Since the investigation was limited to trial trenching an overall site matrix does not exist, although a limited structural sequence can be determined for individual trenches. The site pottery assemblage is detailed in Digital Appendix 1. It indicates little activity on the site before the Antonine period, followed by rising activity levels in the earlier 3rd century, stable levels later in that century and in the earlier 4th, with some decline in the later 4th century. It is clear from the samian ware report on the Waterbeach

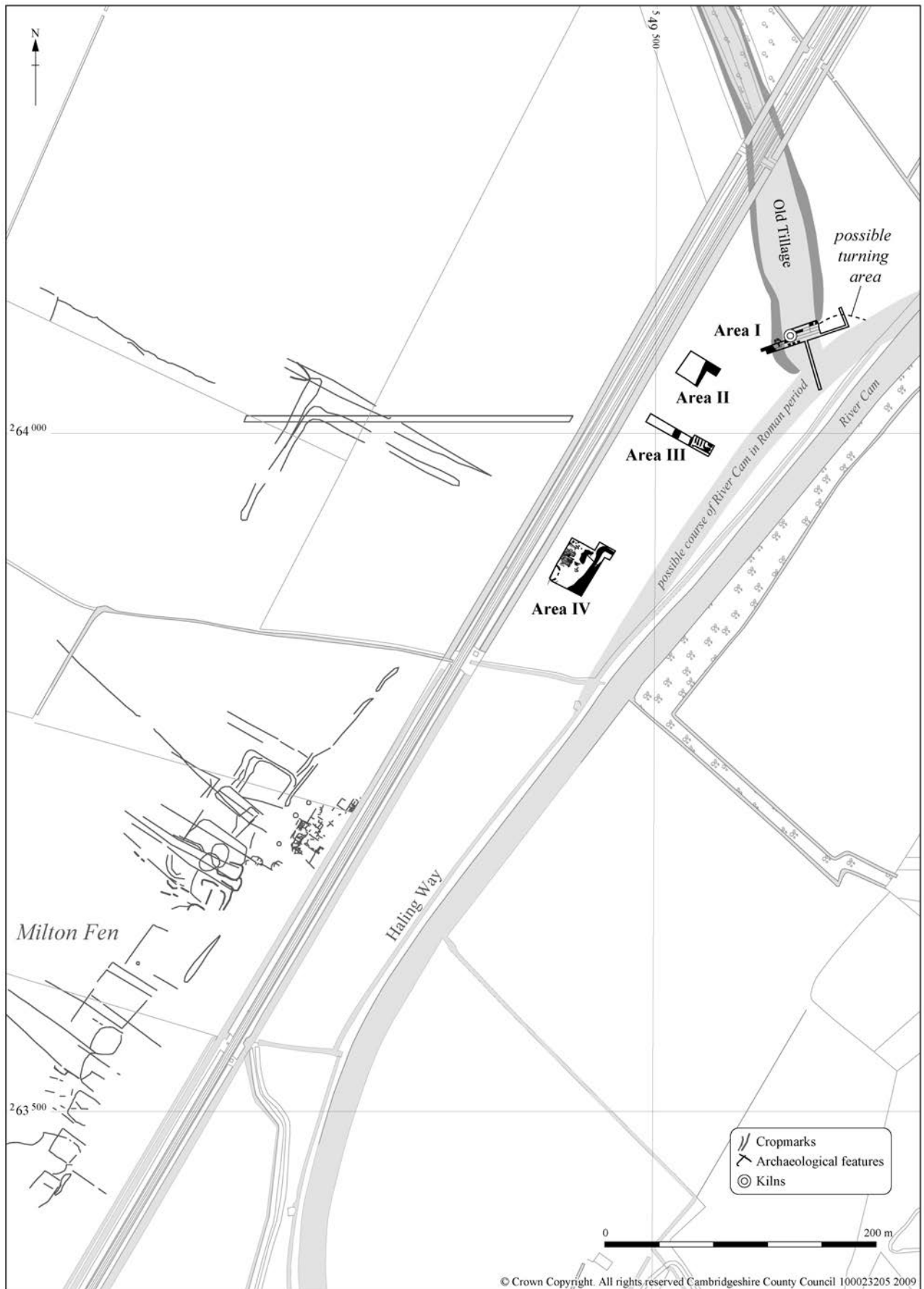


Figure 2.2 Waterbeach , Old Tillage site location. Scale 1:4000

Old Tillage site (see below) that the canal was not cut until the very end of the Hadrianic period or, more likely, early in the Antonine era. This site represents land to the rear of the junction of the canal with the River Cam and may have developed in the manner of a ribbon settlement after the canal was cut, as suggested by the overall date distribution.

Denny Abbey

Grid ref: TL 494 685

Excavated by: Cambridge University

Millett (1980) recorded an assemblage of 1174 residual Roman sherds in the excavations of Denny Abbey, which was investigated in 1968–75. The site is about 4km north of the Horningsea Eye Hall Farm kiln site adjacent to Akeman Street. The ceramic assemblage seems to span the whole of the period from the Flavian era to the later 4th century. Further details appear in Digital Appendix 1.

High Fen

Grid ref: TL 485 687

Excavated by: Cambridge University

Alongside the Denny Abbey pottery, Millett (1980) recorded a small assemblage of 278 sherds from High Fen gravel works. As with Denny Abbey it is quantified by sherd count alone, although the report also lists the occurrence of rim sherds by form. Given that Millett (1980) catalogues 47 rim sherds amongst the collection it seems likely that body sherds are under-represented, that is to say that the collection is probably not complete. Millett (1980) suggests a 3rd-century date for the collection, further details of which are given in Digital Appendix 1.

Old Tillage (formerly Car Dyke)

Figs 2.2–2.4; Pls 2.1–2.2

Grid ref: TL 496 642

Database site code: WAT CD

Excavated by: OA East

The Excavation

Investigations at the Old Tillage canal (formerly known as the Cambridgeshire Car Dyke; see Chapter 1) were conducted in 1993 and 1997, revealing the watercourse and adjacent structures including a possible warehouse and kiln (Macaulay and Reynolds 1994; Macaulay 1997a; 1999; Lyons in prep. b). The topography and geology of the site are significant. Located on the edge of the First Terrace river gravel, the archaeological features are sited on the higher and dryer land which overlooks the alluvial flood plain of the River Cam, with the Old Tillage canal connecting with the natural watercourse at this juncture (Fig. 2.2; Pl. 2.1). A summary of these excavations is presented below. The excavated kiln and its products are detailed in Chapter 3.IV.

Area I

A machine-dug section placed across the canal revealed the complete profile across its 24m width (Fig. 2.3; Pl. 2.2). Where they survived, the canal banks were broad and flat (measuring approximately 7m wide and 1.5m high). Deposits pre-dating the canal banks were sampled, along with the basal deposits of the canal itself. Its main period of use appears to have been in the mid 2nd century, with its disuse probably in the late Roman period. The basal deposits were waterlogged and contained preserved leather (including an iron-studded sandal) and worked wood (stakes and a fishing harpoon), as well as bone and pottery. There was limited later post-medieval deposition and this part of the canal had not been heavily damaged by later drainage or catchwater usage. In some places the Roman deposits remained undisturbed.

The canal ran directly into the River Cam at this point and during the Roman period the River Cam was located slightly further to the west than

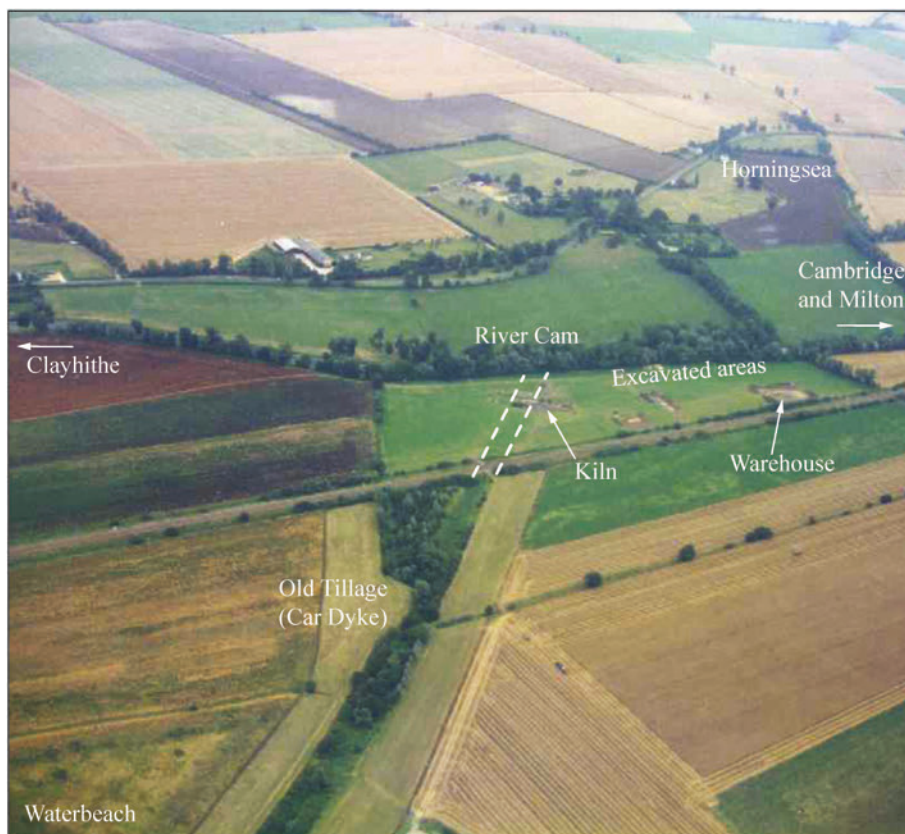


Plate 2.1 Waterbeach, Old Tillage (formerly Car Dyke), looking south-east towards the River Cam. The Eye Hall Farm, Horningsea Kiln site is in the top right of the picture

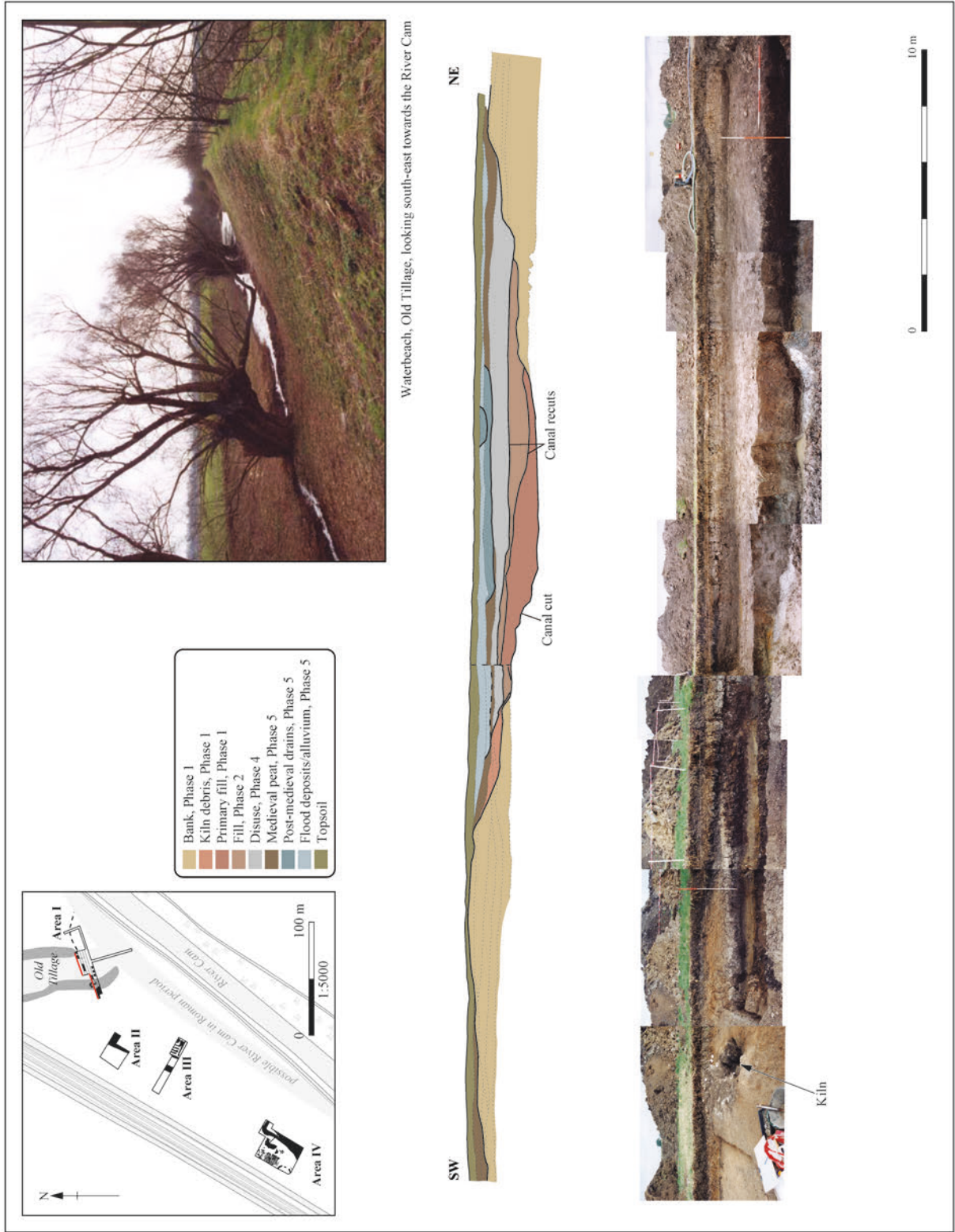


Figure 2.3 Old Tillage section. Scale 1:200

it is today (Fig. 2.2). There must, however, have been some form of water control (lock?) between the canal and the river. Within the excavation trench the height of the base of the canal was at c. 1m OD, whereas the height 600m to the north was 1.5m OD (Macaulay and Reynolds 1994). It is likely that any lock would have been located away from the wider entrance point of the canal into the river. The eastern bank notably stopped before its counterpart on the western side, perhaps suggesting the presence of some form of widening, possibly for barge turning or a docking area.

The canal sediments contained important insect remains. Mark Robinson notes that ‘While there was not the full range of beetles which tend to be associated with settlements, serious pests of stored grain (Species Group 9b), represented by *Oryzaephilus surinamensis*, comprised almost 4% of the terrestrial Coleoptera.’ Finds of *O. surinamensis* in 1st century AD contexts at the legionary fortress at York (Kenward and Williams 1979) and at an auxiliary fort at Pomeroy Wood in Devon (Robinson 1999) suggest that these pests were spread rapidly by the army which may have been responsible for their initial introduction into Britain. They occur in towns and on high status rural sites, but rarely on ordinary Roman rural settlements. Their presence may indicate the storage of de-husked grain in high status and military sites, as opposed to storage in the spikelet which is likely to have been the norm elsewhere (Robinson 1992, 59). Grain damaged by other insects or fungal growth becomes susceptible to attack by *O. surinamensis*, whereupon the infestation can become self-sustaining. The occurrence of these beetles suggests large scale grain storage or use nearby, and their presence in three samples from the monolith implies that such activity continued over a period of time, rather than being a single event (Robinson 2000). A further implication of Robinson’s report is that this grain was likely to be destined for military supply if it was de-husked. This suggests that, on a small scale at least, facilities at Waterbeach may have mirrored those at the port at Camp Ground, Earith. There, cereal evidence was restricted to only part of the site, and lacked chaff, suggesting consumption and/or transhipment of processed grain. Much of the remainder of the site may have been involved with meat processing (G. Appleby, pers. comm.).

On the western bank of the Old Tillage, less than 20m from the river, a Horningsea-style pottery kiln was discovered (see Chapter 3.IV). It survived in extremely good condition, with two other kilns nearby. As many as eight kilns may be present within the relevant field (three being clearly identified and five others suggested from geophysical survey and surface remains on the banks of the Old Tillage). The excavated kiln contained rubbish, dumped once the kiln was abandoned: this included pottery, tile and fired clay roof plates. The fired clay lining and support pilasters survived largely intact. The basal deposits of the final firing were identified and samples from this layer and the clay lining were taken by the English Heritage Ancient Monuments Laboratory for archaeomagnetic dating in order to provide independent dating for the kilns. The results of this survey, however, proved negative.

Areas II and III

A gravel bank ran along the edge of the gravel terrace and alluvial flood plain: it had been enlarged, presumably as a flood defence, and probably doubled as a track. The bank is likely to be of Roman origin, and may well be of late Roman date (3rd to 4th centuries). It is noteworthy that the gravel bank crossed the canal banks, but it remains unclear whether it blocked the canal or was broadly contemporary with it. Clark (1949) discovered gravel causeways blocking the Old Tillage at Cottenham, possibly dating to the late 4th century. It is possible that the Waterbeach bank was built up in the 4th century as a defence against rising water levels at a time when the canal may have gone out of use. A time of increased flooding and alluviation would have made its maintenance more difficult. The gravel bank was 1.5m wide and over 0.8m high, although the latter was largely accounted for by a natural rise formed by the geology of the First Terrace gravels.

Area IV

On the highest visible point of the field, stripping revealed the remains of a substantial Roman timber building, which was later cut into by a possible kiln or oven (Fig. 2.4). The building foundations survived as very shallow beam slots running parallel and at right angles to each other, forming a raft, probably to raise the floor in what is likely to have been a damp area. The building was located behind the gravel bank, and probably extended outside the trench to the west beneath a modern railway. The identified features formed an approximate 20m square. A similar (but smaller) structure discovered at Southwark during excavations of the Roman waterfront was interpreted as a warehouse (Brigham *et al.* 1995). Large quantities of pottery with a probable later 2nd- to 3rd-century date were recovered from the Waterbeach building. The assemblage contains the local Horningsea storage and transport



Plate 2.2 Excavation of the Old Tillage, Waterbeach (1993) in progress

vessels but also some imported material (Nene Valley ware and decorated samian ware), albeit not in any great quantity. The artefactual evidence, combined with the location of the building and its proximity to the Old Tillage canal all support interpretation as a warehouse, but the finds also included significant quantities of industrial waste, the role of which is less clear.

Site Phasing and Ceramic Chronology

Figs 2.5–2.9

The site sequence is divided into five phases, based on the pottery spot-dating and the stratigraphic sequence of the excavated canal section (Fig. 2.3). Figure 2.5 shows the date distribution of all pottery from the site (assigned a date range of less than 200 years). It suggests a little possible Hadrianic activity, but indicates that the peak of pottery deposition was Antonine, with a declining tail until around the mid 3rd century. The samian ware (Ward, Digital Appendix 1) indicates a similar picture. A complete absence of South Gaulish material shows a lack of Flavian–Trajanic activity, and there are only one Les Martres and four Hadrianic Lezoux vessels to cover the late Trajanic and Hadrianic eras.

The following text details the ceramic assemblage by phase, while the site’s pottery assemblage is detailed in Digital Appendix 1: a total of 6,954 sherds weighing 120.612kg was recovered, of which 6,017 sherds weighing 106.625kg could be assigned to a phase.

Phase 1 (Late Hadrianic/Antonine, mid 2nd century AD)

The first Roman activity on the site is represented by the construction of the ditch/channel of the Old Tillage, with evidence of subsequent re-cutting and cleaning. At this time a Horningsea-style pottery kiln was

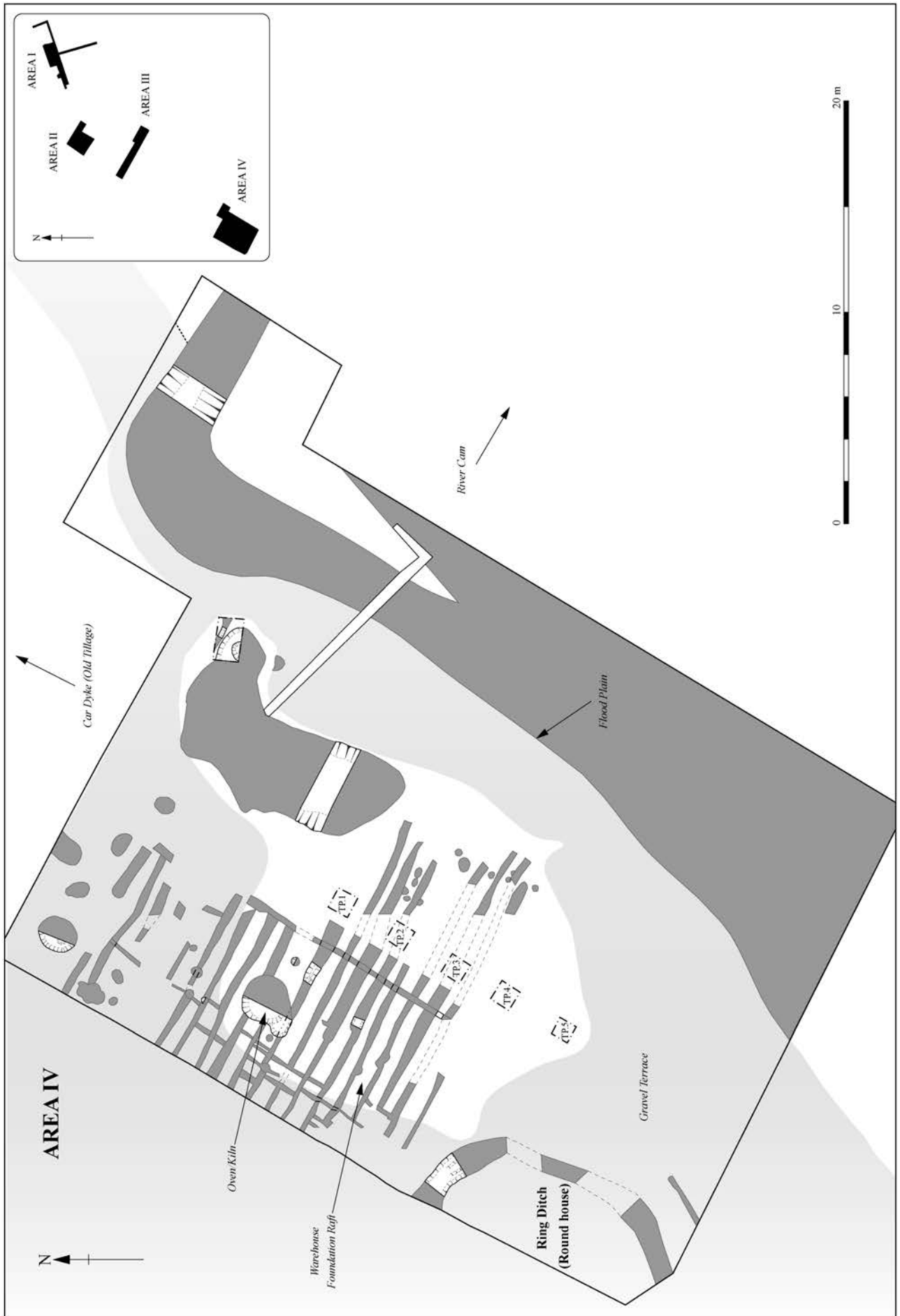


Figure 2.4 Waterbeach, Car Dyke. Plan of possible warehouse and associated features. Scale 1:250

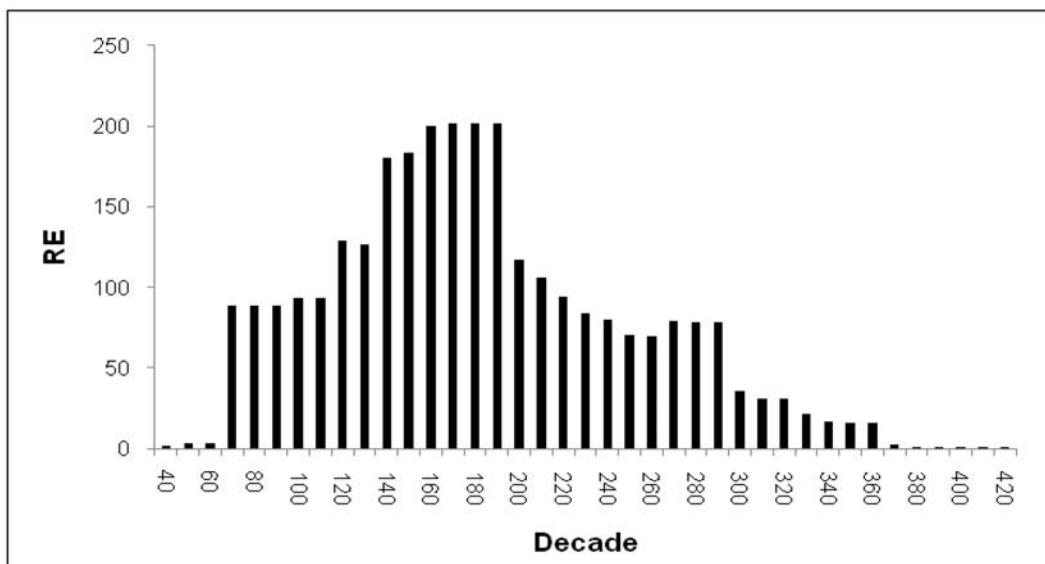


Figure 2.5 Waterbeach, Old Tillage. Date distribution, forms with range of less than 200 years, by RE

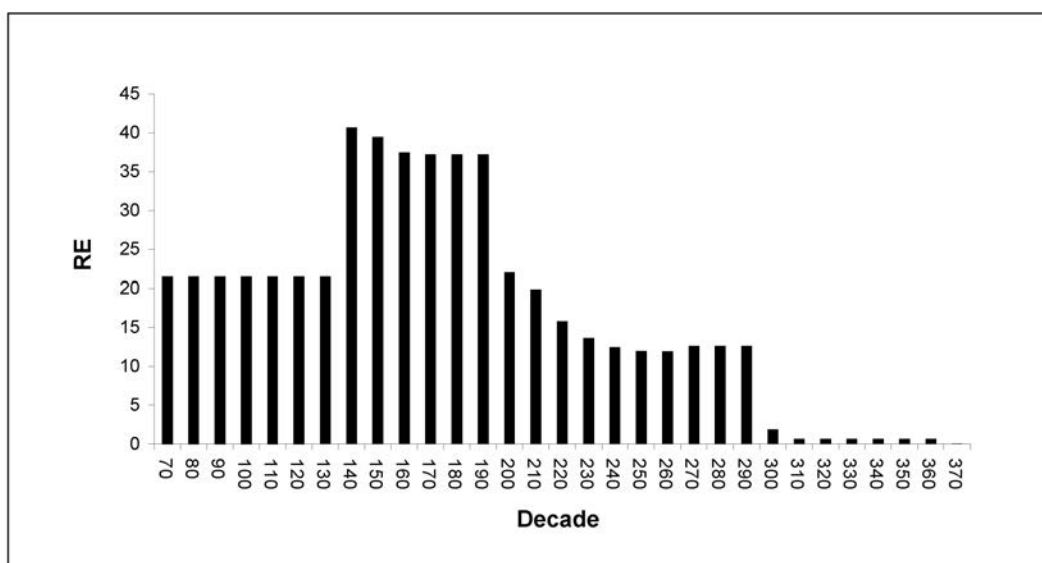


Figure 2.6 Waterbeach, Old Tillage. Date distribution of vessels of restricted date range from Phase 1, by RE

cut into the western bank of the canal, along with several more kilns in the immediate vicinity (noted above).

Deposits of this phase contained 1281 sherds (37.747kg) of pottery, mainly Horningsea grey ware, largely from the kiln on the canal bank. The samian ware list suggests that activity did not commence before the late Hadrianic period. The two samian ware sherds from this phase are both CGS cups of form Dr 33 from context 107. One is dated AD 150–200, whilst the other is stamped by Saturninus ii (Digital Fig. App 3.26) and dated AD 160–200. There is a Mancetter-Hartshill mortarium (M02.1, Digital Fig. App 3.12) from context 174. This is wall-sided with a cordon at top and bottom, probably dated *c.*AD 200–220. A white-slipped oxidised ware jar (Q01.4, Digital Fig. App 3.18) is likely to be of 2nd-century date.

Amongst the Horningsea wares it is notable that the storage jars include thirty-three examples of SJ type 1 which starts in the Flavian period, but not a single example of SJ type 2 which commences in the Antonine period. Similarly, four of the five bowls are of the early carinated type B1.1 which seems to end in the late Hadrianic/early Antonine period. The only other bowl present is an intrusive developed beaded and flanged bowl of later 3rd-century or later date (R02 B6.1) from the uppermost fill (107) of the kiln firing chamber. The kiln fill appears to be late Hadrianic to early Antonine in date and the phase probably ends early in the 3rd century, assuming that the Mancetter mortarium is not intrusive. Most of the material can be placed in the

Antonine period, with a tail-off into the first decades of the 3rd century, reflecting the date of the latest non-intrusive piece (Fig 2.6).

Phase 2 (3rd century AD)

This represents the main period of activity on the site, when the canal was recut: use of the channel as a canal appears to have been at its height, with localised pottery production and transport. Eighty-six sherds come from contexts of this phase, weighing 3.778kg. There are few sherds which individually provide much dating evidence of value. The assemblage contains three sherds of samian ware, a Dr 33 sherd dated AD 140–200, an 18/31R sherd dated AD 120–160 and a Dr 31 rim dated AD 150–200. No other fine wares are present. The Horningsea grey wares include a straight-walled bowl with beaded, undercut rim (R02 B5.2, Fig. 3.12) which is a 3rd-century BB2 copy. Figure 2.7 shows a date distribution plot of rim sherds from the phase by RE. It clearly indicates a considerable quantity of residual material of 2nd-century date, but suggests a fair amount of 3rd-century material, some of which may be contemporary.

Phase 3 and 3a (late 3rd to mid 4th century)

During this period, the Old Tillage channel continued to function as a canal, with a final phase of re-cutting. The warehouse may have been constructed at this time, or in the preceding phase. It is probable that

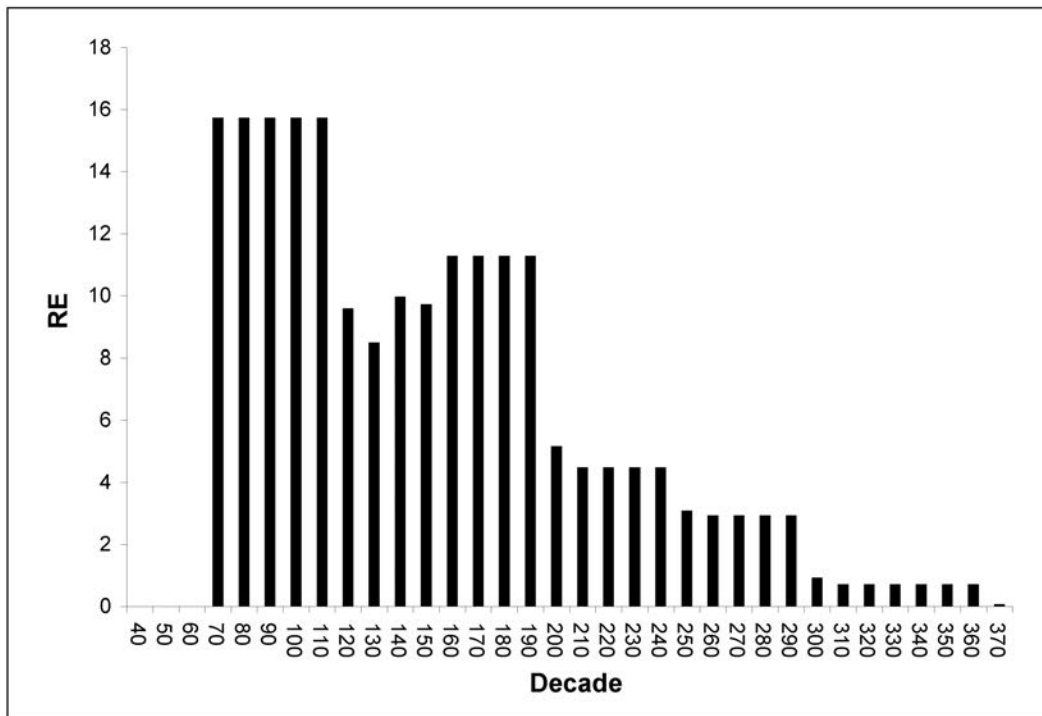


Figure 2.7 Waterbeach, Old Tillage. Date distribution plot of rim sherds from Phase 2, by RE

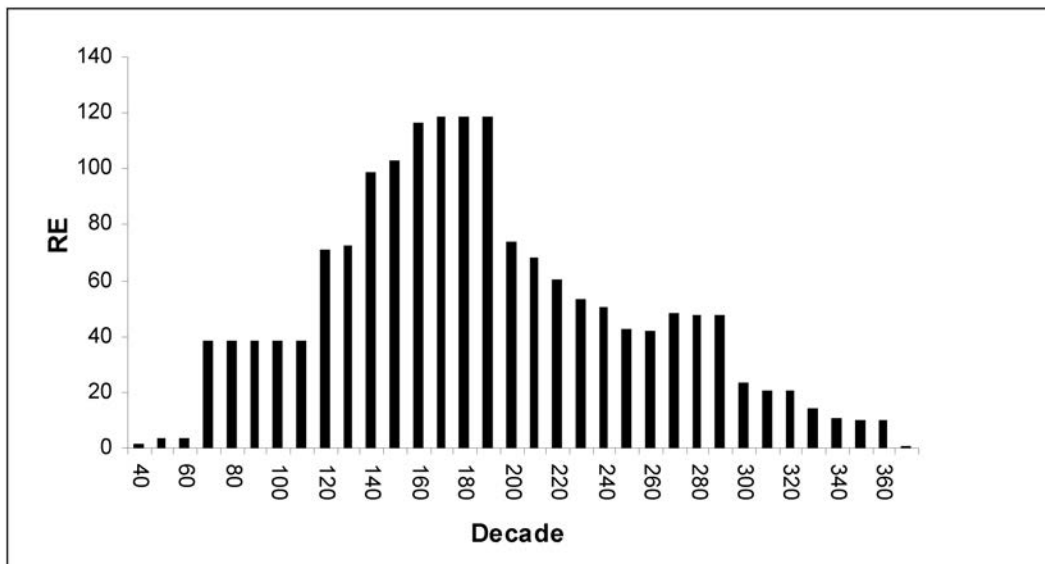


Figure 2.8 Waterbeach, Old Tillage. Date distribution plots of rim sherds from Phase 3a, by RE

during this time the gravel bank along the edge of the gravel terrace was modified to act as an improved defence against rising water levels.

Phase 3a deposits produced 4,543 sherds weighing 62.235kg. Nene Valley colour-coated ware fabrics appear for the first time, and in some quantity, and shell-tempered wares occur at more than the occasional sherd level. The Horningsea grey wares included fifteen rim sherds of class SJ2, with bifid rims, compared to just four of class SJ1 with simple everted rims, the former type first appearing in the Antonine period. Third-century (or later) types are represented by three incipient beaded and flanged bowls (R02 B6.3, Fig. 3.12) and later 3rd- to 4th-century types by four developed beaded and flanged bowls (R02 B6.1 and B6.4, Fig. 3.12).

The Nene Valley material is dominated by beakers, some twenty, compared to three lids, a single jug, and a bowl. This functional composition, like the date ranges of many of the beakers, suggests a date range centred on the earlier part of the 3rd century, but two funnel-necked beakers (F01 BK5.1) are of later 3rd- to mid 4th-century date. The

non-beaker forms, a jug (F02 JUG1.1) and a Dr 36 copy dish (F01 B1.1) are both types that appear fairly early in the 3rd century, well before most of the other tableware types.

Mortaria in this group consist of a Colchester vessel (M05 M1.1), beaded and flanged with a cordon at the distal end of the flange, of later 2nd-century date; two Mancetter-Hartshill wall-sided mortaria with cordons at top and bottom (M02 M1.1), probably *c.*AD 200–220; three vessels in M21, probably of Horningsea origin, a beaded and flanged mortarium with a high bead and outcurving flange (M21 M1.1), and a wall-sided mortarium, grooved, perhaps a copy of a Colchester form (Hull 1963, type 501), perhaps dating to the later 2nd to early 3rd century (M21 M2.1), along with three Nene Valley mortaria with a reeded flange and distal bead (M03 M1.1) dated 3rd to 4th century. The date distribution amongst the mortaria rather neatly represents that of the group as a whole. It appears to start in the mid-late Antonine period and peak in the earlier decades of the 3rd century, before continuing to at least

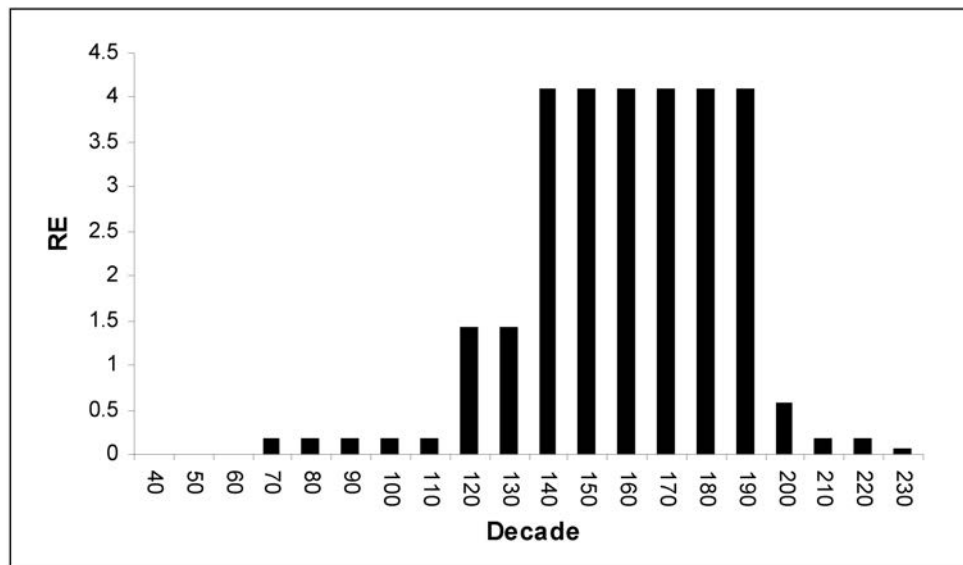


Figure 2.9 Waterbeach, Old Tillage. Date distribution plot of rim sherds from Phase 4, by RE

the end of that century, if not beyond, but with much lower levels of this later material.

Figure 2.8 shows the date distribution of material from this group plotted by RE. The Antonine peak is probably over-represented and contemporary Antonine to 3rd-century material is not easily separated from residual material or the background spread of long-lived types.

Phase 4 (mid 4th century AD?)

During this phase, the Old Tillage canal was abandoned and allowed to silt up, leaving only a flat shallow drain. A small cremation burial was inserted into the upper fill of the canal. The warehouse also appears to have been abandoned at this time. Only 107 sherds weighing 2.865 kg come from this phase. Amongst this small group, none of the material seems likely to be contemporary. There is a single sherd of samian ware from context 110, a Dr 31 sherd dated AD 150–200. Two sherds of Hadham red ware in this phase may perhaps date to the 3rd century or later rather than earlier. The date distribution plot (Fig. 2.9), shows the entirely residual nature of the rim sherds from this group.

Phase 5 (Post-Roman to post-medieval)

Later activity on the site was most clearly evident from the peat-filled channels in Area III. These were cut into the alluvial deposits of the medieval period and although their function is unknown, were probably for use in water meadows. The later phases of the infilling of the Old Tillage indicate that alluvial/flood deposits choked the channel, backing up from the River Cam to the east. A small drainage ditch was cut along the course of the canal in the post-medieval period. This contained running water and is still present to this day north of the level crossing.

Werrington

Grid ref: TF16640390

Excavated by: NVRC

The site sequence at Werrington (Mackreth 1988) was divided into four periods by the excavators in 1979. Period 1 was dated from the 2nd to 1st century BC to AD 50/60 and consisted of two ring ditches in a sub-square enclosure. Period 2 was dated AD 50/60–AD 100 and

comprised various gullies within the same sub-square enclosure. Period 3 was dated *c.*AD 100–175/200 and saw the sub-square enclosure linked to a surrounding field system and sub-divided by ditches, the excavators suggesting a use as a ‘crew yard’ for cattle stalling in winter. Period 4 was dated AD 300/325+, when the enclosure was replaced with a new ditch system on a similar alignment. Rollo (1988) and Perrin (1988) record 2,747 sherds weighing 56.198kg from the excavations. Further details appear in Digital Appendix 1.

Wimpole Lodge

Grid ref: TL33244 48913

Excavated by: CAU

The site at Wimpole Lodge, examined in 1989, was divided into four phases of Roman activity, followed by an Anglo-Saxon presence of uncertain nature (Horton *et al.* 1994). Phase I was dated to AD 180–240, Phase II AD 240–300, Phase III AD 300–360, and Phase IV after *c.*AD 360. These represent a very tight and detailed chronology for a small site. Excavated remains comprised a series of rural enclosures, field systems ditches, gully and pits. Each phase of Roman activity was represented by a re-ordering of the enclosures, while the Anglo-Saxon remains come from a burial within an infilled Roman ditch. Occupation was continuous, with enclosures set out on similar alignments and respecting earlier structures. The site is one of only a few examples in Cambridgeshire of direct continuity from the end of the Roman period into the early Saxon period. Lucas (1994) reports on 8,699 sherds (101.292kg) of stratified Roman pottery, with a mean sherd weight of 11.6g.

Chapter 3. The Kiln Sites and the Horningsea Type Series

I. Introduction

The Horningsea industry appears to have commenced in the Flavian period and must therefore be considered against the background of the variety of earlier pottery production traditions in the Cambridge region. Production sites located in the vicinity of Cambridge itself are of most immediate relevance and the evidence from these is summarised in Section II below. This is followed by a brief review of other evidence for pre-Flavian pottery production in Cambridgeshire (Section III) before attention is turned to the kilns of the various sites which make up the Horningsea industry, and their products (Section IV). This is followed by the Horningsea fabric and form type series itself (Section V), with a concluding discussion (Section VI) on Horningsea ware dating and distribution patterns. Further details of relevant site sequences (*i.e.* remains other than kilns) are given in Chapter 2, together with summaries of their entire ceramic assemblages.

II. Pre-Flavian Kilns in the Cambridge Area (c. mid 1st century BC to c.AD 70)

Teversham, Greenhouse Farm

Grid ref: TL 48796 59733

Excavated by: CAU

Summary

Some 4.5km east of Cambridge and 2km from the River Cam, where the nearest clay (riverine and Gault) was available, were the kilns at Greenhouse Farm, Teversham (Gibson and Lucas 2002). The site itself is situated on chalk marl and has preceding mid to later Iron Age occupation.

Eleven kilns have been excavated, reusing a late Iron Age enclosure. The kilns are of 'Belgic' type and include a rare twin-flued sunken kiln. The kilns are probably Neronian in date, making them comparable with the kilns at Rushden (Woods and Hastings 1984) and Cherry Hinton (J. Evans 1990a; McKenny-Hughes 1903b).

Kiln types

Table 3.1

The kiln types found at Greenhouse Farm are indicated in Table 3.1. In all the kilns the firing chamber was at or slightly below ground surface, with stoking areas at comparable levels. All the kilns except F309 and those in Group 5 were aligned with their openings to the west, probably to catch the prevailing wind. The Group 5 kilns had probable vents at the back of the chambers. Kiln F238 had opposed flues and stokeholes aligned east and west (Gibson and Lucas 2002, 103–4 and table 1).

The kiln types were compared to the late La Tène types discussed by Swan (1984) and Woods (1974). Three different types of these kilns were identified. Groups 1 and 3, interpreted as surface/semi-sunken kilns with the firing chamber dug slightly into the ground, were equated with Woods' types IA and IIA respectively. Group 4 kilns were possibly of this general type and equivalent to Woods' type IC, but they were on average deeper and could be considered to be fully sunken (two having fired clay linings) and therefore of Woods' Type IIIB/C. The deepest kilns, of Group 5, used the enclosure ditch for stoking. The single Group 2 kiln at Teversham was the double-flued example (F238), which had a double central pedestal. This rare type might also have had origins in the La Tène tradition (Gibson and Lucas 2002, 103–4).

Group	Kiln	Size (m)	Chamber	Lining	Integral supports	Portable supports	Opening	Stoking area
1	F215	1.35 x 0.75 x 0.3	Oval	None	None	Firebars	West	Surface
1	F216	1.4 x 0.4 x 0.17	Linear with extended flue	None	None	-	West	Surface
2	F238	1.5 x 1.08 x 0.42	Oval	Clay	Twin pedestals & ledges/lip	Firebars	East/West	Double pits
3	F239	0.7 x 0.3 x 0.3	Oval with extended flue	None	None	Firebars	West	Surface
3	F315	Dia. 0.7, D. 0.2	Circular with extended flue	None	None	-	West	Surface
4	F308	0.55 x 0.45 x 0.3	Circular	Clay	Ledges/lip	Firebars	West	Pit
4	F309	0.7 x 0.6 x 0.3	Oval	None	None	-	South	Pit
4	F310	0.9 x 0.7 x 0.4	L-shaped	Clay	Ledges/lip	-	West	Pit
4	F312	0.6 x 0.5 x 0.32	Sub-square	None	None	-	West	Pit
5	F250	Dia. 1.02, D. 0.5	Circular	Clay	Ledges	Firebars	East	Ditch
5	F324	Dia. 0.9, D. 0.55	Circular	Clay	Ledges	-	East	Ditch

Table 3.1 Teversham, Greenhouse Farm. Kiln structures (after Gibson and Lucas 2002, table 1)

Kiln furniture

Portable kiln furniture (firebars, oven plates and pedestals) was probably used in all the kilns (except for pedestals in kiln F238). In about half the kilns these items were used in conjunction with ledges in the clay oven walls. Since portable items were reusable, most of what survived was fragmentary, except for a few complete or near-complete firebars and some thinner pieces possibly from floor plates. Meaningful quantification of the different types was not possible (Gibson and Lucas 2002, 103–4).

Kiln products

In broad terms kiln Groups 1 and 2 appeared to be associated with fine wares and Groups 3–5 with coarse wares, although there was variation in the fine ware production, Group 1 kilns being associated with coarser fabrics. Both ware groups occurred in oxidised and reduced versions. The fine ware forms, in a ‘Gallic-Belgic’ tradition, comprised flagon, butt beaker, platter, beaded jar, necked jar, pedestal jar, segmental bowl and cup. The coarse wares were used for forms in a ‘native’ or local tradition: rilled jars, cordoned jars, storage jars and bowls (Gibson and Lucas 2002, 105–6).

Fabrics

The Iron Age and Romanising material from each kiln group is quantified by Gibson and Lucas (2002, 106, fig. 6). All the fabrics are primarily sand/quartz tempered, with various secondary inclusion types, mainly chalk or flint, but including grog in one coarseware fabrics (Q1). The emphasis on sand tempering, as opposed to the use of grog as the dominant south-eastern ‘Belgic type’ tradition (Thompson 1982), was seen as characteristic of the Cambridge area (Gibson and Lucas 2002, 126).

Gibson and Lucas distinguished two late Iron Age Tradition fabrics:

- Q2** Soft irregular fracture, orange to orange-brown, sometimes with grey core; moderate sub-rounded quartz (0.2mm), occasional flint (0.5–1mm), grog and chalk (0.5–1mm).
- Q4** A fabric which is ‘slightly hard, irregular fracture, dark grey-black frequently with red-brown margins or core; moderate sub-angular quartz (0.1–0.5mm), occasional chalk (0.1–0.5mm) and sub-angular flint (>0.5mm).

and five Romanising tradition fabrics:

- Ox 1** Slightly hard, fine-smooth fracture, buff through to orange. Sub-divided into two sub-types on the basis of abundance of inclusions (a) moderate-occasional quartz (<0.1mm) and occasional coarser grains (0.2mm); (b) rare quartz (<0.1mm).
- Ox 2** Slightly hard, fine irregular fracture, from yellow-buff to orange, but usually pale; moderate sub-rounded quartz (0.25mm), occasional fine ironstone (0.1–0.2mm), dark red grog (1 mm). Sub-divided into two sub-types on the basis of abundance of chalk (0.25mm); (a) rare-occasional chalk; (b) frequent chalk.
- Rd 1** Soft, fine-irregular fracture, grey with buff margins; moderate very fine quartz (<0.1mm), occasional sub-rounded quartz (0.2–0.5mm), sub-rounded chalk and sub-angular flint (0.2–0.5mm).
- Rd 2** Slightly hard, irregular fracture, grey with buff margins; moderate-frequent sub-rounded quartz (0.2–0.5mm), occasional to frequent chalk (0.2–0.5mm).
- Rd 3** Slightly hard, fine-irregular fracture; pale grey to buff-grey; moderate sub-rounded quartz (0.2mm), occasional chalk (0.5–1mm)

Some of the reduced handmade material from Greenhouse Farm is very similar to the Horningsea storage jar fabric, although the latter does not usually

include calcareous inclusions; presumably the similarity relates to the use of the same Gault clay bed.

Cambridge, Addenbrooke’s

Grid ref: TL 4625 5535

Excavated by: CAU

Summary

Kilns recently excavated in the Addenbrooke’s area of Cambridge (C. Evans *et al.* 2008) are of very similar date and morphology to those at Greenhouse Farm (see above; Gibson and Lucas 2002). The site itself runs from the pre-Conquest period through to the Antonine period or later, but intense activity seems to cease by the Flavian period and the pottery, brooches and coins all reflect this, with very little of Flavian or later date.

Kiln types

Eleven kilns were excavated, scattered across the site, often associated with existing ditches, as is generally the case with these early kilns (Woods 1974). Evans (C. Evans *et al.* 2008, figs 2.24–2.26) distinguished six types of kilns:

- Type A** Double-flued kilns with integral elongated pedestal or pedestals running along the axis of the kiln. These are correctly observed by the author to be of the same type as Greenhouse Farm F.238 of Group 2. However, at Addenbrooke’s these kilns have ‘six symmetrical pilasters’, a feature not seen at Greenhouse Farm. This early use of pilasters, and the lack of a permanent oven floor, but rather the use of low pedestals, like Swan’s Linwood type kilns (Swan 1984, 122–4), both strongly suggest that this kiln type is the origin for the Horningsea pedestalled kiln without a permanent oven floor.
- Type B** Circular kilns with a large central pedestal and a single flue. These probably used kiln bars and a temporary oven floor.
- Type C** Classic dumbbell-shaped kiln and flue with no evidence of any pedestal, as Greenhouse Farm (Gibson and Lucas 2002) Group 4.
- Type D** Circular kilns with a central pedestal with no surviving stokehole.
- Type E** A pair of kilns with central pedestal sharing a common stokehole, not clay-lined unlike the other kilns.
- Type F** A square kiln with a single stokehole with a shelf around the edge of the kiln with stokeholes in it.

Kiln furniture

Evans (C. Evans *et al.* 2008) reports the recovery of twenty-nine kiln bar fragments from the site, representing at least ten bars all having a rectangular section and bifid ends. Also present were ‘numerous fragments of thin, roughly-made, flat though slightly undulating ‘plates’... These are 5–15mm thick, and often show a slight ‘curl’ at the edge. Due to the fragmentation of the material, the overall size and form of these items is unclear. They have a very hard oxidised fabric with abundant chaff or plant impressions’ (C. Evans *et al.* 2008, 84). These offer a very strong parallel to the grass/chaff tempered plates from the later Horningsea kiln site described below and, as there, were presumably part of the construction of the temporary oven covering, as their oxidised firing also suggests.

The other type of kiln furniture identified comprised irregular slabs of baked marl or clunch more than 40mm thick and usually scorched only on one surface. These were interpreted as ‘some kind of kiln lining or covering, as opposed to freestanding kiln furniture’ (C. Evans *et al.* 2008, 84).

Kiln products

Webley (2008, table 2.21) shows a breakdown of the main types in the kiln fabrics from the Addenbrooke's site. Most of the vessels are jars, the commonest being cordoned, necked jars, followed by rilled necked jars, narrow-necked jars and plain, necked jars. Bowls formed less than a fifth of the assemblage, followed by some lids and occasional beakers. This author (JE) has examined samples of the Addenbrooke's fabrics. Two were noted:

Fabric 1: A handmade reduced storage jar fabric with brown-black core and margins and grey surfaces with common coarse sand temper c.0.3–0.5mm and some flint inclusions c.1–2mm. The fabric seems visually indistinguishable from the Horningsea fabric R021.

Fabric 2: A wheelmade grey ware with buff grey to grey core and grey margins and surfaces with common coarse sand c.0.3–0.5mm. The fabric is indistinguishable from the Horningsea grey ware fabric R02.

Like Horningsea (and Greenhouse Farm, Teversham) the site is on the Gault clay bed which would seem to explain the similarity of the fabrics. Thus for practical purposes the material in this study in fabrics R02 and R021 and R04, should be described as belonging to Horningsea and related fabrics.

Cherry Hinton, War Ditches

Grid ref: TL 484 556

Excavated by: McKenney Hughes (1903) and Lethbridge (1949)

Summary

As is well-known, pre-Flavian or early Flavian kilns were excavated at the Iron Age 'hillfort' known as War Ditches, Cherry Hinton: these were reported on by McKenny Hughes (1903a; 1903b). The site is on the Lower Chalk and the nearest clay source would seem to be a Kimmeridge Clay outcrop about 1.5km to the west, in the area of the modern Cambridge station. A further outcrop of this can be found around 3km south of the site on the Gog Magogs, whilst an outcrop of Gault Clay is available 2km to the north.

Kiln types

Four kilns are illustrated in section by McKenny Hughes (1903b, figs 3, 4, and 5) built into the lowest part of the infilled 'hillfort' ditch, towards its outer margin. The dimensions of the kilns cannot be given accurately since the sections are not scaled, but they seem to range between c.0.43–1m in diameter and between c.0.43–0.98m in depth. Two of the kilns had flat bases and slightly outcurving walls, whilst the others had the form of an inverted bell.

A further kiln was excavated by Lethbridge (1949). This was 'of up-draught type, entirely clay built, and roughly circular in plan. It had an elongated central pedestal, though no evidence of the nature of the pottery-chamber floor seems to have survived. The flue was very short, and the kiln a small one, probably about 3 ft. in diameter' (Hartley 1960, 23). Although this is very different in form from the kilns excavated by McKenny Hughes, the Gallo-Belgic dish copies and 'Belgic' jars suggest that they were broadly contemporary.

Kiln furniture

Three types of kiln furniture are reported from kilns associated with barbotine decorated fine ware (see Evans 1990a):

- a) 'rectangular blocks 11 x 5.5 x 1.75 inches [26 x 13 x 4cm] ... some perforated with holes. They occurred quite irregularly in the packing of the fireplaces; not laid to form a floor or built into the sides, but as if rammed into the clay' (McKenny Hughes 1903b, 474). Swan (1984) identifies these as slab pedestals.
- b) 'roughly squared pyramids 10 inches [24cm] in height, on a base 5 x 5 inches [12 x 12cm] with a top 3 x 3 inches [7 x 7 cm]' (McKenny Hughes 1903b, 474). These are illustrated (McKenny Hughes 1903b, fig. 36) and fall into Swan's class of slightly tapering pillar-like props (1984, 61).
- c) Grass-tempered clay plates 'about half an inch thick and some 10 or 12 inches in diameter' (McKenny Hughes 1903b, 474).

The vegetable-tempered dome plates here find clear parallels in some of the Addenbrooke's kilns of Christopher Evans' (C. Evans *et al.* 2008) types B and E and at the later kiln at Horningsea. That these occur at Greenhouse Farm as well is uncertain, but there are enigmatic references to 'oven plates' occurring in all the kilns, along with firebars and pedestals (Gibson and Lucas 2002, 103).

The props, Type b at Cherry Hinton, find no parallel at either Addenbrooke's or at Greenhouse Farm, nor at Horningsea. Similarly, the rectangular blocks of Type a are not found at the Addenbrooke's kiln site, or at Greenhouse Farm, although some rather similar pieces may come from the Horningsea Old Tillage kiln site (see below).

Kiln products

The fine ware kilns produced a range of globular, necked and carinated jars and beakers, along with some flagons, bowls, dishes and a 'cheese-press' (J. Evans 1990a, figs 4–5). Many vessels were decorated with barbotine ring and dot and panel motifs. There were also some body sherds from painted constricted-necked white ware vessels of the type found at Rushden (Woods and Hastings 1984) which were attributed there to a potter with strong Gallic connections.

Fabrics

All the products are wheelmade and appear in a range of colours from white to buff to orange with occasional reduced examples. Some fabrics are 'clean' whilst others include varying quantities of sand and chalk and occasionally ironstone and grog. However, the dominant tradition was undoubtedly of oxidised firing as white wares or oxidised wares, and the aim on many pieces was to produce contrasting coloured decoration using iron-rich slips in the barbotine to create orange on white patterns. Some of the vessels with oxidised fabrics were white-slipped in order to achieve this.

III. Other pre-Flavian Kilns in Cambridgeshire (c. mid 1st century BC to c.AD 70)

Longthorpe

Grid ref: TL15 98

Excavated by: NVRC

Summary

Some twenty-eight or twenty-nine kilns were excavated at the Claudio-Neronian military works depot at Longthorpe near Peterborough, three being sunken and twenty-five or twenty-six surface built (Dannell and Wild 1987, 62).

Kiln types

The sunken kilns all had circular kiln chambers with a long flue and stokehole. The kiln chamber was clay lined. The temporary kiln floor was made up of wedge-shaped firebars supported by a free-standing central pedestal. Parallels for this were suggested as being characteristic of late Iron Age and early Roman kilns in Central Gaul, but it was admitted that there was little evidence to support a direct connection with this region. The use of a central pedestal was thought to be a feature linking the surface built and dug kilns. In both types of kiln this and the fire bars were considered to be potentially re-usable (*ibid.*, 63).

The surface built kilns had circular ovens up to 1.52m in diameter and were 'set on the contemporary ground surface from which only the topsoil had been removed' (*ibid.*). They had a small stokehole, usually at a lower level than the furnace, often over a partially filled-in ditch, and often lacked a clearly defined flue. Most of these would fall in Woods' (1974) Type IC with some of Type IIIB.

Kiln furniture

The kiln furniture largely consists of small fragments of long square-sectioned firebars, up to 5cm square and often vegetable tempered (J.P. Wild 1987, nos 175–7). An unusual wheel-turned 'mushroom-shaped' ceramic object with pierced walls, in kiln fabric, was tentatively interpreted as the top of a portable kiln-pedestal (J.P. Wild 1987, 114, no. 179).

The sunken kilns contained a free-standing central pedestal made-up of rounded clay bricks luted together. In kiln 1 thick wedge-shaped kiln bars were luted between this and the kiln walls to form what appeared to be a semi-permanent oven floor (Dannell and Wild 1987, 36–9, pls IV–V and fig. 8). The kiln bars measured around 0.46m in length and 0.23m at maximum width. There was very little evidence for the internal arrangements of the surface built kilns apart from a few fragments of square sectioned firebars.

Kiln products

A variety of wheelmade fabrics are described by Dannell and Wild (1987, table VII, 134). Vessels consist of flagons, butt beakers, samian copy platters, occasional Gallo-Belgic platters, bowls, reeded rimmed bowls, cheese-presses, cups, shelly necked jars, and some dishes. 'Gallo-Belgic' elements are not strongly represented, as might be expected on a military site.

Water Newton, kiln in Area 5, sites 11–13

Grid ref: TL117 978

Excavated by: Peterborough Museum

Summary

Perrin (1999, 44–5) reports on a kiln at Water Newton which would appear to be of pre-Flavian date, although it had a sunken circular oven and stokehole, and an early Flavian date is possible.

Kiln type

The kiln chamber seems to have been about 1.5m in diameter, and sunk at least 0.5m below the ground surface, with a circular sectioned stoke-hole, over 1.8m in diameter, sunk to a slightly greater maximum depth (Perrin 1999, fig. 23). Perrin (1999, 39) notes that it was 'clay-lined, with holes for firebars at a depth of 1'8" to 2'.'

Much of the clay wall was burnt red indicating that the kiln had been much used.

Kiln furniture

The report is somewhat laconic concerning kiln furniture, merely noting that 'the stokehole, kiln and surrounding area contained a number of firebars and two kiln-props' (Perrin 1999, 44). The illustrations suggest that the 'kiln props' are portable pedestals and the structural evidence in the kiln wall demonstrated that the firebars would have been of the long, square-sectioned type which ran from the kiln wall to the temporary pedestal, providing a temporary oven floor.

Kiln products

Two main fabrics were present. Shell-gritted ware mainly comprised handmade and wheel-finished large storage in (TSG) fabrics. Curvilinear scoring was used on one vessel and another fragment. Imitations of Gallo-Belgic types consisting of dishes of type Cam 24 (Thompson 1982, type G1–6) and butt-beakers were produced in variably-fired grey ware (Perrin 1999, 44).

Haddon (2003)

Grid ref: TL 1374 9390

Excavated by: OAE

Summary

Excavation revealed a kiln which had been constructed above an infilled Iron Age ditch at this farmstead site (Hinman 2003). The site sequence and other pottery from the site are noted in Chapter 2.

Kiln type

The kiln excavated in 1999 (J. Evans 2003, fig. 28) appears to be of Woods' (1974) type IIIC, with a stokehole larger than the kiln chamber, and dug deeper and having a separate flue. It was located in a characteristic position, with the stokehole cut into the top of a silted-up Phase 1 ditch. The kiln was c.0.55m in diameter and survived to a depth of 0.14m. Its flue was c.0.17m long and 0.2m wide with its base sloping sharply downwards into the stokehole which was 0.37m deep, 0.7m long, and approximately 0.45m wide, aligned obliquely to the flue. The kiln had a surviving *in-situ* burnt clay lining on its walls, although its base had been relaid with a layer of unburnt clay, presumably a refurbishment prior to its next intended firing.

After its final use a set of kiln bars and three complete pedestals had been dumped in the chamber (not collapsed *in situ*). The upper fill of the kiln chamber was a mid to dark grey silty clay with charcoal and fired clay fragments. This was the only fill containing wheelmade grey ware (R22). The stokehole contained most of the substantially complete pottery vessels along with fragments of kiln bars, both in shelly and other fabrics (in contrast to the deposit of kiln furniture in the kiln chamber which was exclusively in shelly fabrics and nearly all complete). The complete pieces could well represent a working set of kiln furniture deliberately buried in a kiln chamber in the autumn to store it and protect the kiln structure until the spring, or it could represent a ritual deposit. It does, however, represent more than a single set of kiln furniture, as only a single pedestal would have been used in the kiln. In addition, the kiln bars are of differing ages; most are

Phase	% in Phase	Fabric	Oxidised	Reduced	Phase total
2	73.9	'Clean' with occas lime	3	0	85
		'Clean' with organics	3	7	
		Organics and lime	13	1	
		Shell	57	1	
3	8.7	'Clean'	2	3	10
		Organics and lime	4	0	
		Shell	1	0	
4	12.2	'Clean'	1	2	14
		'Clean' with occas lime	0	1	
		'Clean' with organics	0	1	
		Organics and lime	5	4	
5	3.5	'Clean'	0	3	4
		Organics and lime	1	0	

Table 3.2 Haddon (1999). Occurrence of kiln bars by phase and fabric (after Evans 2003, table 4.8)

slightly used, some quite heavily used and some probably unused (Swan 1984, 37).

Kiln furniture

Some 179 fragments of kiln furniture were recovered from the site. This is quite exceptional for any site of this nature (V. Swan, pers. comm.), and is in marked contrast to the occurrence of only four pieces from the third of the site reported on by Rollo (1994, 96). One-hundred-and-nineteen of the 179 pieces were kiln bars and eight were pedestal fragments. Other fragments included fired clay luting used to secure bar(s) to the pedestal, floor plates (for spanning gaps in the bar flooring, or to aid stacking), and 'dome plates', *i.e.* thin slabs of fired or semi-fired clay (usually oxidised), probably used in the kiln superstructure to 'mortar' turves together and seal gaps (V. Swan, pers. comm.).

There are some sixteen complete kiln bars and four complete pedestals all of which (along with many of the broken bars) came from the kiln, the remaining material being scattered across the site. All the complete kiln furniture from the kiln is shell tempered. Broken kiln furniture in other fabrics also occurred in the kiln.

Kiln bars

Table 3.2

Most of the 119 fragments of kiln bars (J. Evans 2003, figs 29–30) come from Phase 2 contexts (74%) and of these sixty-five (76%) come from the kiln, and twenty (24%) from other contexts. The fragments from contexts of phases subsequent to Phase 2 are residual. The complete shelly kiln bars are cigar-shaped with a square section, tapering at each end (as Woods 1974, fig. 6, F). Their lengths vary between 370–440mm and they are 45–60mm wide, weighing 1.1–2.4kg. The complete kiln bars, with the pedestals, form a set of oxidised shell-tempered kiln furniture (although more than was used in this kiln at any one time) which would seem consistent with the complete and substantially complete shell-tempered vessels in fabrics C14, C16, C17 and C19 (J. Evans 2003) from the kiln.

It is notable that in Phase 2, shelly kiln bars form 68% of the assemblage, but that only 10% of the Phase 3 and none of the Phase 4 and 5 assemblages consist of shell-tempered bars. Thirteen of the shelly kiln bars have indentations or grooves in the ends of the bars; the side indentations might possibly have a purpose in helping to indicate how far they were to be thrust into the kiln wall: certainly they are located at about the point where the bars would have met the kiln wall. That the final 50–70mm of one end of each bar was set into the kiln wall is clear from several examples which are spalled apart from this zone, or where just this one end is reduced (J. Evans 2003, fig. 29, KB11). Overall, shell-tempered bars form 51% of the assemblage of kiln bar fragments.

Examples found outside the kiln clustered in its general area and it would be tempting to suggest that this was the only kiln on the site using shell-tempered kiln furniture, but shell-tempered pedestal fragments of a different form from those recovered from the kiln were found in a more distant ditch, suggesting the existence of a second unexcavated kiln. These latter pieces came from bars which are much broader than usual (J. Evans 2003, fig. 29, KB03), including a fragment with a rectangular section in a shelly fabric over 60mm wide and 29mm thick (J. Evans 2003, fig. 29, KB04), another piece of rectangular section up to 55mm wide and 31mm thick, the end of the bar being indented, with two indentations on the sides 40mm from the end (the end of the bar beyond these was clearly set in the kiln wall, as the bar is worn and spalled up to this point, but not beyond it).

Four other kiln bar fabrics were found, some oxidised and some reduced (Table 3.2). The second commonest fabric, with fairly fine organic temper voids and some limestone inclusions, is represented by twenty-three fragments (20%). Nineteen of these were oxidised and four were reduced. Their distribution was mainly concentrated in and around the excavated kiln, suggesting they were also used in it or other kilns in the immediate vicinity. However, there is another concentration, admittedly from residual occurrences in later phases, on the north-western edge of the excavation.

The third ranking fabric is 'clean' with no visible tempering. There are eleven fragments in this fabric, amounting to 10% of the overall assemblage. This fabric does not appear before Phase 3 and occurred in Phase 4. Most pieces formed a coherent group concentrated in the north-east corner of the site, and tend to suggest that another kiln was located somewhere in this area. Little can be determined about the spread of this type, although none of the fragments come from contexts associated with the excavated kiln.

The fourth ranking fabric, a 'clean' one with no visible temper apart from some organic temper voids, amounts to 9% of the assemblage.

The fifth ranking fabric is 'clean' with occasional limestone inclusions, the five fragments amounting to 4% of the group. One example is from a different type of kiln bar, thin and very pointed at the end. Vivien Swan (pers. comm.) suggested that this is perhaps from a small specialist kiln, possibly producing fine wares. These finds were all located on the eastern side of the site. Many of the non-shelly fabrics seem to exhibit evidence that the surfaces of the bars had been rolled in 'chaff', presumably to avoid sticking when they were dried and first fired.

Pedestals

Four complete shell-tempered pedestals and four pedestal fragments were recovered from the site (J. Evans 2003, fig. 29). Two appear reduced and six are oxidised. Pedestals are represented in no other fabric. All four complete pedestals come from the Phase 2 kiln and are of rectangular 'oxhide' form (J. Evans 2003, fig. 29, KB07–KB08), that is they comprised a column of sub-rectangular section with sub-rectangular expansions at both ends. They weigh from 3.150kg to 5.925kg, range in height between 250–282mm and have minimum widths of 102–116mm, and thicknesses of 70–74mm. Their form would seem to be most similar to Woods' (1974, fig. 5) type F.

The remaining four pedestal fragments all came from a Phase 3 layer. These were of a slightly different form, of circular, rather than rectangular section, the surviving fragments ranging from a minimum diameter of 65mm to 125mm(+) near the base (J. Evans 2003, fig. 29, KB02). This would seem to be of a form similar to Woods' (1974, fig. 5) types C–D.

Other fired clay and clay plates

Fragments of oxidised fired clay which are probably from the kiln floor come from two contexts in Phase 2, both elements of the kiln. In total there are seventeen fragments. Four reduced fragments come from a Phase 3 context in the north-east corner of the site. These seem likely to be related to the putative kiln here suggested by the distribution of the kiln bar fragments. Oxidised fragments come from Phase 4 contexts in the western part of the site, presumably deriving from the known kiln or possibly from the putative further kiln to its north.

Fragments of very roughly-shaped clay plates come from the kiln in Phase 2. There are twenty-five fragments in oxidised fired clay with occasional shell. Edge fragments suggest a diameter of perhaps 30–40cm. It would appear that these were being used as plates on the oven floor. Vivien Swan (pers. comm.) suggested that these plates were used to overplaster the bars where they rested on the pedestal, thus helping to secure them in

position, and there is an impression in one which matches the dimensions of an 'oxhide-shaped' pedestal end. Vivien Swan also observed that evidence of overplastering of kiln bars is unusual in this type of kiln, although such evidence does come from Longthorpe. In Phase 3 there is a reduced fragment with organics, found in the vicinity of the kiln. In Phase 4 a reduced fragment 21mm thick came from the northern part of the site, and in Phase 5 a reduced fragment 15mm thick was also found in this area, perhaps from the putative kiln nearby. Fragments of fired clay probably used to seal leaks between the turfs were found in contexts on the eastern side of the site.

Kiln products

Seven vessels from the kiln stokehole are complete or comprise unusually large fragments which were probably kiln products. These consist of oxidised shell-tempered vessels C14.1, C16.8, C17.1(x2), C17.2, C19.1, and a class E type E29.1 (J. Evans 2003). These would be classified as LIASG, TSG and RSG in Rollo's (1994) groups. This mixture is clearly not unusual. Perrin (1999, 43–4) published a kiln at Water Newton, of sunken circular form, with shell-tempered wares comprising mainly TSG (see above), but with one vessel of LIASG.

Sawtry, Tort Hill West

Grid ref: TL 17 84
Excavated by: BUFAU

Summary

Remains of three pre-Flavian kilns were excavated at Tort Hill West, Sawtry (Ellis *et al.* 1998). Other aspects of this site are summarised in Chapter 2.

Kiln types

One kiln (F.302) consisted of a firing chamber c.1m in diameter and 0.4m deep, its upper levels removed by later activity, containing ash, charcoal and fired clay including fragments of kiln supports, a short flue and a stokehole to the south, c.0.8m in diameter and surviving no more than 0.1m deep.

Kiln F.180 in the southern part of the site had survived relatively intact (Ellis *et al.* 1998, fig. 8, pl. 4). It comprised the shallow base of an oval oven chamber approximately 1m wide and with its sides burnt by the fire. This opened into a short flue with steep sides and a flat base, c.1.2m long, to the east. Both chamber and flue contained large quantities of daub from the fired clay oven structure, some ash and charcoal, and numerous kiln support bars, a few of which were complete, but very little pottery (Ellis *et al.* 1998, 16).

Kiln F.157/F.165 was near F.180. It consisted of part of the base of a sub-circular chamber, the interior of which was fire-reddened (Ellis *et al.* 1998, figs 8 and 12, plan). It was c.0.4m in diameter and had been severely truncated, and partly destroyed to the north by later activity. Immediately to the east, and on an east to west axis, a broad shallow depression (F.165) was probably the remains of the kiln's flue or stokehole. Clay firebars were recovered (Ellis *et al.* 1998, 16).

Kiln F.302 was of Woods' (1974) type IC and kilns F.157 and F.180 of Type IIA (Ellis *et al.* 1998, 16).

Kiln furniture

Firebars

Hancocks (1998, 87) reports 'four oxidised firebars, two with reduced cores, come from F.302. One was in a very sandy and organic fabric, one in a highly organic fabric with occasional moderate sand and reduced core, and two were also in a highly organic fabric, very coarse, with occasional flint and moderate sand inclusions. Cross-section dimensions varied between 60–65mm by 35–40mm.'

The second kiln (F.180) produced 'Eleven fragments of firebars in various colours... Most were reduced, mid-grey in colour, in a fabric containing fine sand, some organics and lime. The bars were lightweight and carefully moulded. A complete example was recovered with one end scorched where it had been inserted into the kiln wall lining. Three further fragments had burnt ends. All had one flat side where either clay plates or pots rested, and they ranged in width and thickness between 25–35mm. Further firebars were recovered from the flue. These were all reduced, square in section, and ranged in size from 95–140mm in length to 25–30mm in width and thickness' (Hancocks 1998, 87).

The third kiln (F.157/F.165) produced 'Three firebar fragments and a small quantity of fired clay... The firebars were reduced grey in colour, cigar-shaped and were 60–65mm long and 30–35mm by 30–40mm in section. These were very finely made and lightweight... The upper sides were flattened, whilst the remainder were convex. The fabric of all three had a highly organic matrix with sand and flint temper. A further three fragments in a buff-brown fabric came from the kiln flue F.165. Although their lengths varied they were otherwise similar to the firebars from F.157' (Hancocks 1998, 87).

In other features, 'a firebar from ditch F.170 was tapering and cigar-shaped with a square-section profile, reduced grey in colour with a black core. The fabric was highly organic, with coarse grog and occasional flint fragments' (Hancocks 1998, 87). In addition, 'several firebars came from the machine-excavated ditch, F.309. These were more crudely made than those discussed above, although they shared the same shape. The fabric comprised a matrix of dense, highly organic, moderate lime and sand. The firebars were all oxidised and were found in association with Gallo-Belgic oxidised pottery of 1st-century date, implying the presence of an oxidising kiln of that date' (Hancocks 1998, 87).

Dome plate fragments

Hancocks (1998, 88) reports dome plate debris which was 'buff-brown in colour, with burnt-out organic impressions. All the material had a reduced core and a thickness of 5mm.'

Pedestals

'At least six fragments of pedestals with flattened bases and a diameter of c.250mm were recognised from kiln F.180. They were in a mid-grey fabric with organic inclusions and common moderate sand and had a reduced, black, core. Pull marks were visible where the clay had been moulded to form the cylindrical profile of the central pedestal. These appeared to be base fragments formed to sit neatly on a level plane... Fragments of slab-like pedestals came from ditches F.120, F.193, F.198, F.311,

and F.314, all except F.120 near kiln F.302. These fragments differed from the F.180 examples. All were oxidised with a reduced black core, the largest surviving fragment measuring 150mm by 110mm by 60mm. These possibly derive from the unlocated oxidising kiln' (Hancocks 1998, 88–9).

Vented clay floor plates/raised oven floor

Hancocks also reports on fragments of a vent-holed clay plate which may have been designed to sit over the firebars to form the oven floor: 'fragments of a moulded clay plate 220mm long and 80mm thick, with a complete vent hole with a diameter of 45mm and several other partial holes, were found in F.180... The fabric was mid-grey and contained soft, fine sand and lime with some organics. The plate had a smooth, flat upper surface with an outer edge or flange. The lower surface had the impression of a firebar and untrimmed excess clay marking where a cylindrical object had been pushed through the unfired clay to form the vent hole' (Hancocks 1998, 89).

Kiln products

Kilns F.157 and F.180 were associated with reduced wares, a tradition thought to be uncommon before the Neronian period (Woods 1974, 279). Kiln F.302 and an unlocated kiln near F.309 were producing oxidised ware and were considered to be pre-Neronian (Ellis *et al.* 1998, 16). Hancocks *et al.* (1998) assign production in these kilns to the 'Belgic style' early fabrics from Tort Hill West (the fabrics are described in Hancocks *et al.* 1998, appendix 1). It was noted that 'The quantity of E36 and E38 fabrics at Tort Hill West suggests that they were produced at or near the site and this is supported by the kiln evidence, their presence, together with fabrics E21 and E24 throughout the sequence, and the restricted nature of the forms produced' (Hancocks *et al.* 1998, 39). It is equally likely that at least the handmade grog-tempered fabrics (Hancocks *et al.* 1998, fabric P11–17), of a type absent from other sites of this date in the north of the region, were also made here. The forms present here, and probably largely produced here, are discussed elsewhere (Digital Chapter 4.I).

Swavesey, Blackhorse Lane

Grid ref: TL 360688

Excavated by: OA East

Summary

The site at Swavesey (Willis *et al.* 2008) consisted of a few ditches and some La Tène type pottery kilns. One, or possibly two, kilns have been excavated here, on the gravel promontory at the southern fen edge. Given the types of vessels being produced, the relatively high level of handmade vessels and the lack of any Roman material from the site, a pre-Conquest date for these kilns seems most likely, perhaps AD 20–40.

Kiln type

The kiln was figure-of-eight shaped in plan (1.55m long, 0.9m wide and 0.15m deep), with the steep-sided firing chamber to the west. It was lined with smoothed pale yellow clay fired to a depth of 15–25mm. (Willis *et al.* 2008, 53–5).

A second possible kiln (aligned north-west to south-east) lay between the above example and a ditch immediately to its south. The latter contained large

quantities of kiln debris. The possible kiln comprised a flue or stokehole and a pit, possibly the firing chamber, but there was no evidence of firing (Willis *et al.* 2008, 55). Christopher Evans suggests (in Willis *et al.* 2008, 56) that a further kiln was observed on the site by CAU in 1990 but no plan or coherent description is provided, although the recovery of kiln bar ends from the relevant feature makes the identification quite likely.

Kiln furniture

Ten partial kiln bars and a single complete example were found resting on the kiln fill. The ditch to the south of the kiln contained eighteen partially preserved kiln bars and forty-two kiln bar fragments (Willis *et al.* 2008, 55). In total Lyons records ninety-four partial kiln bars and 134 bar fragments from the site, all of the square-sectioned cigar-shaped tapering type. Some sixty-seven examples of clay plates with organic impressions on their surfaces are also described. Lyons discusses these in the context of separating layers of vessels in the kiln, but they are more likely to have been part of the superstructure of the temporary dome, as with the later Horningsea examples.

Kiln products

The Swavesey fabrics are predominantly grog tempered, some 59.9% of sherds having principally grog temper. However, sand-tempered sherds add a major component, with 33.8% of sherds, and there are also small amounts of limestone- and flint-tempered sherds. The forms produced are largely bowls, generally necked bowls, with some jars and storage jars, and very few cups and beakers.

IV. The Horningsea Ware Kilns

Kiln location

Fig. 3.1; Table 3.3

Horningsea ware was produced within an industrial zone stretching for at least 4km along the banks of the River Cam, c.8km to the north-east of Cambridge: kilns, kiln debris and Horningsea ware pottery have been recorded in the vicinity since the 19th century and are associated with a complex system of buildings and enclosures that are largely only known from aerial photographs and geophysical survey. The location of the 23/24 known kilns making up the Horningsea ware production centre appears in Fig. 3.1 and details are given in Table 3.3. Of these, nine (or ten) kilns lie on the eastern (Horningsea) side of the River Cam and fourteen lie on the western side (in the parishes of Waterbeach and Milton).

The Horningsea Eye Hall Farm kiln site lies on a gravel terrace at c.5m OD just above and east of the River Cam (centred on OS Grid TL 497 635). Nearby lay Clayhithe – the ‘landing place on the clay’ (Reaney 1943, 145) – and the local clay source appears to be the Gault clay which outcrops on the Eye Hall Farm site (British Geological Survey sheet 188). The production site probably extended over an area of 12–16ha or more (J. Evans 1991b). As reported in Chapter 2 and detailed below, a further kiln was excavated on the west side of the Cam on the bank of the Old Tillage (formerly known as Car Dyke; see Chapter 1.III) and unexcavated traces of between three and eight other kilns were observed there. South-west of the Old Tillage, but not far distant from it, Trench 44 of the Cambridge Rowing Lake evaluation site produced evidence of two further kilns which were not

excavated (Robinson and Guttman 1996). Peachey (pers. comm. 2010; see now Newton and Peachey 2012) reports two further kilns recently excavated by Archaeological Solutions at No. 12, Pieces Lane, Waterbeach (TL 4987 6560). Other kilns were found further south in Milton, at Penfold Lane and Milton Fen End (Green’s Pits).

The location of the kilns was not marginal land, like that of many minor kiln sites, but a wealthy agricultural area with good water transport links on the Cam and, after it was constructed in AD 140–150, on the Old Tillage. Akeman Street (Margary 1973, Route 23b) runs into Cambridge and north across the fens to Littleport and Denver some 3km north from the Eye Hall Farm site, although again this was constructed after the kiln site had commenced production. The nucleus of production would appear to be at the Eye Hall Farm site since there is evidence for Horningsea pottery production there from the Flavian period (see Horningsea form catalogue and dating below), while the evidence from the Waterbeach site (see below) indicates that this did not begin before the Antonine period.

Constructional details of the kilns are given below, other than for the seven kilns excavated at Eye Hall Farm itself, since these were fully published by Walker (1912) and are therefore only summarised here. Fuel used in the kilns appears to have included willow and gorse, straw and reeds (J. Evans 1991b).

There are no known tile kilns in the vicinity of the Horningsea complex, based on a review of the published data, online grey literature (OASIS), or the online NMR records (ADS). The nearest known tile kiln is just south of Vinegar Hill at Watsons’s Lane in the north of the county (Hill and Lucas 2003). However, the presence of tile from the Old Tillage site in an identical fabric to the Horningsea pottery suggests that there are associated tile kilns within the pottery production site.

Horningsea, Eye Hall Farm

Grid ref: TL 497 635

Excavated by: Walker 1912

Figs 3.2–3.3; Table 3.4

The seven Horningsea kilns found at Eye Hall Farm are well described in Walker’s (1912) excavation report and have been summarised by J. Evans (1991b, table 1). Figures 3.2 and 3.3 provide an idealised plan and section and a reconstruction of one of these kilns, for comparison with the kiln type excavated at Waterbeach Old Tillage (see below) in Figure 3.4. The key features of the kilns (as indicated in Table 3.4) are the absence of any permanent tongue or pedestal and the presence of varying numbers of pilasters built integrally with the kiln walls.

Waterbeach, Old Tillage (formerly Car Dyke)

Grid ref: TL 496 642

Database Site Code: WAT CD

Excavated by: OA East

Summary

Investigations at the Old Tillage canal conducted in 1993 and 1997 revealed the Roman canal and adjacent structures including a possible warehouse and kiln, with further kilns observed in the surrounding area (see Chapter 1.III). The findings are summarised in Chapter 2.II, with details of the excavated kiln being given below.

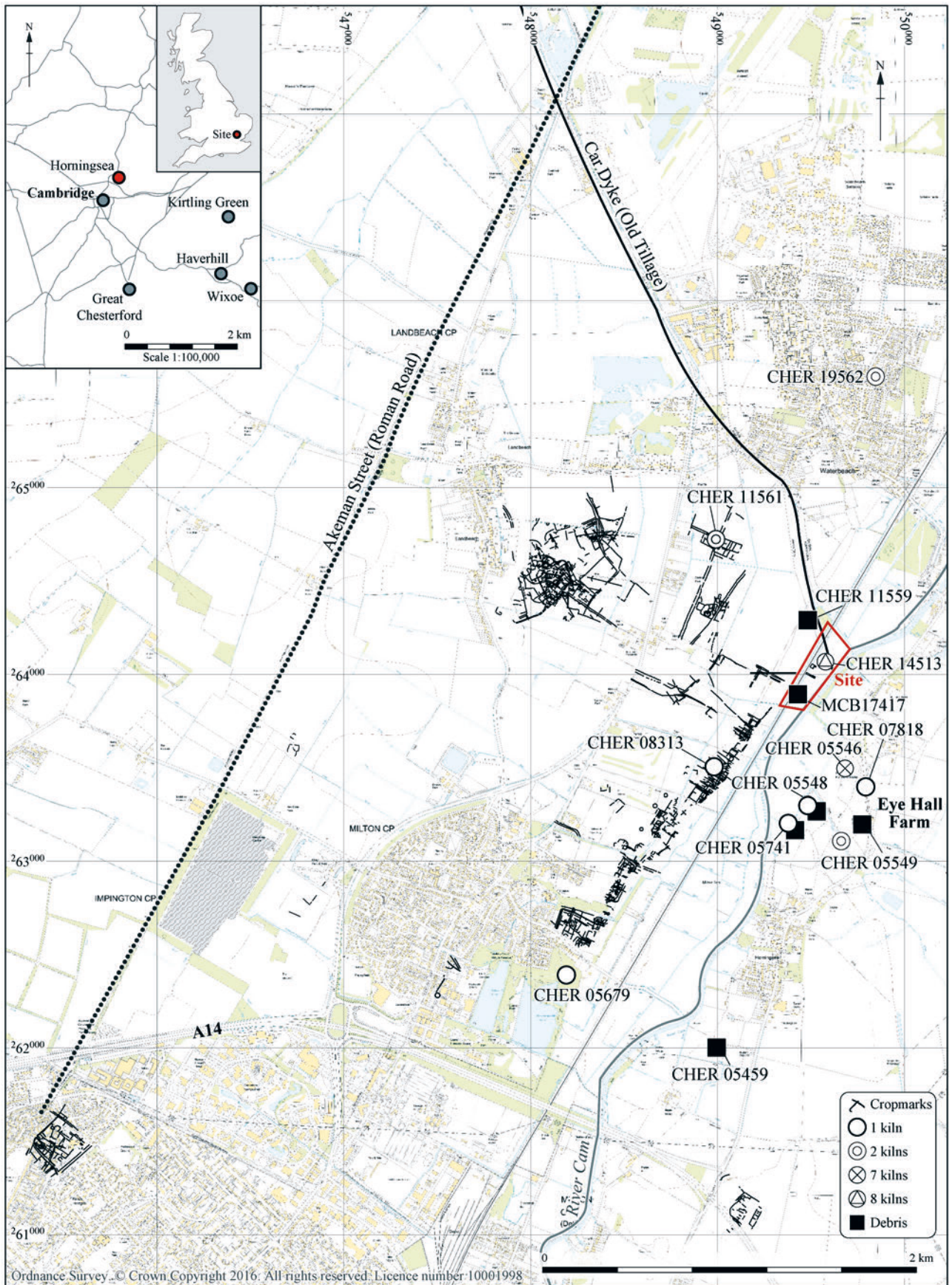


Figure 3.1 Location of the Horningsea and Waterbeach kilns. Scale 1:30,000

Kiln type

Figs 3.3–3.4, Pl. 3.1

The kiln consisted of an oven, stokehole and flue (Fig. 3.4). The kiln oven (104) was oval shaped, 1.74m long, 1.42m wide and 0.98m deep, and was well preserved. Integral to the oven wall were eight pilasters evenly distributed around the perimeter. The kiln lining was very hard and well-baked. There was no evidence of a permanent central pedestal or tongue for kiln bars to rest on and no permanent (or even semi-permanent) kiln roof was detected, rather the infill (107, 119) contained fired clay plates presumably from under a clay/turf roof which was removed after each firing. The stokehole (189) was also oval in shape and measured 0.8m long, 1.7m wide and 0.98m deep. The pits were connected by a broad flue (188) 0.48m long, 0.6m wide and 0.66m deep. The flue arch (187) was still *in situ*.

The kiln oven had a hard-fired clay lining (120=178) of light yellow-brown clay with occasional sub-angular stones and chalk inclusions, attached to which was the flue arch (187), in the form of a moulded clay plate (0.05m thick, 0.6m wide and 0.23m long). The ‘basal’ fill of the kiln (as opposed to the kiln linings) (185 in stokehole 189 = 144 in the oven 104) derived from the final phase of use. This fill was a very dark grey to black clayey silt with frequent charcoal and was 0.36m deep, c.1.07–3.0m long and 0.2–0.4m wide. The layer contained twelve body sherds of wheelmade Horningsea grey ware (fabric R02) and twenty-one body sherds in handmade Horningsea grey ware (R021), mostly burnt and presumably dumped into the pit at the time of abandonment. Above this layer was another debris deposit (186 in 189 = 122 in 104), uniform across both the kiln and firing pit. This was a thin charcoal and ash layer 0.38m deep, 0.4 long and 0.2–0.35m wide and containing a single storage jar body sherd (R021). Deposits 185 (144) and 186 appeared to be the primary fills associated with the final firing of the kiln (*i.e. in-situ* burning), while tip layers above this represent



Plate 3.1 Pre-excitation shot of kiln at Old Tillage, Waterbeach 1997

deliberate infilling of the kiln and stokehole. Above layer 186 was layer 121 which lay across the kiln oven, flue and firing pit, consisting of a light olive brown very fine friable (ash?) sandy silt to a depth of 0.19m (0.75m long and 0.35m deep). It contained some dumped pottery (eight body sherds and one indefinable rim sherd in R02 and twelve body sherds in R021). Above this was a dark grey clayey silt 184, again containing pottery (twenty-seven sherds of R02 including a bowl (Fig. 3.12, B1.1) and a jar (Fig. 3.9, J9.3), and twenty sherds of R021 including a constricted-necked jar (Fig. 3.7, CJ1.1) and two jars (Fig. 3.9, J9.1 and Fig. 3.10, J10.1). The layer was 0.36m deep, 1.07m long and 0.35m wide. Below 121 lay 131, another clay dump, of mixed black and yellow-brown colour. The next tip layer was 183, a dark grey brown silty clay (containing fifteen sherds of R02 including two jar rims (Fig. 3.10, J10.4 and J10.5) and sixteen sherds of R021 including a jar rim (Fig. 3.9, J9.3).

Site name	Location	CHER	No. kilns	Other details	Date excavated/ published
<i>East bank</i>					
Horningsea	TL498 632	CHER 05549	0	kiln debris, found in garden	1911
Horningsea	TL494 632	CHER 05741	1	kiln and debris	1996
Horningsea	TL49 62	CHER 05459	0	kiln debris	1885
Horningsea	TL495 633	CHER 05548	(1)	kiln and debris (or same as previous?)	1996
Horningsea	TL495 633	MCB 17417	0	kiln debris, found in fieldwalking	2006
Horningsea	TL498 634	CHER 07818	1	kiln	1960s
Horningsea, Eye Hall Farm	TL497 635	CHER 05546	7	kilns	1911
<i>West bank</i>					
Milton, Fen End (Green's Gravel Pit)	TL482 624	CHER 05679	1	kiln	1950s
Milton, Penfold Farm	TL490 635	CHER 08313	1	kiln(s)	1990s
Waterbeach	TL495 643	CHER 11559	0	kiln debris	1960s
Waterbeach, Cambridge Rowing Lake	TL491 647	CHER 11561	2	kilns	1990s
Waterbeach, Old Tillage	TL496 642	CHER 14513	8	1 kiln excavated, 2 observed, 5 in surrounding field	1993, 1997
Waterbeach, 12, Pieces Lane	TL4987 6560	CHER 19562	2	kilns excavated	2010
<i>Total</i>			23 (24)		

Table 3.3 The Horningsea pottery kiln sites, indicating those on the western and eastern banks of the River Cam

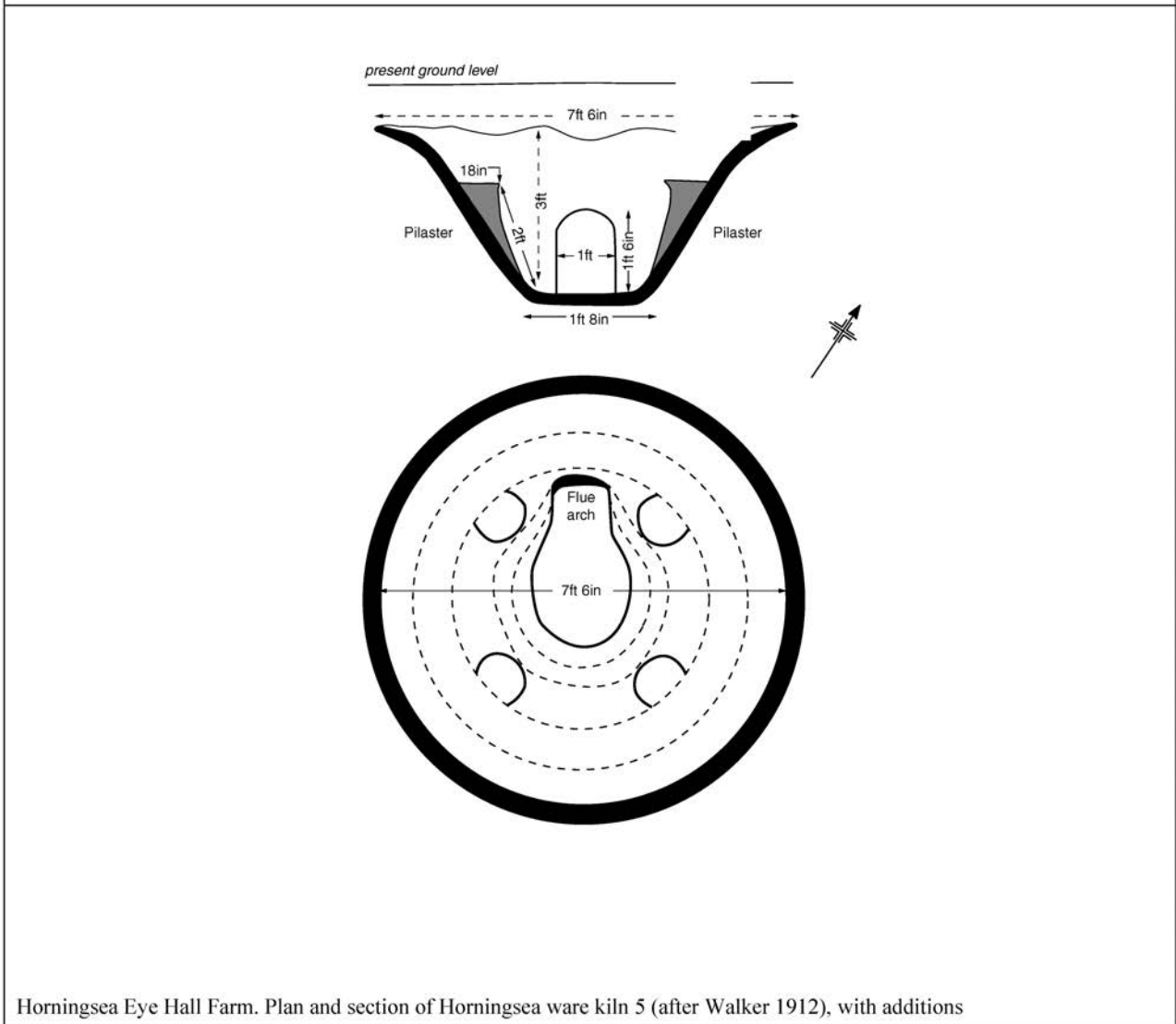
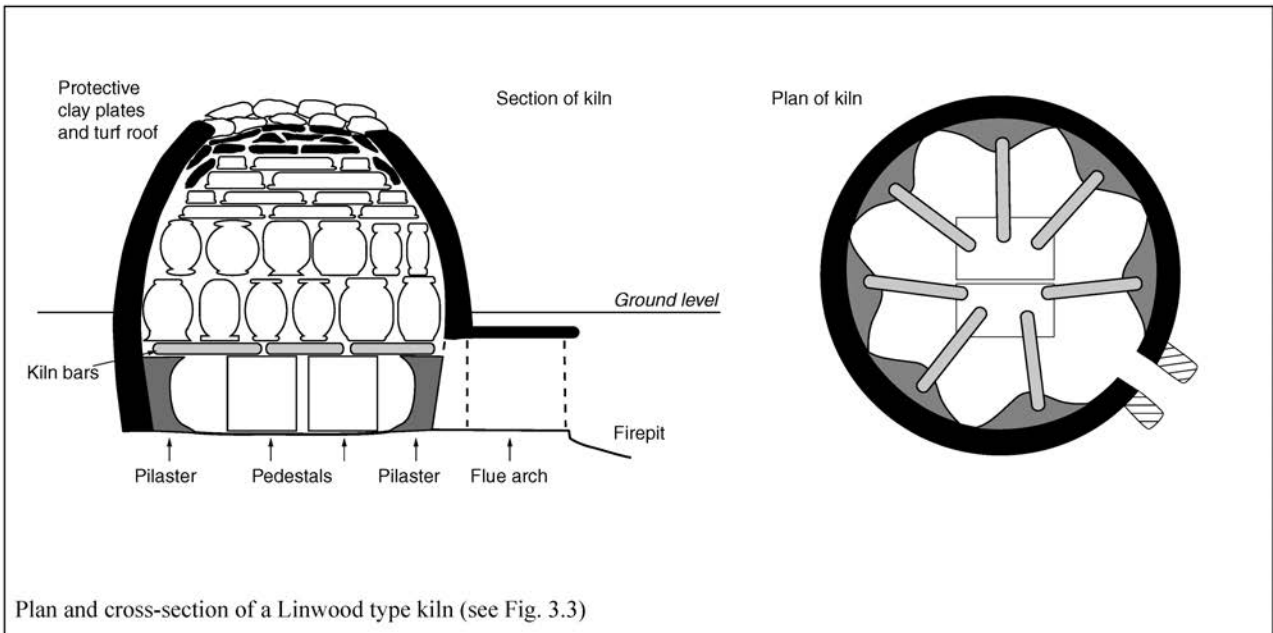


Figure 3.2 Reconstruction of a Horningsea (*cf.* Linwood) type kiln

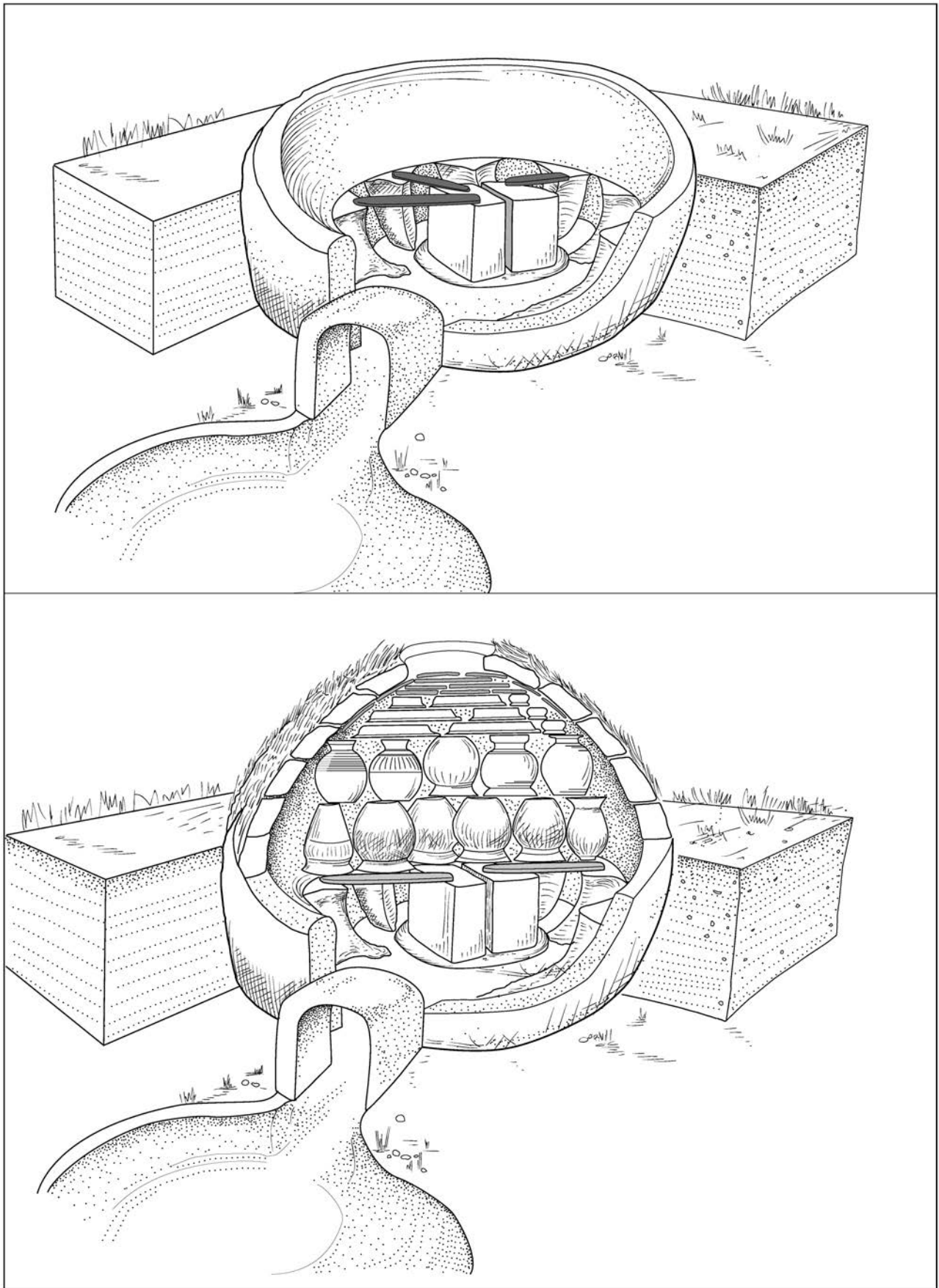


Figure 3.3 Reconstruction of a Linwood type kiln, similar to that found at Waterbeach, Old Tillage

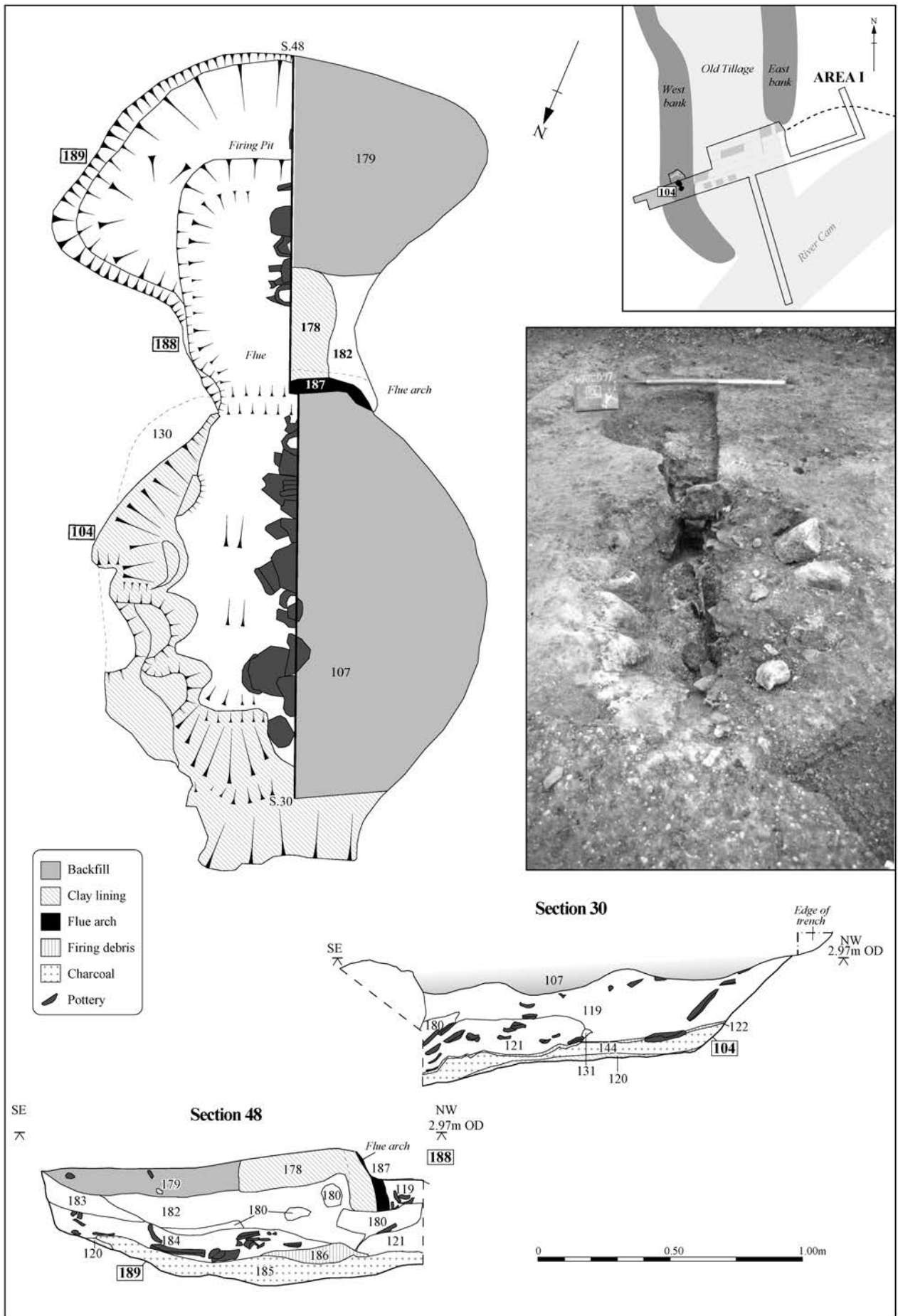


Figure 3.4 Waterbeach, Old Tillage. Plan and sections of kiln 104 (NB orientation reversed to match photograph). Scale 1:20

Kiln No.	Base form	Max base width (m)	Max width (m)	Max depth top to floor (m)	Flue type	Preservation	Flue alignment	No of pillars	Height of flue arch (m)	State of kiln floor	Overlain by	Pillar arrangement	Type of pot in filling
1	Circular	0.90	1.80	0.80	Inserted	Almost complete except top few cm	NW	8	0.23 ±0.05	Burnt to red dust	-	4 opposed pairs	Not stated
2	Circular	0.38	0.90	0.60	Inserted	'Much less perfect' than 1	NW	Uncertain but less than 8	-	-	-	-	Not stated
3	Circular	0.60	-	0.30	Inserted	Upper part destroyed	NW	-	0.23	0.10 thick	-	-	Not stated
4	Circular	0.60	-	-	-	Only part of base & flue remain	NW	-	-	-	3	-	Not stated
5	Ovoid	0.45	2.25	0.90	Integral	Complete	NW	4	0.45	-	-	4 diametrically opposed	Storage jars
6i	Ovoid	-	1.88	1.23	Integral	Complete	NW	4	0.45	Burnt away	6ii & 6iii	-	Storage jars
6ii	Ovoid	-	1.88	0.75	Integral	Complete	NW	4	0.45	Burnt away	6iii	-	Not stated
6iii	Ovoid	-	1.58	0.55	Integral	Complete	NW	4	0.45	-	-	-	Many sherds with lined and criss-cross patterns and 2 miniature vessels
7	Ovoid	0.68	1.95	0.90	Integral	Complete	NW	4	0.60	-	-	4 diametrically opposed	Not stated

Table 3.4 Horningsea, Eye Hall Farm. Kiln structures (after Walker 1912)

Fabric	Clay plate frags		Kiln furniture frags		Kiln lining frags		Pilaster frags		Spacer		Luting		Indet. fired clay		Total
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
D01	282	71.0	37	9.3	15	3.8	3	0.8	21	5.3	0	0	39	9.8	397
D02	55	25.2	17	7.8	24	11.0	10	4.6	0	0	7	3.2	105	48.1	218
D03	100	77.5	0	0	0	0	10	7.8	11	8.5	0	0	8	6.2	129
D04	255	67.3	60	15.8	11	2.9	1	0.3	11	2.9	0	0	41	10.8	379
D05	5	22.7	9	40.9	0	0	0	0	0	0	0	0	8	36.4	22
D06	2	3.9	5	9.8	17	33.3	0	0	18	35.3	0	0	9	17.6	51
D11	1?		0	0	0	0	0	0	0	0	0	0	0	0	1
Indet	2		0	0	0	0	0	0	0	0	0	0	0	0	2
Total	661		128		65		24		60		7		98		1199

Table 3.5 Waterbeach, Old Tillage. Incidence of fired clay fabrics and forms

Above this again was a spread of light olive-brown silty clay (180) dumped throughout the kiln and flue, overlain by a major fill of the stokehole consisting of olive-yellow sandy clay (182) which had been partially fired. This was firm to friable and was 0.24m deep, 1m long and 0.35m wide. Sealing it was a mottled brown sandy clay with charcoal and chalk lumps, with occasional stones (179). It contained pottery (twenty-two sherds of R02 including two jars (Fig. 3.10, J10.1 and J10.5) and twelve sherds of R021 including a storage jar (SJ1.1), and was 0.11m deep, 0.72m long and 0.8m wide, spreading across the top of the stokehole. Within the flue was a charcoal-rich silt fill (119) which contained clay plates, five body sherds of R02 and animal bone. Sealing this was the main kiln oven infill (107), a mixed, dark, grey-brown silty-clay 0.18m deep, 0.65m long and over 2m wide, which contained frequent stones, very large amounts of pottery, frequent fired clay (including many clay plates with organic impressions) and general kiln demolition debris. A considerable quantity of pottery was recovered from fill 107 (Pl. 3.1), and includes a few sherds which are not kiln products. There is a shell-tempered ware jar rim in fabric C12 (J1.2) and a body sherd of Mancetter-Hartshill mortarium (M02), two sherds of O04 and four of Q01 including a jar (J1.1). There was also a Central Gaulish samian ware Dr 33 rim sherd dated AD 150–200. There

were 378 sherds of Horningsea grey ware (R02) including four bowls (Fig. 3.12, B1.1) and two dishes (Fig. 3.14, D1.1), two constricted-necked jars (Fig. 3.7, CJ1.4) along with thirty-three jars (Figs 3.9–3.10, J1.1, J3.1, J9.1 x3, J9.3 x4, J10.1 x8, J10.2 x5, J10.3, J10.4 x4, J10.5, J10.9 x2, J10.12 x2, and J11.2). There were also 253 sherds of the handmade Horningsea fabric (R021), predominantly used for storage jars, forms including a constricted-necked jar (Fig. 3.7, CJ1.5) and twenty-six storage jars (Fig. 3.8, SJ1.2 x13, SJ1.3 x11, SJ1.4 x2). Further comments on the pottery are given in the section on ‘Kiln Products’ below and in Digital Appendix 1.

Kiln furniture and fired clay

Table 3.5

Some 1199 fragments of fired clay (weighing 61.870kg) were recovered from the Old Tillage excavations. This gives an average weight per piece of 51.6g, about twice that of the material recovered from the Cambridge Rowing Lake Trench 44 site (see below). This material is of considerable importance since there is no extant collection of kiln furniture from the previous excavations at Eye Hall Farm (Walker 1912) and the nature of the internal kiln arrangements is not well understood. The great majority of the material (1037 pieces) came from the kiln, as might be expected. The few other pieces come

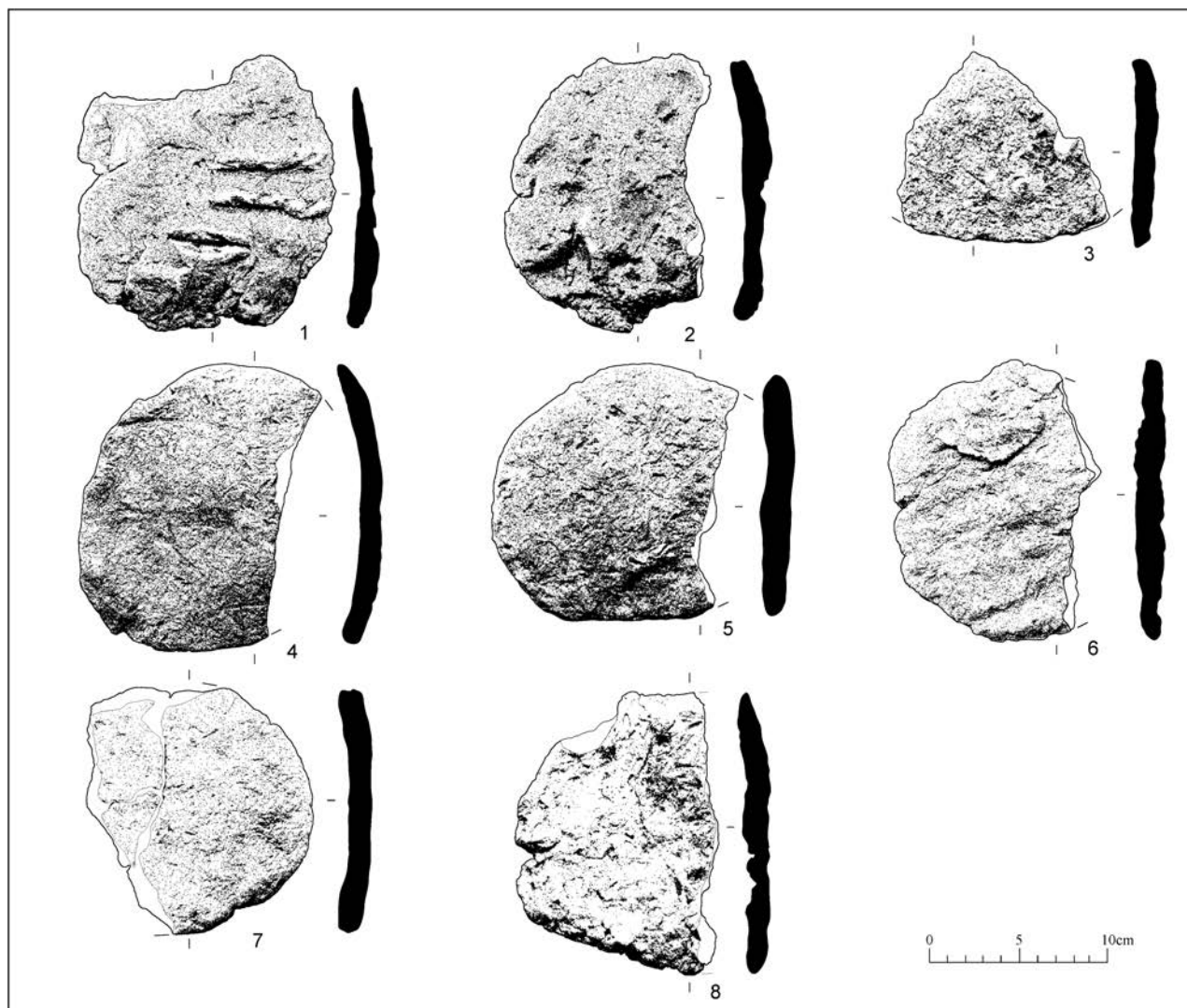


Figure 3.5 Waterbeach, Old Tillage. Kiln furniture. Clay plates. Scale 1:4

mainly from late Roman features where they are likely to be archaeologically residual.

The kiln furniture was roughly divided into seven fabrics; D01 with organic temper voids, D02 which is 'clean' and 'soapy', D03 which is also 'soapy' but with organic voids, D04 which is sandy and reduced, D05 which is a buff sandy fabric with flint inclusions, D06 which is sandy with flint and stone inclusions, and D11 which is a 'clean' buff-white fabric with no sand or organic inclusions.

Table 3.5 shows the incidence of fired clay fragments by fabric group and general form. Over half of all the fragments (including those of completely indeterminate form) are clay plates. These are generally in the range 9–20mm thick and often curve somewhat. The more complete fragments are over 150mm in length and 130mm in breadth. Over half are organically tempered (fabric groups D01 and D03) and the majority of the others have grass or organic impressions on their surfaces. Clay plates are by far the most commonly identifiable group in fabrics D01–D04, the apparent drop in group D02 is because of the very many unidentifiable fragments in that group. They are poorly represented in groups D05 and D06, which contain large stone inclusions, and perhaps represent the raw clay source, used principally for the kiln lining.

Fragments thought to come from pieces of kiln furniture are notably absent from group D03, but occur in the other groups. If groups D05/D06 do represent the basic clay source then it would appear that most of the kiln furniture, like the clay plates, was made with a clay which had at least been cleaned of major inclusions. Pieces likely to come from the kiln walls and floor are relatively common in fabric D06, but also appear in D01 and D02. In contrast pilaster fragments occur in groups D01–D04, suggesting that rather more care was taken in their manufacture than in that of the kiln walls, and that they were being treated like kiln furniture. Fragments listed under the 'spacer' column are irregularly surfaced pieces of fired clay which do not come from clay plates. Their use might either have been in spacing vessels in the kiln load, or perhaps they were just irregular repairs to the kiln covering made as the firing proceeded where gaps appeared. A few fragments which were definitely luting have been identified, but more will have been included in the indeterminate category.

Clay plates

Fig. 3.5

Some 661 fragments of fired clay were identified as coming from fired clay plates (Fig. 3.5). The purpose of these clay plates was well described by Walker: 'In the Horningsea kilns, as appeared to be the case at Farnham, the vessels to be fired would have been piled up from the bottom of the kilns, and fuel – charcoal or wood and grass – built up round the lower tiers, until the pile of pottery reached the necessary height well above, and sloping inwards from, the upper edge of the kiln. Over this was raised a dome by means of layers of grass, straw and reeds, then a layer of roughly circular clay plates, of a thickness of half an inch to one inch, and measuring 6 to 9 inches in width, then more grass, straw *etc.* – these layers of straw and clay plates may have been repeated – and finally earth or clay would have been thrown on outside the erection. This process made what is technically known as a

'smother kiln'. The purpose of this arrangement was to retain the heat, to colour the vessels by means of the fumes from the fuel, and to permit the dome to be taken down easily after each firing, in order to remove the pottery without destroying the kiln. I have seen this method in use in kilns in Sussex forty years ago, and enquiries among potters inform me that this process was followed in many places up to recent times' (Walker 1912, 46).

Other kiln furniture

Fig. 3.6

One-hundred and twenty-eight fragments of fired clay were identified as likely to have come from pieces of kiln furniture (Fig. 3.6, nos 9–13). Around fifty-six fragments seem to come from squat clay bars. A further fourteen fragments seem to come from clay blocks which appear to have sat, freestanding, on the base of the kiln. There are no kiln bars in the traditional pre-Flavian sense of long thin bars which span from a pedestal to the kiln wall, nor anything that could be clearly identified as a pedestal. There are no remnants of any vent-holed permanent oven floor and there can be little doubt that Walker (1912) was right to discount the presence of such a feature in these kilns. It seems possible that the arrangement was like that in Swan's (1984, 122–4) Linwood type kilns, where the gap between two low pedestals was bridged by oven bars but there was no permanent oven floor (see Figs 3.2–3.3). This would fit with an evolution from the type A kilns at Addenbrooke's, which also had integral pilasters on the kiln walls.

As noted above, around fifty-six fragments of kiln furniture seem to come from squat clay bars. If the reconstruction being used here is correct (Fig. 3.2 (top) and Fig. 3.3) then these bridged the two parallel pedestal blocks on the kiln floor as in Addenbrooke's kiln type A or the Linwood type kilns. The *pedalis* tiles, of which there are fragments from the kiln, may have been used for much the same purpose as the bars. Most of the bars are in fabrics D02 and D04.

Around fourteen fragments of pedestal blocks and pilaster fragments were recovered (Fig. 3.6, nos 14–17), mainly in fabrics D04 and D06. About twenty-four fragments from spalled pilasters were also recovered.

Catalogue of illustrated kiln furniture

Clay plates (Fig. 3.5)

- 1–2 Fabric D04, two clay plates in a sandy reduced fabric with organic impressions on the surfaces, 9–12mm thick. Context 104
- 3–5 Fabric D04, fragments of three clay plates in a reduced sandy fabric with organic impressions on surfaces. Context 107
- 6 Fabric D04, a reduced sandy clay plate with organic impression on surfaces, 10–20mm thick. Context 119
- 7 Fabric D01, a reduced organically tempered clay plate fragment with organic impressions, c.12mm thick. Context 184
- 8 Fabric D01, a sub-rectangular clay plate fragment, width c.152mm, thickness 15mm, Max surviving length c.130mm. Context 119

Clay bars (Fig. 3.6)

- 9 Fabric D02, a clay bar end with pale orange core, yellow buff margins and surfaces, large flint inclusions, fairly sandy clay but less sandy than the Horningsea fabric. Width 105mm; depth 68mm, length greater than 174mm, wt 1365g. The surviving end has clearly been luted onto either the pedestal block or the kiln wall. Context 107

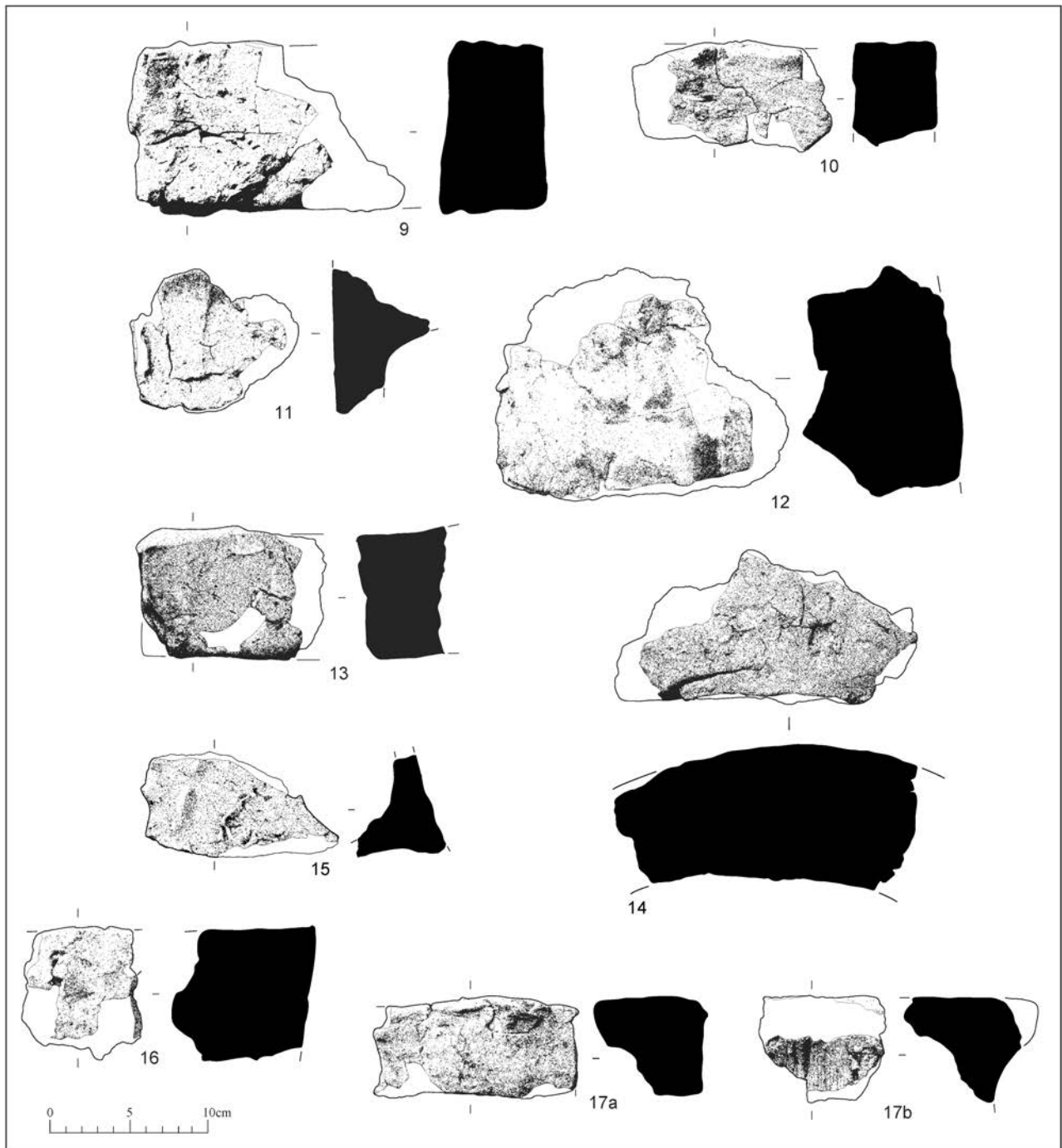


Figure 3.6 Waterbeach, Old Tillage. Kiln furniture. Clay bars and pedestal blocks. Scale 1:4

- 10** Fabric D05, two joining clay bar fragments, surviving length 170mm, thickness 54mm, width of bar greater than 80mm, wt 847g. This appears to be from a thick bar very similar to No. 1. Context 107
- 11** Fabric D02, a piece of luting in an oxidised buff fired clay with some sand, around a rectilinear clay bar which presumably attached it to a vertical surface. Wt 328g. Context 107
- 12** Fabric D02, as No. 3, a piece of luting to attach a horizontal clay bar to a vertical surface, presumably a pedestal block. Wt 252g. Context 158
- 13** Fabric D02, a clay bar fragment, with some large flint inclusions and some luting/overplastering; width of bar over 51mm, depth 73mm, length greater than 110mm, wt 689g. Context 107

Pedestal blocks?(Fig. 3.6)

- 14** Fabric D02, a curving fired clay block, width at base c.60mm, width with over-plastering c.80mm, max surviving length 190mm, max surviving height 93mm, wt 1205g. Perhaps part of a Linwood-type clay pedestal, but portable not integral. Context 158
- 15** Fabric D06, a curving fired clay block in oxidised fired clay with some sand and flint. Max height >150mm, max width >120mm, max length >200mm, wt 1860g This could just be part of a pilaster but the curvature seems too shallow and it has a flat base and appears more to have been part of a freestanding object on the oven floor. Context 9999
- 16** Fabric D06, a buff, oxidised, pedestal block (?) fragment with a flat base and vertical slightly insloping wall in sandy buff clay with some flint and quartz pebbles, max surviving width 63mm, and max surviving length 72 mm, wt 422g. Context 158

17 Fabric D04, two corner fragments (a and b) of a fired clay block(?) in a buff, sandy oxidised fabric with evidence of luting/over-plastering on one surface, max length 215mm, max width 55mm, max height 80mm, wt 829g. Context 158

<i>F</i>	<i>CJ</i>	<i>J</i>	<i>SJ</i>	<i>Bk & Cu</i>	<i>B</i>	<i>D</i>	<i>N</i>
1.1	4.6	52.9	31	2.3	5.7	2.3	87 rims
2.2	10.5	56.4	17.5	4.6	8.3	0.6	1100%

Kiln products

Pottery

Table 3.6

Some 6,954 sherds of pottery were recorded from the site, weighing 120.612kg with an RE total of 6936%. Of these, 6,631 sherds (weighing 115.946kg) were from phased stratified contexts: the material is fully detailed in Digital Appendix 1. Of the total assemblage, 1,210 sherds (36.26kg) relate to the excavated kiln (104) and some are referred to by context in the description above. The presence in the main kiln fill (107) of the Dr 33 and the early bowl form (B1.1), which ends before the mid to late Antonine period, along with the absence of Class SJ2 storage jars, which seem to make their first appearance in the Antonine period, all suggest a date early in the Antonine period, perhaps *c.*AD 150, and fairly certainly before *c.*AD 160.

Table 3.6 shows the functional analysis of material from the kiln, which can be compared with the overall functional analysis of pottery from the entire site (Table 3.9, below). The kiln assemblage is very highly jar dominated, at 83.9% (MNR) and 73.9% (RE), much more so than assemblages from the average basic level rural site. Storage jar levels are particularly high at 31% (MNR) and 17.5% (RE). Consequently table ware levels are particularly low at 8.0% (MNR) and 8.9% (RE), whilst flagons, constricted-necked jars and beakers are in a range that might be expected on basic level rural sites. These figures suggest that this kiln specialised in the production of jar and storage jar forms.

The assemblage of Horningsea wares from the entire site is detailed in general terms in the discussion of Class R below. Illustrated items are catalogued below in the new type series, under the site code WAT CD. Other fabrics from the assemblage are summarised separately in Digital Appendix 1 and illustrated in Digital Appendix 3.

Tile

Table 3.7

The assemblage from the Waterbeach kilns includes a small amount of ceramic building material (CBM) which was examined during cataloguing in 2007. The majority

Table 3.6 Waterbeach, Old Tillage. Functional analysis of pottery from the kiln by percentage of MNR and RE

of this assemblage is in oxidised sandy Horningsea type fabric. The exceptions are a burnt fragment of a 35mm thick shelly brick or tile (457) and a fragment of medieval or post-medieval Ely brick (706).

The majority of fragments recovered are 30–35mm thick with no other extant dimensions but with a length greater than 120mm. These probably came from *pedalis*-sized bricks (usually *c.*290mm x 290mm). A number of examples are pierced with holes *c.*10mm in diameter. Pierced bricks have been noted by Brodbribb (1986) at Holt and by Mills (2006a) at Wigan Grand Arcade bath-house. The idea that such holes were of use in a bath-house has been dismissed by Brodbribb (1986, 42) but he has suggested that they may have originally been used in kilns where they could have encouraged the even circulation of hot air. Other fragments include a piece of a possible roof tile 18mm thick (197) and a possible tegula, with a sanded underside (not observed on the bricks) and a 15mm diameter nail hole. The latter is likely to be dumped debris.

Horningsea CBM has been noted at a number of sites by A. Peachey (pers. comm.), A. Fawcett (pers. comm.) and the present author (PM). Table 3.7 shows the details of various Roman CBM assemblages which have been catalogued in the region. The number of meaningful assemblages of Roman material is very small, and most of this material is residual in larger medieval deposits. Horningsea fabrics are found at Bottisham Tunbridge Lane (Mills 2001e), Cambridge city (Mills 2006b), Harston (Mills 2001b) and Ely (Mills 2001a). No Horningsea fabrics were seen in the assemblage at Letchworth, mirroring the lack of Horningsea pottery at Baldock. Similarly to the north there is no Horningsea tile present in the assemblage at Alwalton. Most of the assemblages comprise roof tile, but flue tile is present in Cambridge city and Ely, as well as the probable brick noted at Waterbeach (above). The assemblage from

<i>OS ref</i>	<i>Site code</i>	<i>Site</i>	<i>Ref</i>	<i>% No.</i>	<i>N</i>
TL53978015	EKS98	Kings School, Ely	Mills 2001a	100	3
TL41905065	HAT422	Harston Mill, Harston	Mills 2001b	30	236
TL51407851	HAT456	Lancaster Way, Ely	Mills 2001c	45	60
TL13619616	HAT366	Minerva Business Park, Alwalton	Mills 2001d	0	34
TL54536095	HAT432	Bottisham, Cambs	Mills 2001e	90	1310
TL21133168	LETC399	High Avenue, Letchworth	Mills 2001f	0	260
TL53008000	BSJ00	Broad Street, Ely	Mills 2006b	100	3
TL 45155 58331	AND92	St Andrew the Great, Cambridge	Mills 2007a	25	1
TL4512458364	GAD05	Grand Arcade, Cambridge	Mills 2007b	100	4
TL 44726 58467	KIN91	King's College Lawn, Cambridge	Mills 2007c	50	2

Table 3.7 Sites discussed with Horningsea ceramic building material present and proportion of overall ceramic building material assemblage, by number

Harston Mill also yielded examples of tegula cutaways, which can be dated from the mid to later 2nd century to the mid 3rd century (Warry 2006, type C).

The association of CBM manufacture with specialist storage jar production is paralleled in Britain by the pink grog-tempered industry in the Midlands (Booth and Green 1989), where a larger range of assemblages suggests that there was a substantial movement of roof tile in at least part of the area serviced by the pottery industry in the late 3rd to 4th century. Indeed across the Roman world as a whole there are a number of possible regional CBM and specialist ceramic suppliers, such as in Frejus, France, the north Adriatic, and Rough Cilicia, which supplied the coastal Levant and some parts of the Syrian hinterland (Mills 2006c).

Discussion: fabric supply at the Old Tillage

Fabric supply at the Old Tillage, as might be expected given that it was a Horningsea kiln site, principally comprises Horningsea grey wares which are totally dominant in the Antonine period (Phase 1) and still account for 85.1% (Nosh) in Phase 3a, dated 3rd to early 4th century. Oxidised wares are rare on the site, but the predominance of fabric O04 at this site and nearby sites, and the analytical results (see Section V below) both strongly suggest that this was produced at Horningsea. It is at least possible that the white-slipped fabric Q01 was also locally produced.

There is also evidence for craft-level mortarium production, in the reduced ware tradition which dominates East Anglia. Some of the forms copy Colchester cream wares and it is possible that a migrant potter came from there. The evidence for mortarium production is limited to the later 2nd to early 3rd centuries. Its scale must always have been small and the fabric is not the dominant one even at this kiln site. The analytical work also suggests local mortarium production, although more samples are required for confirmation of this hypothesis.

Although the site offers a reasonable sequence of Horningsea wares, there is relatively little typological change. Apart from the addition of beaded and flanged bowls, the essentially Antonine product range seems to continue on to the end of the industry in the mid to later 4th century. Thus, attempts to date individual types have somewhat foundered on the intense conservatism of the industry.

Given the arguments that the Old Tillage was a functioning canal (see Chapters 1.III and 5.V), which seem convincing at a structural level, one might expect evidence of enhanced trade along its course. Here, however, things get more problematic. Since the present site was involved in production of coarse wares (in particular), such material from other sources might not be expected in quantity here. However, given that the Old Tillage connects with the Ouse river system and the 'port' at Earith and then with the Nene, one might have expected that Nene Valley colour-coated ware potters would have used this route to exploit markets in the south of the fens: but they did not. The quantity of Nene Valley colour-coated wares, at 3.8% (Nosh), whilst perhaps above the lowest level for a basic level rural site, is not noticeably above that on local rural sites or the urban ones in Cambridge. The positive regression residuals that might be expected from water transport are just not there.

One important implication of analysis of the insect remains (see Chapter 2.II) is that the grain recovered was dehusked and therefore likely to have been destined for military supply. The likelihood that grain transhipment took place here certainly argues strongly for the use of the Old Tillage as a canal, but the ceramic evidence suggests – perhaps surprisingly – that it was not used by the Nene Valley industry. As discussed below it is much more uncertain whether the Horningsea industry used the Old Tillage for its distribution, but it is possible. Further discussion of this issue appears in Chapter 5.V.

Waterbeach, Cambridge Rowing Lake

Grid ref: TL 49 64

Site code: WAT RL 96

Excavated by: OA East

Summary

Investigations at this site revealed Roman farmsteads, extending along the River Cam (see Chapter 2). In one area (Trench 44) two pottery kilns were located but were not excavated.

Kiln type

Both were single-flued kilns with an apparently ovoid chamber. There were clearly further kilns in the vicinity as the chamber of one kiln (694) was cut through a clay dump (693) and a possible disused flue (505). Kiln 694 was aligned north-west to south-east and was about 1.5m along its long axis and 0.9m wide. It had a fired clay lining. It and kiln 712 yielded quantities of Horningsea pottery and fired clay.

Kiln furniture

The main concentration of the fired clay (128 fragments out of a total of 150) came from Trench 44 where the two kilns were located. The quantities from other trenches (between 1–5 pieces spread across eleven trenches) are too low to suggest the presence of kilns in their immediate vicinity, and some fragments are certainly not kiln-related (e.g. a loom-weight). A 5g fragment of Horningsea tile was also recovered from Trench 44.

Five fabrics are present amongst the fired clay from the kilns; D01, D02, D03, D04 and D06. These groupings are the same as those used above to classify the Old Tillage kiln furniture.

In fabric D01 there were fragments of nine fired clay plates, of the type well-known from the Horningsea industry, and eight other indeterminate pieces of fired clay. All of the clay plates had organic impressions on their surfaces. In D02 there were fifty-one fragments of clay plates (10–17mm thick) with organic impressions on their surfaces and a further seventeen fragments without organic impressions, as well as three very small indeterminate pieces of fired clay. In D03 there were 19 clay plate fragments (11–18mm thick) and a single piece which was perhaps for spacing between vessels. In D04 there were ten clay plate fragments with organic impressions on their surfaces. There were also six pieces without organic impressions which might have been spacer pieces and eight indeterminate pieces. In D06 there were six pieces which were probably kiln wall lining, and a piece of daub.

The dominance of clay plates amongst this collection probably reflects the fact that most pieces came from the top of the kiln fills where plates are likely to have been

common since they formed part of the construction of the temporary kiln covering. The pieces from this site were generally fairly small, the average weight per fragment from Trench 44 being just 21.7g.

Kiln products

Some 1,099 sherds weighing 26.053 kg were recovered and recorded from this site. These included 111 rim sherds with a total RE value of 8.12. Grey wares comprise the vast majority of the pottery assemblage, which is detailed in Digital Appendix 1, at 74.8% (Nosh) and 80.6% (Wt). As might be expected most were Horningsea wares which accounted for 73.4% (Nosh) and 80.0% (Wt) of the assemblage. Storage jars were strongly represented here with R021 providing 31.0% (Nosh) of the site total and amounting to 11% of rim sherds. This may suggest some particular emphasis on storage on this site, perhaps relating to the transshipment of goods here, or, as at the adjacent Waterbeach Old Tillage site, an emphasis on the production of these vessels here.

Discussion: Horningsea kilns and kiln furniture

This author (J. Evans 1991b) took Swan's (1984, 121) parallel of the Brampton kilns in the 'Icenian' tradition, with pilasters and a permanent vent-holed floor, as the model for the arrangement of the Horningsea kilns. The evidence from the kiln material excavated from the Waterbeach Old Tillage kiln casts considerable doubt on this. There is no material which might be the remains of a vent-holed floor, nor is there any real suggestion of this from the kilns excavated by Walker (1912). Neither is there material, and certainly not in the appropriate quantity, to suggest a temporary oven floor made up with kiln bars. Again there is no evidence of such from Walker's (1912) excavations either.

As Walker (1912, 46) stated 'Absolutely no trace of the slightest fragment of a pierced shelf or floor which might have rested on these pillars was found either in, or around, the seven kilns, nor was there any possibility of a central pillar, for the support of such a shelf, as was the case in the Shepton Mallet kiln and others of that type. To have reached across from pillar to pillar such a construction must have been of considerable size and substance—4 or 5 feet in diameter. As I either cleared out the kilns with my own hands, or watched and sorted every spadefull thrown out by others, it seems hardly possible that anything of this nature could have been overlooked'. The existing evidence includes some roughly rectangular block-like pieces of kiln furniture (Fig. 3.6) and there are Walker's (1912, fig. 41) 'kiln ring supports'. The former have some parallels with the West Stow (West 1989, figs 63–5) 'kiln bricks', but there are none of the West Stow perforated clay plates which formed the temporary oven floors there. There are some CBM fragments. These are generally 29–35mm thick with lengths greater than 110–120mm. These are likely to be from perforated *pedalis*-sized bricks (usually c.290 x 290mm), some of which have single small holes, but it is very doubtful that these were used to construct an oven floor, and none has evidence of luting.

Walker's (1912) testimony should not be questioned, but rather we should look to the evidence of the block-like kiln furniture and the very revealing evidence from Addenbrooke's and Greenhouse Farm, to find a kiln arrangement similar to that of the Linwood-type kilns. Swan (1984, 122) described this type as 'characterized by

two long, roughly parallel clay or stone blocks, positioned centrally on the flue axis... and usually occupying a substantial part of the kiln chamber. The gap between these was normally spanned by stone slabs or square-sectioned, roughly rectangular clay bars, sometimes perforated'. The block-like kiln furniture could derive from prefabricated furniture in a 'Linwood-type' arrangement on the kiln floor, related to the earlier Addenbrooke's type A kilns with their integral parallel blocks of Linwood-type, and equally to the Type 2 kiln (F.238) at Greenhouse Farm. In these and the Linwood-type kilns, bars would probably cover the parallel blocks but there would be no oven floor as such (Fig. 3.3).

Another type of kiln furniture described by Walker (1912, 51, fig. 41) consisted of a few curving 'kiln ring-supports' a pair of which were recovered seated one upon the other. These would also seem, like the kiln blocks, to be providing a little space above the kiln floor upon which the load could be stacked, enabling the circulation of flue gases round the load.

Pilasters are an unusual and distinctive element in the construction of the Horningsea kilns. It would seem likely, as Corder (1958) suggested, that they helped to create turbulence and circulate gases in the kilns. The early Antonine date of the kiln excavated at Waterbeach provides a *terminus ante quem* for the emergence of this feature of the Horningsea kilns. Swan (1984, 85) provides parallels for the use of pilasters at Morley St Peter kiln III in Norfolk and Dragonby kiln 4 in Lincolnshire as early as the late Neronian–early Flavian period, but both of these examples are accompanied by permanent vent-hole oven floors, for which there is no evidence here. However, the pre-Flavian Addenbrooke's type A kilns, with their double integral low axial blocks and pilasters, seem to provide a much closer parallel and it would seem that the Horningsea kiln design was an evolution from this design and Type C there.

A key feature of the Horningsea kilns was the very large number of fired clay plates, very often with organic impressions on their surfaces, and often with organic temper. Walker (1912, 50) notes 'Some hundreds of these roughly-shaped clay plates were picked up in and around the kilns'. Their use was in forming the temporary dome over the kiln load. Walker's (1912, 47) description of this has been quoted above.

V. Horningsea Ware Fabrics and Forms

Fabrics

Fabric types

This author (JE) has abandoned previous attempts (J. Evans 1991b) to sub-divide the Horningsea grey wares on the basis that sub-divisions represent no more than points on a continuum. This is reflected in the use of a single code (HOR RE) in the national Roman pottery fabric reference collection (Tomber and Dore 1998, 116). Three fabric groups have been used in this study:

R02 Horningsea grey ware. A reduced wheelmade fabric with a dark grey core, margins and mid-dark grey surfaces, with abundant coarse sand temper c.0.2–0.5mm, and very occasional grey flint up to 4mm. Surfaces sometimes dark grey slipped. Lucas (1997) fabric 39. R02 at Little Paxton is used for both R02 and R021 here.

- R021** As R02 but handmade. This Horningsea group consists mainly, but not exclusively, of storage jars.
- R04** Black surfaced Horningsea grey ware, *i.e.* mainly BB copies. A reduced fabric with a dark grey-brown core, margins and black surfaces, with abundant sand temper *c.* 0.2–0.4mm. Lucas (1997) fabric 44.

Fabric R02 is the wheelmade sandy grey ware, while R021 is the handmade version of this fabric. This latter is used predominantly for the storage jars, but some other vessels also appear to have been handmade. Fabric group R04 was used for the black-surfaced version of the fabric with highly burnished surfaces used for BB2 imitation forms. This attempted division has not been terribly successful as it cannot be recognised well at sites where sherd surfaces are eroded.

Geochemical analysis: Horningsea and other wares

by John Walsh, Philip Mills and Jeremy Evans

Seventy-five samples were selected for Inductively-Coupled Plasma Spectroscopy (ICPMS) chemical analysis. These included twenty-one samples of the main Horningsea wheelmade fabric R02, with ten samples of the handmade variant R021, and six samples of the Black Burnished variant, R04. In addition, there were eleven examples of the oxidised fabric (O04) and one sample each of the Horningsea mortarium (M21) and tile (T51). The number of samples was selected in order to determine the likely spread of the chemical signature for the Horningsea industry. Additionally, five samples of reduced fabric R01 were selected in order to demonstrate the likelihood that this material was from sources other than the Horningsea industry. Four samples were also taken of white ware fabric W02, two of W06 and two of W21 for comparison with nine white ware samples from the Godmanchester kilns (C.J. Evans 2003).

The results of the analysis are presented in detail in Digital Appendix 4. In summary, the ICPMS sampling provides quite a good characterisation of the Horningsea fabrics, and demonstrates, as expected, that they are geochemically the same. Comparison with the red ware samples strongly suggests that fabric O04 is a minor Horningsea product and would seem to suggest that this is also true of the reduced mortarium in M21, although in the latter case more samples are needed. The tile sample also seems to be a Horningsea product, although tile kilns have yet to be located on the kiln site. The preliminary distribution evidence for this tile fabric also suggests a Horningsea origin.

The inclusion in the Horningsea repertoire of fabric O04, with its *Verulamium* white ware related forms, suggests that potters migrated from that centre to other centres in the region apart from the known white ware kilns at Godmanchester (C.J. Evans 2003). Samples from the Godmanchester white ware kilns (C.J. Evans 2003) were compared with white ware site samples from the RGS groups examined in Cambridge. Although a few of these were consistent with a Godmanchester origin, most were not, and a further kiln site producing *Verulamium* region tradition white wares in the vicinity of Cambridge may need to be located. There is no evidence that this should be associated with Horningsea.

Amongst the grey wares it is clear that visually Nar Valley products overlap in range very considerably with Horningsea products, and Peachey (unpublished paper at SGRP Conference, Cambridge 2008) has also suggested that the Nar Valley produced some of the Horningsea form

repertoire. The results from the few site samples examined here suggest that there may be the prospect of a reasonable geochemical separation of the two kiln centres, but sampling of much more material from Nar Valley kiln sites would be needed to confirm this.

The results of sampling of the 'other grey ware' (R01) in comparison with Horningsea were not clear cut. It would seem that part of the range of this group overlaps with Horningsea or that quite a few were misidentified Horningsea products. Further work on geochemically characterising the grey wares from the Godmanchester area in comparison with Horningsea remains an issue for future research.

Forms

Figs 3.7–3.16; Table 3.8

The illustrated form series is presented below. Table 3.8 shows the incidence of form types from some of the groups of more restricted date range. Pre-Hadrianic types such as the carinated bowl (B1.1) seem to have continued into the early Antonine period, as is attested by their presence at the Waterbeach Old Tillage kiln site and a single example from Littleport. A similar range seems to apply to the segmental bowls (Class B2). Apart from B3.5, the corrugated walled bowl, which probably should be later 1st to early 2nd century, Class B3, probably derived from the BB1 flanged bowl, would appear to emerge in the Hadrianic period.

The major change in repertoire of the industry seems to have taken place in the Antonine period when a range of imitation black burnished vessels appears, often made in the fabric variant with black and burnished surfaces (R04). A significant element of this was Class B5, bead rimmed bowls of imitation black burnished type, which emerge at this time. However, these do not seem restricted to the lifetime of the BB2 originals, and appear to remain in production well into the 4th century, being found in numbers in the mid 4th-century Bottisham Tunbridge Hall groups (Peachey 2012). Class B6, the flanged bowls, are, of course, later than this period, presumably emerging in the later 3rd century like their BB1 prototypes, excepting the unusual bowl B6.5 which appears in the Bottisham Tunbridge Lane Phase 3 assemblage. Class B7 seems to be restricted to the preceding period, although occurrences are rare. Class B9, reeded rimmed bowls seem to end before the early Antonine period, as might be expected. Class B10, the straight walled, BB2 copy bowls, appear also in the Antonine period. Class B13, Dr 37 copy bowls, also appear in this period and possibly continue into the 3rd century.

Class D1, simple rimmed dishes, continue from the preceding period and run on through the life of the industry, although they seem much more common in the 3rd and 4th centuries. (Type D1.3 is an Antonine black burnished ware copy.) Class D2 are all Antonine and later BB2 bead rimmed dish copies, which seem to become more common in the 3rd and 4th centuries. Class D3, simple rimmed dishes with a grooved rim, appear in the Antonine period at Castle Hill, and again seem to become more common in later Roman groups. Class D5, reeded rimmed dishes, appear to be restricted to the Flavian–Trajanic period. Class D6 are more bead rimmed BB2 copy dishes with a basal chamfer. These appear in the Antonine period, although whether they continue later is uncertain. Classes D7 and D8 are Gallo-Belgic copy

Form	Evans type	Bottisham, Tunbridge Lane	Teversham, Greenhouse Farm G4-EC2	Waterbeach, Old Tillage MC2-C3	Cambridge, RGS, Group 5 Shrine Ant-EC3	Cambridge, RGS, Groups 6-9 C3-C4	Bottisham, Tunbridge Hall C4 Phase 2	Bottisham, Tunbridge Hall, C4 Phase 3	Bottisham, Tunbridge Hall C4 Phase 4
		N	%	N	%	N	%	N	%
B1.1	15	24	8.6	5	0.9	3	1.1	1	0.4
B1.2				1	0.2				
B2.1	54	2	0.7	3	0.5	1	0.4	1	0.4
B2.2				1	0.2				P
B2.3		1	0.4						
B3.1	59	2	0.7	2	0.3	3	1.1	2	0.9
B3.2		7	2.5	28	4.8	9	3.4	1	0.4
B3.3				1	0.2	1	0.4	2	0.9
B3.4				2	0.3	1	0.4		
B3.5		1	0.4						
B3.7						2	0.8		
B5.1	58	5	1.8	31	5.3	16	6	19	8.1
B5.2	57	2	0.7	18	3.1	3	1.1	5	2.1
B5.3	60	1	0.4	3	0.5	1	0.4	2	0.9
B5.4	56	1	0.4	1	0.2			2	0.9
B5.6						1	0.4	1	0.4
B6.1	52	1	0.4	3	0.5			12	5.1
B6.2	53					1	0.4	1	0.4
B6.3				5	0.8			3	1.3
B6.4				2	0.3				
B6.5		2	0.7						
B7.2	64	1	0.4						P
B7.4		1	0.4						
B8.1	63								
B8.2	61			1	0.4				
B9.1		6	2.2			1	0.4		
B9.2		1	0.4						
B9.3		4	1.4						
B9.5		5	1.8						
B9.6		3	1.1						
B9.8		4	1.4					1	0.4
B10.2						1	0.4	1	0.4

Form	Evans type	Bottisham, Tunbridge Lane	Teversham, Greenhouse Farm G4-EC2	Waterbeach, Old Tillage MC2-C3	Cambridge, RGS, Group 5 Shrine Ant-EC3	Cambridge, RGS, Groups 6-9 C3-C4	Bottisham, Tunbridge Hall C4 Phase 2	Bottisham, Tunbridge Hall, C4 Phase 3	Bottisham, Tunbridge Hall, C4 Phase 4
		N	%	N	%	N	%	N	%
B13.1									
CJ1.1	12			2	0.3	1	0.4	1	0.4
CJ1.2		1	0.4	1	0.2	2	0.8	2	0.9
CJ1.4	14			14	2.4	4	1.5	2	0.9
CJ1.5				2	0.3				
CJ1.6				1	0.2	1	0.4		
CJ2.1				4	0.7				
CJ2.2				1	0.2	1	0.4		
CJ3.1		1	0.4						
D1.1	66	4	1.4	32	5.4	7	2.6	33	14
D1.2	67					1	0.4	1	0.4
D1.3						2	0.8		
D2.1	69	3	1.1	1	0.2	5	1.9	5	2.1
D2.2						2	0.9	2	0.9
D2.3		1	0.4						
D2.4						1	0.4		
D3.1	68, 70			16	2.7	16	6	3	1.3
D3.2		2	0.7			2	0.9	2	0.9
D3.4						1	0.4		
D5.1		3	1.1						
D6.1		1	0.4			1	0.4	1	0.4
D6.2						1	0.4		
D7.1		1	0.4						
D7.3						1	0.4		
D8.1		1	0.4						
D8.2		1	0.4						
J1.1	40	1	0.4	2	0.3	2	0.8	3	1.3
J2.2	38-39					1	0.4		
J2.3				1	0.2				
J2.4						1	0.4		
J3.1	34	3	1.1	1	0.8	5	1.8	1	0.4
J3.2	30	5	1.8			1	0.4		

Form	Evans type	Bottisham, Tunbridge Lane		Teversham, Greenhouse Farm G4-EC2		Waterbeach, Old Tillage MC2-C3		Cambridge, RGS, Group 5 Shrine Ant-EC3		Cambridge, RGS, Groups 6-9 C3-C4		Bottisham, Tunbridge Hall, C4 Phase 2		Bottisham, Tunbridge Hall, C4 Phase 3		Bottisham, Tunbridge Hall, C4 Phase 4		
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
J3.3	33	2	0.7	2	11	2	0.3											
J3.4				2		2	0.3											
J4.2	32									2	0.9	P					P	
J5.1	17	1	0.4			1	0.2										P	
J6.1	45	2	0.7			3	0.5			1	0.4						P	
J6.2	43	2	0.7			2	0.3	12	4.5	8	3.4						P	
J6.4		3	1.1	1	5	2	0.3	2	0.8	1	0.4							
J6.5						3	0.5											
J6.6								6	2.3									
J7.1								2	0.8									
J7.2						2	0.3											
J9.1	18-19	22	7.9			10	1.7	5	1.9	7	3	P					P	
J9.2	22	7	2.5	1	5	7	1.2	7	2.6	4	1.7	P					P	
J9.3	25	4	1.4			7		8	3	2	0.9						P	
J9.4								1	0.4	1	0.4							
J10.1	29	15	5.4	5	26	79	13	25	9.4	29	12	P					P	
J10.10		1	0.4															
J10.12						4	0.7											
J10.13						1	0.2			1	0.4							
J10.14		2	0.7	1	5			5	1.9									
J10.15								1	0.4	2	0.9							
J10.2	23	21	7.6	4	21	32	5.4	19	7.2	7	3							
J10.3		2	0.7			10	1.7	6	2.3	8	3.4	P						
J10.4	44	10	3.6	2	11	29	4.9	17	6.4	17	7.2	P						
J10.5	41	8	2.9			13	2.2	3	1.1	2	0.9						P	
J10.6	31					2	0.3										P	
J10.7	42	10	3.6			6	1	3	1.1	2	0.9						P	
J10.8	28	2	0.7			2	0.3			1	0.4	P						
J10.9	27	3	1.1			3	0.5	3	1.1								P	
J10.10	37																	
J10.11	46																	P
J11.1	26							1	0.4	1	0.4							P

Form	Evans type	Bottisham, Tunbridge Lane	Teversham, Greenhouse Farm G4-EC2	Waterbeach, Old Tillage MC2-C3	Cambridge, RGS, Group 5 Shrine Ant-EC3	Cambridge, RGS, Groups 6-9 C3-C4	Bottisham, Tunbridge Hall C4 Phase 2	Bottisham, Tunbridge Hall, C4 Phase 3	Bottisham, Tunbridge Hall C4 Phase 4
		N	%	N	%	N	%	N	%
J11.2	21,24			1	0.2	2	0.9		
J11.3	20								
J12.1				1	0.2	1	0.4		
J13.1		1	0.4						
J14.1		1	0.4						
J14.2		1	0.4						
J15.1									
L1.1		13	4.7	13	2.2	14	5.3	5	2.1
L1.2		2	0.7	3	0.5	3	1.1	1	0.4
L1.4						6	2.3		
L2.1		12	4.3	4	0.7				
L2.2		1	0.4	2	0.3				
L2.3		1	0.4						
L3.1		1	0.4	1	0.2				
L4.1		1	0.4						
L5.1		1	0.4						
L6.1		1	0.4						
O2.1				1	0.2				
O3.1		1	0.4						
SJ1.1	1-2	4	1.4	4	0.7	4	1.5	3	1.3
SJ1.2	3,9-11	13	4.7	19	3.2	8	3	3	1.3
SJ1.3		2	0.7	14	2.4	4	1.5	2	0.9
SJ1.4				2	0.3				
SJ1.5		1	0.4			1	0.4		
SJ2.1	3-3	1	0.4	2	0.3	2	0.8		
SJ2.2	5-7	1	0.4	19	3.2	2	0.8	9	3.8
SJ2.3	8								
SJ2.4									
N		278		19		589		265	
								2	0.9
								235	

Table 3.8 Numbers of Horningsea rims by form type (and percentage of the assemblage they provide) from groups of restricted date
P = present

dishes and these seem to be restricted to the Flavian–Trajanic period.

The constricted-necked jars seem to be predominantly of Antonine date. Amongst the jars Class J1, the bifid rimmed jars, seem to emerge in the Flavian–Trajanic period, and are found in small numbers thereafter. The related Class J2 seems to appear from the Antonine period onwards. Lid-seated jars in Class J3 appear in the Flavian–Trajanic period and appear not to continue after the end of the Antonine period. The neckless jars J6.1–6.5 appear to originate in the pre-Hadrianic period and continue through the life of the industry. The black burnished imitation everted rimmed jar (J6.6) is an Antonine type and may be restricted to that period.

The cordoned-necked jars with rising rims in Class J9 appear in the pre-Hadrianic period and run on until the end of the industry, although they are more common in the early period. The necked jars with everted and beaded rims, Class J10 (including the Braughing type J10.5) start in the pre-Hadrianic period and seem to continue throughout the life of the industry in some quantity, perhaps representing a quarter or more of all the products.

Lids with beaded rims seem to start in the pre-Hadrianic period and run through the life of the industry. However, all other lid types including simple lids do not appear to outlast the Antonine period, and generally seem to come from sites close to the kiln site. Storage jars with simple everted rims originate at the start of the industry and clearly relate to earlier ‘Belgic’ types. They continue in production until the end of the industry. The cordoned storage jars, Class SJ2, appear in the Antonine period and then continue until the end of the industry.

It is thus clear that, whilst the Horningsea industry had many long-lived types, there was a major change in the production repertoire in the Antonine period, which included both the production of a range of BB2 copy table ware types, and some generic BB1 copies, and the use of black surfaces and burnished fabric which strongly suggests that they were to be sold as generically black burnished wares. This change roughly coincides with the period when the Old Tillage was constructed and the production centre expanded to include the Waterbeach sites around it, though what if any influence this had is unclear. The black burnished ware types being copied were far from widespread in the region, and thus the Horningsea range was not produced to combat competition from BB2 products. That migrant potters were present is a possibility, but the kiln types used by the BB2 potters are not at all similar to the Horningsea ones known to date, and the copies are not so good as to suggest a direct link. Perhaps, rather, the Horningsea potters came across a range of types they liked and which they thought would suit their market.

Decoration

The pottery vessels produced within the Horningsea tradition are largely utilitarian coarse ware storage jars, jars and dishes that were not intended as decorative wares but rather served as functional pots for everyday tasks (see functional analysis discussion in Section V above). Within these categories, however, there are several simple decorative motifs that were commonly used and could be considered typical of the ware.

Fine combing or rilling

Fig. 3.17

Fine horizontal combing or rilling was in use from the beginning of the Horningsea industry and has been recorded on wide-mouthed carinated jars of Flavian date (No. 1). Horizontal combing can also be seen on contemporary 1st-century AD globular Braughing-type jars (No. 2) which continued in use until the late 2nd/early 3rd centuries AD. Post-dating the origin of these early Roman vessels, and perhaps developed from them, were globular jar forms which have narrow bands of rilling on the neck (No. 3), shoulder (No. 4) or body (No. 5) and which were in common use between the mid/late 2nd and 4th centuries AD.

Burnishing

Fig. 3.18

Burnishing – which is achieved by polishing the leather-hard surface of the pot – was another frequently used form of decoration within the Horningsea industry. A particularly common feature on the larger Horningsea globular jars is that the shoulders and rims were area burnished, with narrow cordons on the vessel neck and shoulders embellished with burnished wavy lines, although the lower part of the vessel remained undecorated. Burnishing of this type was in use between the early/mid-2nd century to the mid/late 4th century AD (Nos 6–9).

During the later 2nd century and continuing into the 3rd century, copies of Black Burnished wares became a common product of the industry (BB2; Tyers 1996, 186–8). These vessels, which include jars with everted rims (No. 10) and both beaded (No. 11) and straight-sided (No. 12) dishes, were dipped in a black slip which was then burnished with a range of motifs including cross-hatch, vertical lines and arcs.

Coarse combing

Fig. 3.19; Pl. 3.2

Coarse combing was a decorative technique most commonly used on the large Horningsea storage jars (SJ1.0) which were perhaps the most easily identifiable product of this industry (Evans 1991b, 37). Such combing was commonly executed in the form of irregular lines (No. 13) and arcs (Pl. 3.2), as well as narrow bands of vertical (No. 14) or horizontal (No. 15) combing on the external vessel wall.

It is worthy of note that similar coarse combed decoration can also be found *inside* these large vessels, which is very unusual in a closed form as it would not have been easily seen (Pl. 3.2 lower), indeed some storage jar bases have a radiating combed design, similar to the spokes of wheel, on their inside surface (No. 16). Why these vessels were combed internally is a question that has not been fully resolved. Internal combing is a common find on storage jar sherds which suggests that it was consistently undertaken and may, therefore, have served a practical purpose. It is possible the coarse combing was intended to act as a key – but no examples of an *in-situ* lining (such as pitch) have ever been recorded. Another possible explanation is that the large size and weight of these handmade vessels, some measuring up to 0.6m high, made manufacture difficult and they were therefore combed internally to aid the fixing of the different parts of the vessel (base, body and rim) into one permanent whole

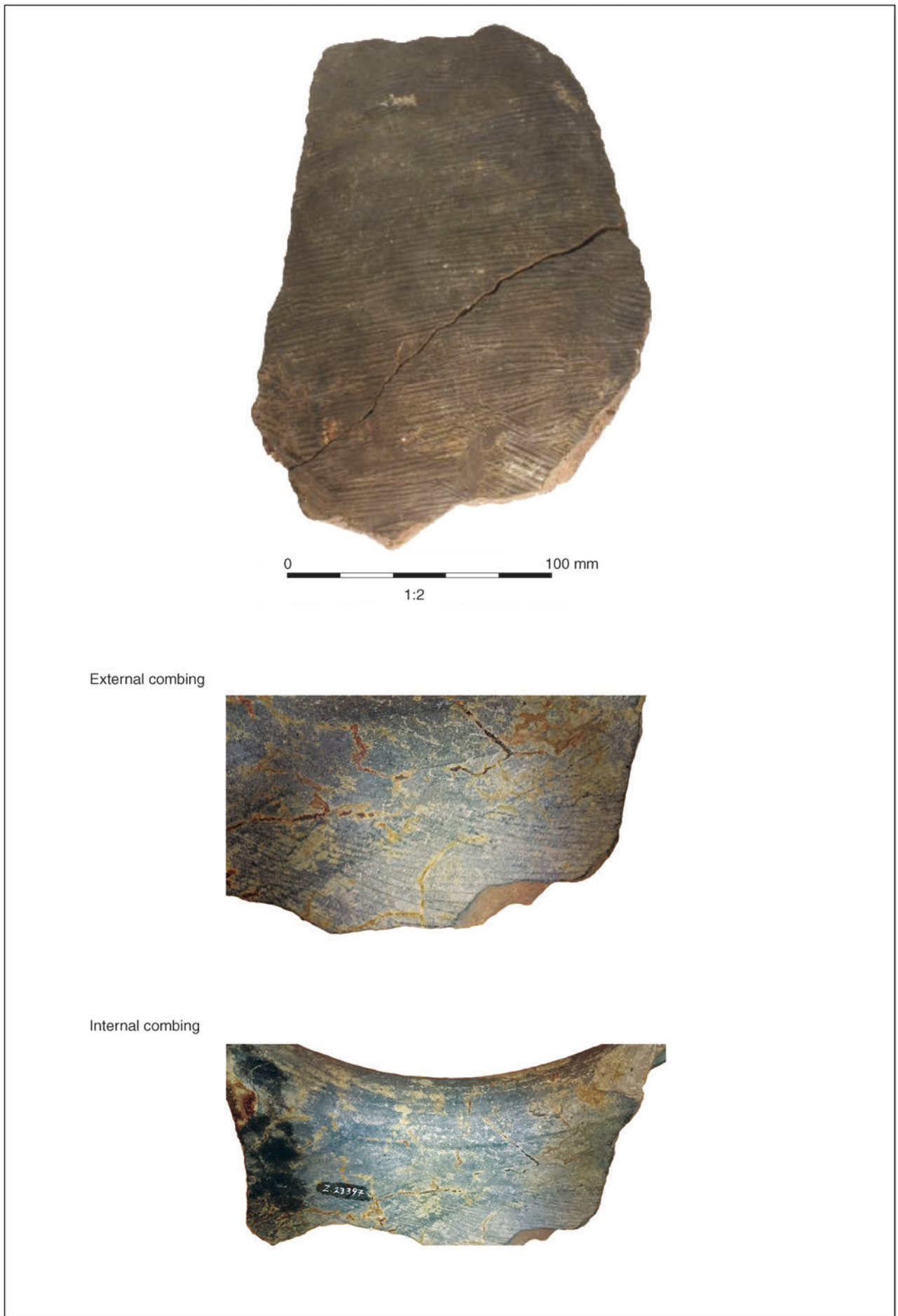


Plate 3.2 Class R, Horningsea ware from Waterbeach, Old Tillage, showing combed decoration

prior to firing. This, however, should not have been necessary if the potter was sufficiently skilled (Sandy Budden-Hoskins pers. comm.) and, if correct, perhaps reflects varying skill levels within the Horningsea potting community. Another possible explanation is that internal combing would have increased the surface area of the inside of the pot which may have aided temperature regulation – keeping the contents of the jar, especially liquids, cool. Equally, however, internal combing would have produced more crevices within which bacteria and insects could have multiplied and so would not have aided the preservation of food stuffs over a long period of time. Future scientific analysis of these vessels may shed light on the primary contents of these jars and the possible purpose of internal coarse combing design.

Incised decoration

Fig. 3.19

Only found on large storage jars are incised herringbone designs, restricted to the lower part of the external vessel wall (No. 17). This distinctive form of decoration is thought to have been carried out with a fine stick and is dated broadly to between the mid/late 2nd century (Antonine) to mid-4th century AD.

Stamped decoration

Fig. 3.19

Stamped and roller stamped decoration has also been occasionally recorded. A rare type of decoration within the Horningsea industry it seems to have been limited to later Roman (3rd to later 4th century) design.

Stamp

by Jeremy Evans

Amongst the collections examined, a single example of a Horningsea ware vessel was stamped. This took the form of a Gallo-Belgic copy dish base in fabric R02 that was found in an early 2nd-century deposit at Teversham, Hinton Fields. The stamp appears to read SACIRAPO although the first and final letters are uncertain. This name was shared with a samian potter whose stamps have been found at Silchester and Castle Cary.

Adapted vessels

by Alice Lyons

Fig. 3.20

At least two jar (Nos 1 and 2) and one storage jar (No. 3) fragments have been trimmed down and can be broadly described as discs; the two jar sherds have subsequently been snapped into halves. While the function of these objects is not certain, a likely interpretation is that they may have been used as gaming pieces or as counting tokens. The trimming down and re-use of broken pottery is not unusual during the Roman period. Comparative local published examples can also be seen from Langdale Hale (Monteil 2013b), as well as Stonea (Jackson 1996).

The Horningsea ware form type series

In the following catalogue, the first line gives the form type (e.g. CJ1.1 – constricted-necked jar, type 1), description and parallels (where relevant), followed by the site code (as used in the project database), trench (where relevant) and context number (bracketed) of the illustrated

example. Previously published examples from Horningsea (J. Evans 1991b), Little Paxton (Jones 2011) and Little Barford (Lucas 1997) are also used, particularly where no examples of the form type were found at the sites included in the project database. The text following the sherd data gives details of examples found from the sites included in this study, as well as chronological information. Note that vessel types in non-Horningsea fabrics (see Digital Appendix 3) are listed differently, in a numerical type order preceded by the fabric code.

Constricted-necked jars

Fig. 3.7

CJ1.0 Constricted-necked jars with straight everted rims

CJ1.1 A constricted-necked jar with a straight, everted rising rim, Evans 1991a, no. 12. Cherry Hinton.

Examples: There are examples from Teversham Group 2, Littleport context 3096, phase 3, MILEW95 context 99. and Cambridge Group 3, RGS VI 3E. There is one from Cambridge Group 5, the late Antonine shrine (RGS IV 11L), and two from the 3rd–4th-century shaft, Group 8 (RGS VI 30). There are also examples from WATCD97 context 184, phase 1, and context 480/481 (unphased).

Date: These suggest currency from the Antonine period to the later 3rd century.

CJ1.2 A constricted-necked jar with a straight, everted, rising rim, slightly cordoned underneath. RGS IV (11G).

Examples: Bottisham Tunbridge Lane Phase 3; MILEW95; RGS Group 5 (RGS IV 11G), the late Antonine shrine.

Date: These suggest currency from the Antonine to the 3rd century. RGS IV (11G)

CJ1.3 A constricted-necked jar with straight, everted rising, squared rim, Evans 1991b, no. 13.

Example: MILEW95.

CJ1.4 A constricted-necked jar with an everted, rising, beaded, slightly undercut rim, Evans 1991b, no. 14. LITCR (3007)

Examples: Teversham Group 2; Teversham Group 3; LITCR Phases 1, 6 and 8; MILEW95 (5); RGS Group 3, Shaft 2, and four examples from Group 5, the later Antonine Shrine, two from Group 6 (Shrine-slump); four examples from WATCD97 Phase 1, and seven examples from Phase 3a; one example from WATRL95 context 470.

Date: Perhaps Antonine to later 3rd century.

CJ1.5 A constricted-necked jar with a fairly vertical neck and horizontal flange rim. WATCD97 (107).

Examples: WATCD97 Phase 1 and unstratified.

CJ1.6 A constricted-necked jar with a squared, beaded rim, cordoned on the shoulder. WATCD97 (119)

Examples: WATCD97 Phase 1; Cambridge late Antonine shrine Group, RGS IV 11B.

Date: Perhaps Antonine to 3rd century.

CJ2.0 Constricted-necked jars with beaded rims

CJ2.1 A constricted-necked jar with a beaded, undercut rim, short neck and cordoned shoulder, cf. Little Paxton (J. Evans 2011) type R02.1. LP92.

Examples: Four from WATCD97 Phase 3a (3rd to early 4th century).

Date: Perhaps Antonine to later 3rd century.

CJ2.2 A constricted-necked jar with a triangularly-sectioned beaded rim. WATCD97 0 (414)

Examples: WATCD97 context 414, unphased; Group 5, the late Antonine shrine RGS IV 11D.

Date: Perhaps Antonine.

CJ3.0 Constricted-necked jars with near vertical rims

CJ3.1 A constricted-necked jar with a near vertical rim grooved below the tip. BOTTLII (110).

Example: Bottisham Tunbridge Lane Phase 3 (Hadrianic–early Antonine).

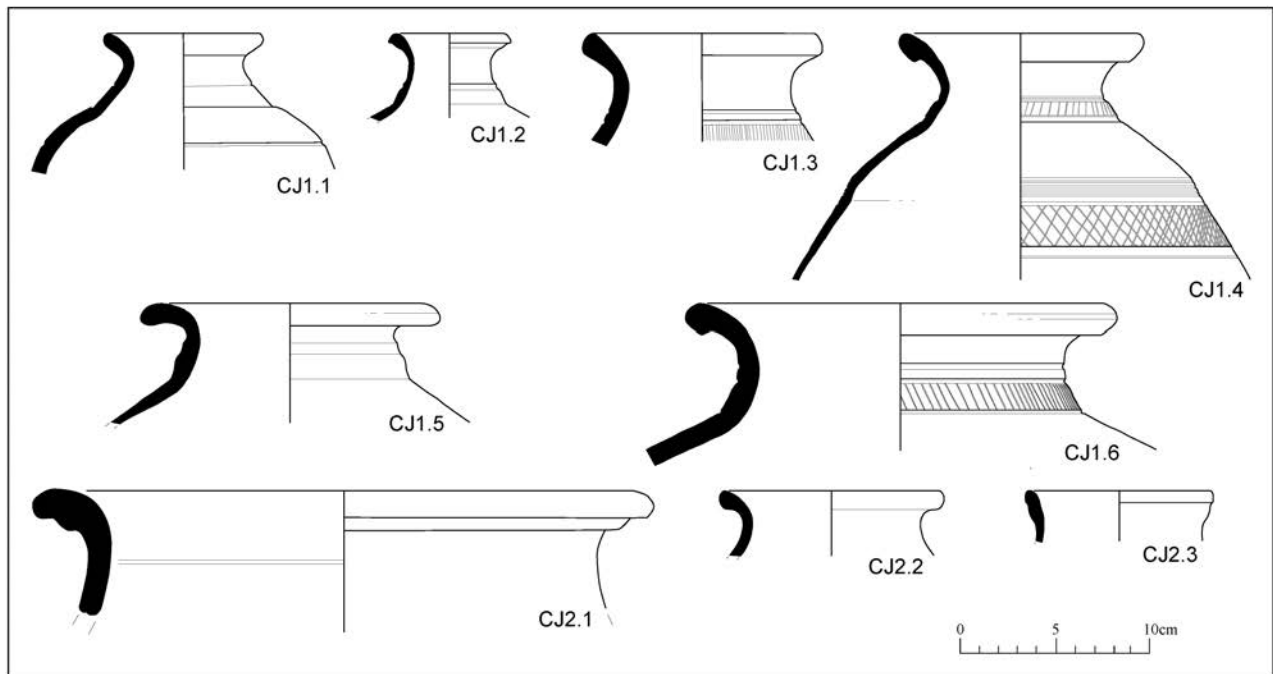


Figure 3.7 Class R, Horningsea wares. Constricted-necked jars. Scale 1:4

Storage jars

Fig. 3.8; Pl. 3.3

SJ 1.0 Storage jars with everted rims

SJ1.1 A large storage jar with an everted, rising rim, *cf.* Evans 1991b, nos 1–2 and Little Paxton (J. Evans 2011), type R02.3.

Examples: 28 examples in the database – Bottisham Tunbridge Lane Phase 3 (3) and Phase 5; Teversham Group 3 (3); LANDCF96 context 86; MILEW95 (2); Milton Kings Hedges Farm (2), Flavian–Hadrianic; Cambridge RGS VI 330 (2, the ‘Claudian’ group in which they are intrusive), Group 5 (4), the late Antonine Shrine, Group 6 (Shrine-slump), RGS VI 110 (2) (Group 9, 3rd to 4th century); WATCD97 Phase 1 and Phase 3a (2); WATRL95 contexts 470 and 1000, TPA. There are also examples from Cambridge (Alexander and Pullinger 1999, pl. CXII nos 776 and 779) from Group 5, the shrine.

Date: The type would appear to emerge early in the life of the industry, and it is of note that class SJ1 is dominant in the predominantly early assemblage from Bottisham Tunbridge Lane, with class SJ2 being only represented by two examples, whereas the latter are commoner on the later sites. A date range of late 1st to mid 2nd century seems fairly secure; the type appears to have continued in production into the 3rd century given the shrine slump examples and those from Phase 3a at WATCD97.

SJ1.2 A large storage jar with an everted rising rim, generally beaded at the tip and slightly undercut, *cf.* Evans 1991b, nos 9–11, and Little Paxton (J. Evans 2011) R02.3.

Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine with much residual earlier material; Teversham Group 3 (5), Antonine–early 3rd century; LITCR Phase 3 (3), Phase 5 and unphased (6); MILEW95 (9); RGS shrine Group 5 (8), later 2nd century, Group 7 (RGS VII 90), and Group 8 (RGS VI 30) (2), both 3rd to 4th century; WATCD97 Phase 1 (15), Phase 2, Phase 3a (2) and unstratified; WATRL contexts 275, 470, and 479. There are also examples from Cambridge (Alexander and Pullinger 1999, pl. LXXII nos 400–402, Flavian–Trajanic and further examples on pl. LXXVI, nos 444–7), from RGS V 14x, Hadrianic–mid Antonine.

Date: This type probably emerged in the Flavian period, and it is clear from the groups that it was current in the Hadrianic period and was still the predominant type in the late Antonine

RGS shrine group, although not in the Group 6 assemblage sealing it. It appears dominant in the WATCD97 Phase 1, but superseded in the Phase 3a group. The type appears, therefore to continue through the Antonine period and into the early 3rd century, but its continuation beyond that is unclear, although its presence in the Bottisham Tunbridge Hall group suggests that it may have continued into the mid 4th century.

SJ1.3 A large storage jar with an everted rising hooked undercut rim. WATCD97 (107). Not illustrated.

Examples: Bottisham Tunbridge Lane Phase 6.1 and unstratified; LITCR Phase 2, and Phase 3 (3); MILEW95; RGS Group 3 (RGS VI 3E), Group 5 Shrine group (4), Group 6 and Group 9 (RGS VI 110); WATCD97 Phase 1 (14); Bottisham Tunbridge Hall.

Date: The type clearly has a Hadrianic–Antonine currency and may extend into the mid 4th century. It may well date back to the Flavian period.

SJ1.4 A large storage jar with a squared undercut, beaded rim. WATCD97 (107)

Examples: WATCD97 Phase 1 (2).

SJ1.5 A large storage jar with an everted rising rim grooved beneath. BOTTLLII (158)

Examples: Bottisham Tunbridge Lane Phase 3; RGS IV 11K, the Group 5 late Antonine shrine.

Date: At minimum a Hadrianic–Antonine date would seem appropriate, but it probably has the same extended range as other types in this class.

SJ1.6 A storage jar with a near vertical rim, cordoned beneath. HTF B NB (F12)

Example: Teversham Group 2, of late 4th-century date.

Date: Given that this type is not closely related to the others in the SJ1 group perhaps a 4th-century date is appropriate.

SJ2.0 Storage jars with bifid rims

SJ2.1 A large storage jar with an everted, bifid rim, grooved on the tip, *cf.* Evans 1991b, nos 3–4. WATCD97 (110)

Examples: Bottisham Tunbridge Lane Phase 2; LITCR Phase 3; MILEW95 (4); Cambridge RGS Group 5 (2), the late Antonine shrine group; WATCD97 Phase 3a and Phase 4 WATRL95 context 1000.

Date: The earliest apparent example comes from context 150 in Phase 2 at Bottisham Tunbridge Lane. However, this also contains a Hadrianic–Antonine samian sherd which was considered possibly intrusive. The other evidence here

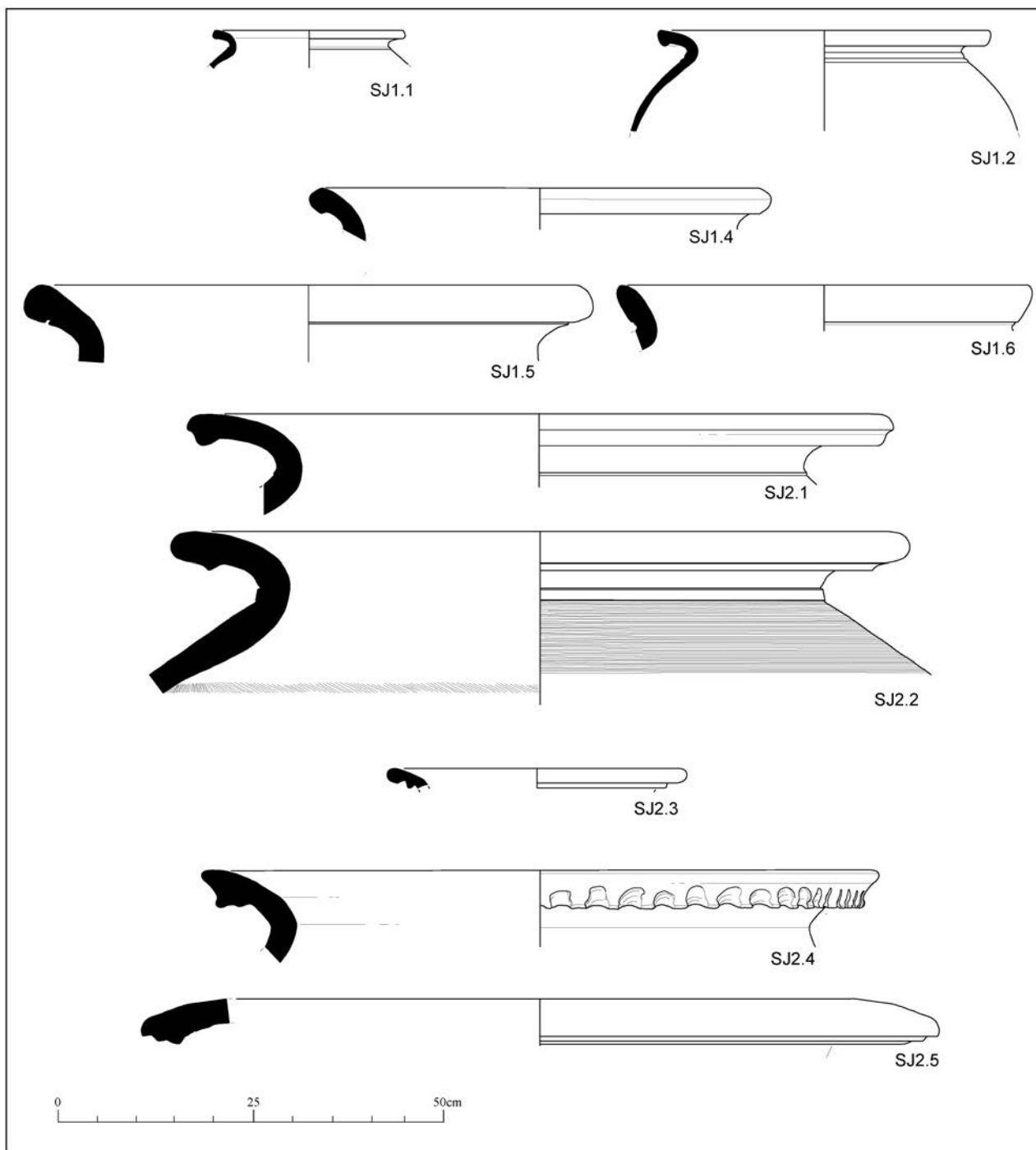


Figure 3.8 Class R, Horningsea wares. Storage jars. Scale 1:8

suggests a much later emergence for this class and type, and this example does appear to be intrusive. It is of note that there are only two vessels of class SJ2 from Bottisham Tunbridge Lane compared to twenty of SJ1 in an assemblage that is largely Trajanic–Hadrianic. Vessels of class SJ2 first appear at Cambridge (Alexander and Pullinger 1999, pl. CXII) in the shrine group. Thus this type, and the SJ2 class as a whole, appears to emerge in the Antonine period and continue into the 3rd century. It is of note that three of the five illustrated Horningsea storage jars from Stonea (Cameron 1996, fig. 158, 107–10 and 113) are of class SJ2 and that Cameron notes (1996, 452) ‘On Nene Valley sites these seem to occur mainly in 3rd-century contexts’. The SJ2 class is found at Bottisham Tunbridge Hall. Perhaps the form dates from the Antonine period to the later 3rd or mid 4th century.

- SJ2.2** A large storage jar with a bifid rim, cordoned below rim, *cf.* Evans 1991b, nos 5–7. RGS IV (11A)
 Examples: Bottisham Tunbridge Lane Phase 3 (Hadrianic–early Antonine); LANDCF96 contexts 91 and 96; MILEW95 (13); RGS Group 3 Group 5 (2), the late Antonine shrine group, Group 6, shrine-slump (8), and Group 9; WATCD97; Phase 3a (15) and unstratified (4); WATRL95 contexts 247, 282, 470 (2), 478, 509, 596, 690, 715 and unstratified.
 Date: A date range from the Antonine period to the mid 4th century seems likely given the presence of the type on the Bottisham Tunbridge Hall site.
- SJ2.3** A large storage jar with a bifid rim, cordon cut out below rim, *cf.* Evans 1991b, no. 8. Horningsea
 There are no examples of this type in the database.

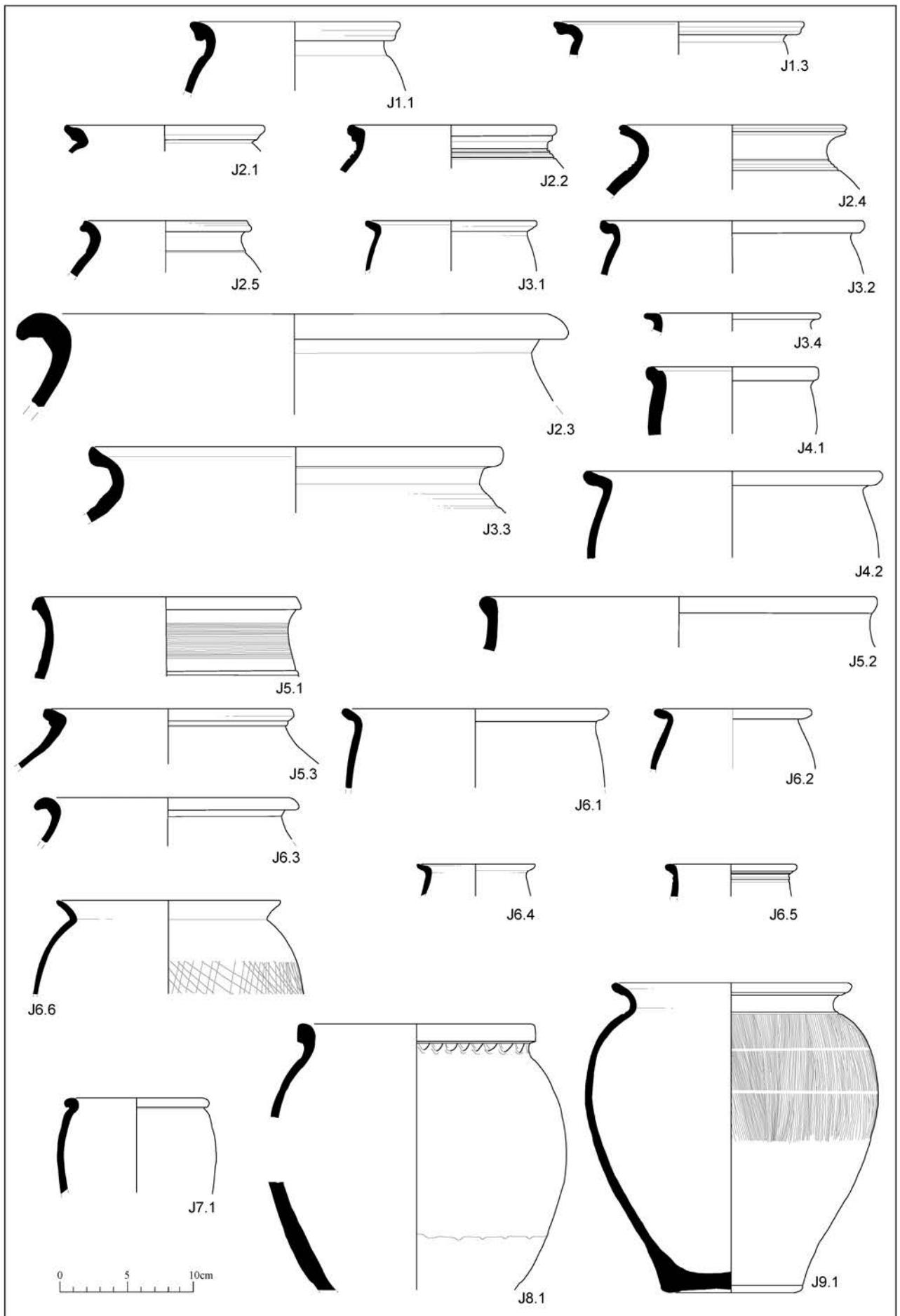


Figure 3.9 Class R, Horningsea wares. Jars. Scale 1:4

- SJ2.4** A large storage jar with bifid rim, notched cordon below rim. RGS VII (90). RGS VII (9B).
Examples: MILEW95 (2); RGS Group 7 (2) of 3rd- to 4th-century date.
- SJ2.5** A large storage jar with squared, grooved rim. MILEW95 1 / 2 (603)
Example: MILEW95.
Date: All vessels in the SJ2 class appear to fall in an Antonine to mid 4th-century date range.

Jars

Figs 3.9–10

J1.0 Jars with bifid rims

- J1.1** A shouldered jar with a bifid rim, *cf.* Evans 1991b, no. 40. WATRL95 TR30 (275)
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine with much residual earlier material; LITCR Phase 5; MILEW95 (2); Cambridge RGS Group 5 (2) of late Antonine date and Group 6 (3), 3rd to 4th century with much residual Antonine material; WATCD97 Phase 1, Phase 3a, and unstratified; WATRL95 context 275. There is also an example from Cambridge (Alexander and Pullinger 1999, pl. CVIII, no. 746) from the shrine (Group 5).
Date: These occurrences suggest that the type may not have appeared before the Antonine period and may have continued into the early 3rd century.
- J1.2** A shouldered jar with a bifid rim and cordoned shoulder. Not illustrated.
There are no examples of this type from the database.
- J1.3** A shouldered lid-seated bifid rimmed jar. LITCR (U/S)
Example: LITCR, unstratified. Since the site is unlikely to be pre-Antonine here it is probably Antonine (or later).

J2.0 Jars with cordoned rims

- J2.1** A jar with a bifid rim, Evans 1991b, no. 36. Horningsea
There are no examples of this type from the database.
- J2.2** A shouldered jar with a bifid rim of thick triangular-section, Evans 1991b, nos 38–39. Horningsea
Examples: RGS IV 11G Group 5, the late Antonine shrine. Alexander and Pullinger (1999) record two more in the shrine (pl. CVIII, nos 743 and 747).
Date: These suggest an Antonine date.
- J2.3** A shouldered jar with an everted bifid, near horizontal, rim, *cf.* Little Paxton (Evans 2011) type R02.8.
Example: WATCD97 Phase 3a, 3rd to early 4th century.
- J2.4** A shouldered jar with grooved bifid rim, *cf.* Little Paxton (Evans 2011) type R02.7. LITCR (1000)
Examples: Little Paxton Phase 8, dated later 3rd century onwards; LITCR, unstratified; MILEW95; RGS IV 11G, the late Antonine shrine group.
Date: Perhaps Antonine to early 3rd century.
- J2.5** A shouldered jar with a grooved, beaded rim. LITCR (3047)
Example: LITCR, Phase 5, early 3rd century.

J3.0 Jars with lid-seated rims

- J3.1** A lid-seated jar with a straight, everted, rising rim, *cf.* Evans 1991b no. 34 and Little Paxton (Evans 2011) types R02.2 and R02.9. WATCR97 (445)
Examples: Little Paxton Phase 7B, dating to the later 3rd century and beyond; Bottisham Tunbridge Lane Phase 2, Flavian–Trajanic, and Phase 3 (2), Hadrianic–early Antonine; Teversham Group 4, early 2nd century; RGS IV 110, Group 6, shrine-slump, 3rd century onwards; WATCD97 Phase 1 (2) and Phase 3a (3).
Date: On the basis of the above, the type would seem to emerge at the beginning of the industry, in the Flavian period, and probably continues into the Hadrianic–early Antonine period. It is not clear if it remained current beyond that.
- J3.2** A necked lid-seated jar with an everted, slightly undercut rim, *cf.* Evans 1991b, no. 30. Horningsea
Examples: Bottisham Tunbridge Lane Phase 3 (5); Teversham Group 3, Antonine–early 3rd century; RGS IV 11Q Group 5, late Antonine, shrine group.
Date: The type would seem to be relatively early, perhaps with a Flavian–Antonine span.
- J3.3** A necked lid-seated jar with an everted beaded rim, lid-seated, *cf.* Evans 1991b, no. 33. HFT B VI (F9)
Examples: Bottisham Tunbridge Lane Phase 3 (2); Teversham Group 4, early 2nd-century date; MILEW95 (2); WATCD97 Phase 1 and Phase 2.
Date: Again a late 1st- to early 2nd-century date for the start of the type seems appropriate and the type probably did not outlive the 2nd century.
- J3.4** A necked jar with a horizontal, slightly lid-seated rim. WATCD97 (407)
Examples: WATCD97 context 407, (2) unphased.

J4.0 Neckless lid-seated jars

- J4.1** A neckless jar with a stubby, everted lid-seated rim, *cf.* Evans 1991b, no. 35. Horningsea
There are no examples of this type in the database.
- J4.2** A neckless jar with an everted, rising, lid-seated rim, *cf.* Evans 1991b, no. 32. Horningsea
Examples: RGS VI 110, shaft, Group 9 (2) (3rd to 4th century).

J5.0 Wide-mouthed jars

- J5.1** A carinated jar with a straight, everted, rising rim, slightly beaded, rilled on the neck. *cf.* J14.1. Evans 1991b, no. 17. Horningsea
Examples: Bottisham Tunbridge Lane Phase 3; WATCD97, context 466, unphased.
- J5.2** A wide-mouthed carinated jar(?) with a vertical neck and beaded rim, *cf.* Evans 1991b, no. 16. Horningsea
There are no examples of this type in the database.
- J5.3** A wide-mouthed jar with an everted, beaded, squared rim with a cordon beneath, perhaps *cf.* J10.10. MILTONKH (0)
Example: Milton Fen End (Green's Pits).



Plate 3.3 Class R, Horningsea ware from Waterbeach, Old Tillage, showing thickened rims

J6.0 Neckless jars

- J6.1** A straight walled jar with a straight, everted, rising rim, Evans 1991b, no. 45. Horningsea
Examples: Bottisham Tunbridge Lane Phase 3; MILEW95 (3); Cambridge RGS VI 11B, Antonine Group 4, and the Group 6, shrine-slump group; WATCD97 Phase 3a (3).
Date: These seem to suggest a span commencing by the Antonine period and perhaps from the start of the industry, and extending through the 3rd and earlier 4th centuries.
- J6.2** A bead rimmed straight-ish walled jar, *cf.* Evans 1991b, no. 43, and Little Paxton (Evans 2011) types R02.10, R02.13 and R02.14. LITCR (3006)
Examples: Bottisham Tunbridge Lane Phase 3, which suggests that the type had emerged by the early Antonine period at the latest; LITCR Phase 8; MILEW95; Cambridge RGS late Antonine shrine Group 5 (12), Group 6, shrine-slump deposits (4), RGS Group 7 (2), a 3rd- to 4th-century group, Group 8 and Group 9, both of 3rd- to 4th-century date; WATCD97 Phase 3a (2); WATRL95 context 135. The type also appears at Bottisham Tunbridge Hall (Peachey 2012). At Little Paxton forms R02.10, R02.13 and R02.14 occur in Phase 7b, late 3rd to early 4th century and Phase 8, mid 4th century.
Date: Overall the type appears to be current from at least the early Antonine period, until the mid 4th century.
- J6.3** A neckless jar with an everted, hooked rim, *cf.* Little Paxton (Evans 2011) type R02.12.
This form does not occur in the database; it is unstratified at Little Paxton.
- J6.4** A small jar with a short, everted, straight rim. WATCD97 (445)
Examples: Bottisham Tunbridge Lane Phase 2, Flavian–Trajanic, and Phase 3 (2), Hadrianic–early Antonine; Teversham Group 4, early 2nd century, and Group 3 (4), Antonine–early 3rd century; MILEW95; RGS Group 5 (2), late Antonine shrine and Group 6, the shrine-slump; WATCD97 Phase 3a (2).
Date: These suggest a late 1st- to early 4th-century range.
- J6.5** A small neckless jar with an everted, horizontal, tapering rim. WATCD97 (430)
Examples: WATCD97 Phase 3a (3), suggesting a 3rd- to early 4th-century date.
- J6.6** A BB2 jar rim copy(?), with neckless, everted rim. *cf.* J10.14, perhaps later 2nd to earlier 3rd century. RGS IV (11C)
Examples: Teversham Group 3 of Antonine–early 3rd-century date; LITCR Phase 2 (4), Phase 4 and unphased (2); Cambridge RGS, late Antonine Group 5, shrine group (6).
Date: The dates of the stratified examples pleasingly reflect the date of the parallels for the type.

J7.0 Neckless jars with stubby/beaded rims

- J7.1** A bead rimmed jar, *cf.* Little Paxton (Evans 2011) type R04.2. RGS IV (11C)
Examples: RGS Group 6 (2), shrine-slump group of 3rd-century and later date with much residual earlier material; Little Paxton Phase 8, mid 4th century.
Date: Not closely datable.
- J7.2** A small globular jar with a stubby, slightly everted rim. LP92 A (1403). Not illustrated.
Examples: WATCD97 Phase 3a (2), 3rd to earlier 4th century.

J8.0 Neckless jars with beaded rim and piecrust decoration

- J8.1** A globular jar with a beaded rim, with piecrust filling beneath. Little Barford (Lucas 1997, no. 46).
There are no examples of this type in the database.

J9.0 Necked jar with cordon

- J9.1** A necked, cordoned jar with an everted, swelling, rising rim, *cf.* Evans 1991b, nos 18 and 19. MILTONKH (0)
Examples: Bottisham Tunbridge Lane Phase 2, Phase 3 (15), Phase 4.2 and unstratified (5), suggesting that the type originated in the later 1st century and was common by the Hadrianic period; Teversham Group 3, Antonine–early 3rd

century; LITCR Phase 4 and Phase 8 (2); MILEW95 (4); Milton Fen End (Green's Pits); Cambridge RGS, Antonine shaft Group 4 (RGS VI 11E), Group 5, the later Antonine shrine group (5), Group 6, the earlier 3rd-century shrine-slump (4), Group 7 (RGS VII 90), and Group 8 (RGS VI 30) both of 3rd- to 4th-century date; WATCD97 Phase 1 (6), Phase 2 (2), and Phase 3a; Bottisham Tunbridge Hall (Peachey 2012).

Date: Thus the type seems to date from the later 1st century, runs through the Hadrianic–Antonine period and probably extends into the mid 4th century.

- J9.2** A small necked jar, cordoned, with an everted swelling rim, *cf.* Evans 1991b, no. 22. RGS VI (11E)
Examples: Bottisham Tunbridge Lane Phase 3 (5), Hadrianic–early Antonine, Phase 4.3, Antonine or later, and unstratified; Teversham Group 4, early 2nd century, and Group 2, late 4th century; LITCR, unstratified; MILEW95 (2); RGS, Antonine shaft Group 4 (RGS VI 11E) (2), Group 5, later Antonine shrine group (7), Group 6 shrine-slump group (2), and Group 7 (RGS VII 90) (2) 3rd to 4th century, as well as a single intrusive example from Group 2, RGS VI 330, the Claudian group; Bottisham Tunbridge Hall (Peachey 2012).
Date: The type would seem to date from the Hadrianic period at least and to extend well into the 4th century.

- J9.3** A necked jar with an everted, hooked rim and cordoned shoulder, *cf.* Evans 1991b, no. 25.
Examples: Bottisham Tunbridge Lane Phase 3 (2) and unstratified (2); LITCR Phase 3; MILEW95 (2); Cambridge RGS late Antonine shrine Group 5 (8), and 3rd- to 4th-century Group 6, shrine-slump group (2); WATCD97 Phase 1 (7); Bottisham Tunbridge Hall (Peachey 2012).
Date: These suggest a Hadrianic–4th-century date range at least.

- J9.4** A necked jar with an everted, rising, swelling rim with cordon beneath. WATCD97 (183).
Examples: Cambridge RGS Group 4, shaft group (RGS VI 11E), Group 6, shrine-slump group, and Group 7 (RGS VII 90).
Date: These suggest an Antonine and later date.

J10.0 Necked jar with everted rim

- J10.1** A necked jar with everted, rising, swelling rim, *cf.* Evans 1991b, no. 29, and Little Paxton (Evans 2011) types R02.6, R02.16 and R04.1. RGS VI (11E).
There are 220 examples of this type in the database. Examples: Bottisham Tunbridge Lane, Phase 3 (12), Hadrianic–early Antonine, Phase 4.1 (2), Antonine, and one unstratified; Teversham, Group 4 (5) early 2nd-century, Group 3 (25) Antonine–early 3rd-century, Group 2 (4) late 4th-century date; LANDCF96 context 29; LITCR, Phase 5, Phase 6, Phase 8 and unphased; MILEW95 (15); Cambridge RGS, Antonine Group 3 (2), Antonine Group 4, later Antonine shrine Group 5 (25), Group 6, the 3rd- to 4th-century shrine-slump group (17), Group 7 (RGS VII 90), 3rd to 4th century (3), (RGS VI 30) shaft Group 8, 3rd to 4th century (6), Group 9 (RGS VI 110), 3rd to 4th century (3); WATCD97, Phase 1 (14), Phase 3a (55) and unphased (10); WATRL95 contexts 470 (4), 476 (3), 479, 689, 712, and 1000; Little Paxton Phase 6 (2), Antonine–early 3rd century, Phase 7, mid 3rd century, Phase 7A, mid 3rd century, and Phase 8, mid 4th century; Bottisham Tunbridge Hall (Peachey 2012).
Date: The evidence would seem to suggest that the type emerged in the late 1st or early 2nd century and remained common through the life of the industry until the mid to later 4th century.

- J10.2** A necked jar with an everted, rising rim, body often rilled, *cf.* Evans 1991b, no. 23, and Little Paxton (Evans 2011) type R02.11. *cf.* J9.1. HTF B VI (F9).
Examples: Bottisham Tunbridge Lane Phase 3 (20), Hadrianic–early Antonine, Phase 4.2, Antonine; Teversham, Group 4 (4), early 2nd century, Group 3 (2), Antonine–early 3rd century, Group 2, later 4th century; LANDCF96, contexts 63, 86 and 89; LITCR, Phase 7, unphased (2); MILEW95 (10); Cambridge RGS, Group 4 Antonine shaft (3), Group 5, late Antonine shrine (19), Group 6, 3rd- to 4th-century shrine-slump group (3), Group 8 (2), and Group

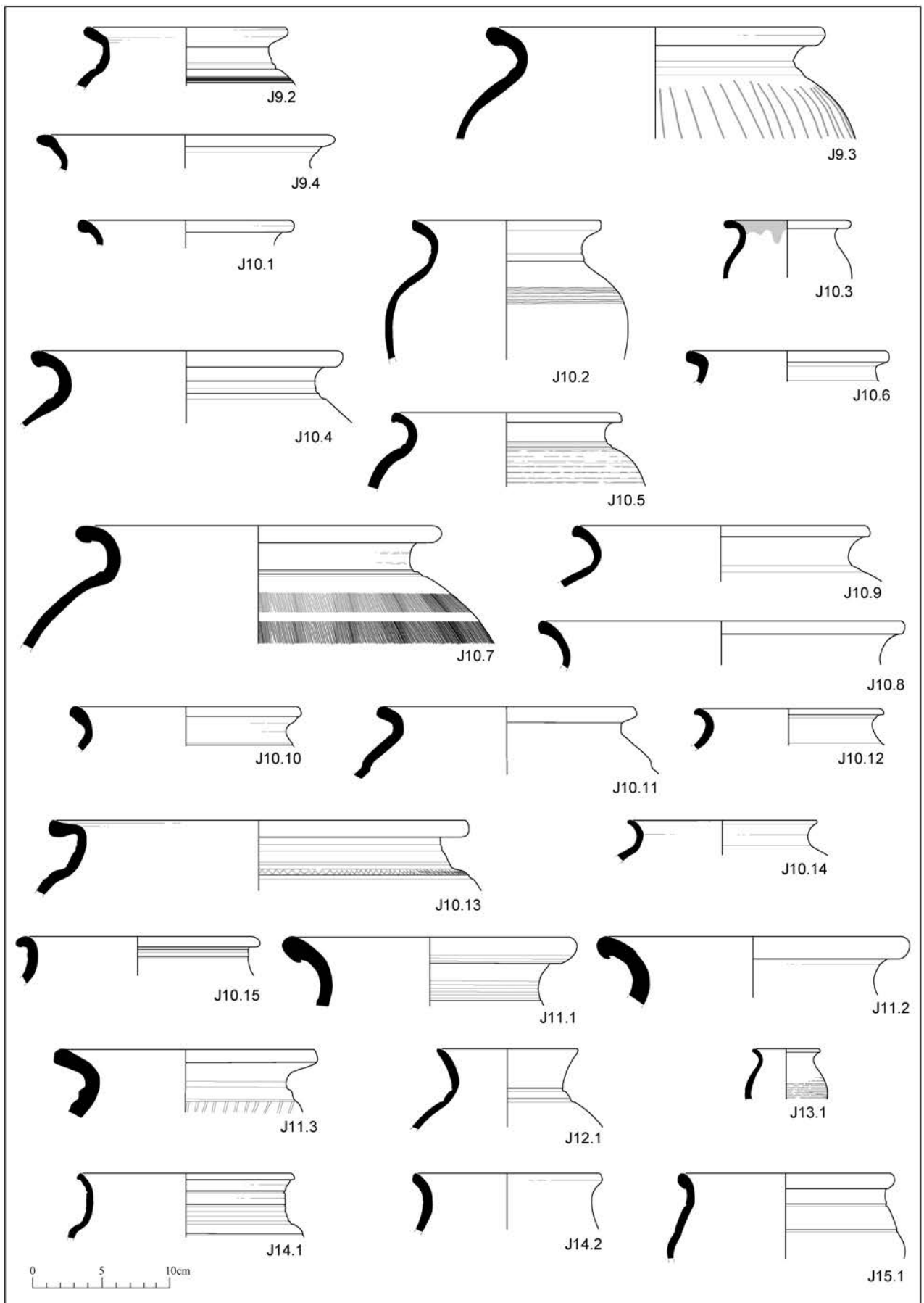


Figure 3.10 Class R, Horningsea wares. Jars. Scale 1:4

- 9 (2), both 3rd to 4th century, Group 2, RGS VI 330, Claudian (3 intrusive); WATCD97, Phase 1 (9), Phase 3a (20), unstratified or unphased (3); WATRL95 contexts 135, 378, 446, 476 and 1000; Little Paxton, Phase 6, Antonine–early 3rd century, Phase 8, mid 4th century.
Date: The type seems to have emerged by the early 2nd century at least, and probably from the start of the industry, and it seems to have remained common throughout the 2nd century, but perhaps died out in the 3rd.
- J10.3** A necked jar with an everted, horizontal, beaded rim, *cf.* Little Paxton (Evans 2011) types R02.6 and R02.15, *cf.* J10.1. LITCR (3024).
Examples: Bottisham Tunbridge Lane, Phase 3 (2), Hadrianic–early Antonine ; Teversham, Group 3, Antonine–early 3rd century, Group 2 (2), later 4th century; LITCR, Phase 5; MILEW95; Cambridge RGS, later Antonine shrine Group 5 (6), 3rd- to 4th-century shrine-slump Group 6 (3), 3rd- to 4th-century shaft Group 8 (4), 3rd- to 4th-century Group 9; WATCD97, Phase 1, Phase 3a (9); WATRL95 contexts 247 and 269; Little Paxton, Phase 6, Antonine–early 3rd century, Phase 7A, mid to later 3rd century, Phase 7B, later 3rd to early 4th century; Bottisham Tunbridge Hall (Peachey 2012).
Date: The type seems to appear by the Hadrianic period, and thus probably from the start of the industry, and continues through to its end in the mid to later 4th century.
- J10.4** A necked jar with a triangularly-sectioned rim, slightly undercut, *cf.* Evans 1991b, no. 44 and Little Paxton (Evans 2011) R02.4 and R02.5. WATCD97 (107).
Examples: Bottisham Tunbridge Lane, Phase 2, Flavian–Trajanic (2), Phase 3, Hadrianic–early Antonine (4), Phase 4.2, Antonine or later (2), unstratified (2); Teversham, Group 4, early 2nd century (2), Group 3, Antonine–early 3rd century (11), Group 2, later 4th century; LANDCF96 context 76; LITCR, Phase 3, Phase 5 and unphased (2); MILEW95 (9); Cambridge RGS, Antonine shaft Group 3, Antonine shaft Group 4, late Antonine shrine Group 5 (17), 3rd- to 4th-century Group 6 shrine-slump (9), 3rd- to 4th-century Group 7 (RGS VII 90) (2), Group 8 3rd- to 4th-century Shaft group, 3rd- to 4th-century shaft Group 9 (5); WATCD97, Phase 1 (6), Phase 3a (22), Phase 4; WATRL95 contexts 269 (3), 476, 525, and 699; Little Paxton, Area A, Phase 5, Antonine–early 3rd century, and Phase 7, mid to late 3rd century.
Date: The type appears to run through from the Flavian period until the end of the industry.
- J10.5** A necked jar with a triangularly-sectioned rim and rilled body, a Braughing type jar, *cf.* Evans 1991b, no. 41. WATCD97 (183).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (5), unstratified (3); LITCR, unphased (3); MILEW95; Cambridge RGS, Antonine shaft Group 3, late Antonine shrine group (3), Group 8 3rd- to 4th-century shaft, Group 9 3rd- to 4th-century shaft group; WATCD97, Phase 1 (3), Phase 3a (7), Phase 4, unstratified (2); WATRL95 context 470.
Date: The type has a 1st-century history and was presumably produced from the Flavian origins of the industry. It seems to have continued through the Hadrianic period, otherwise it would not be present at WATCD97 or LITCR, but it seems to have been fading out in the Antonine period and probably did not run much into the 3rd century.
- J10.6** A necked jar with an everted, beaded rim, *cf.* Evans 1991b, no. 31. WATCD97 (445).
Examples: WATCD97, Phase 3a (2).
- J10.7** A necked undercut bead rimmed jar with cordoned neck, *cf.* Evans 1991b, no. 42. WATCD97 (119)
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (9), Phase 4.2, Antonine or later; Teversham, Group 3, Antonine–early 3rd century (3), Group 2, later 4th century (2); LANDCF96 contexts 76 and 91; MILEW95 (4); Cambridge RGS, Group 4 Antonine shaft (2), late Antonine shrine Group 5 (3), Group 6 the 3rd- to 4th-century shrine-slump (2); WATCD97, Phase 1, Phase 3a (4), and unstratified; WATRL95, context 438 (2); Bottisham Tunbridge Hall (Peachey 2012).
Date: The type seems to be current throughout the life of the industry from the Hadrianic period onwards.
- J10.8** A large necked jar with a triangularly-sectioned rim. *cf.* J10.1. Evans 1991b, no. 28. WATCD97 (430).
Examples: Bottisham Tunbridge Lane, Phase 2, Flavian–Trajanic, Phase 3, Hadrianic–early Antonine; MILEW95 (2); Cambridge RGS, Group 6 shrine-slump; WATCD97 Phase 3a (2); Bottisham Tunbridge Hall (Peachey 2012).
Date: The type clearly emerges by the late 1st or early 2nd century. It may well have continued through the life of the industry to the mid to later 4th century.
- J10.9** A necked jar with an everted, rising, straight rim, slightly beaded, *cf.* Evans 1991b, no. 27, *cf.* J9.3. WATCD97 (107).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (2), Phase 5, Antonine–early 3rd century; MILEW95; Cambridge RGS, late Antonine shrine group (3), ‘Claudian’ Group 2 (intrusive); WATCD97, Phase 1 (2), Phase 3a; Bottisham Tunbridge Hall (Peachey 2012).
Date: These suggest a Hadrianic to mid to later 4th-century date range at least.
- J10.10** A necked jar with an everted, rising rim, cordoned underneath, *cf.* Evans 1991b, no. 37. BOTTLLII (103).
Example: Bottisham Tunbridge Lane Phase 3
Date: Hadrianic–early Antonine.
- J10.11** A necked jar with an everted rising rim and waisted shoulder, *cf.* Evans 1991b, no. 46. Horningsea.
There are no examples of this form in the database.
- J10.12** A necked jar with a hooked, undercut rim. WATCD97 (107).
Examples: WATCD97 Phase 1 (4); WATRL95 context 260.
Date: Perhaps Antonine.
- J10.13** A necked jar with an everted horizontal, undercut rim. WATCD07 (119).
Examples: Cambridge RGS IV 110, Group 6, 3rd to 4th century; WATCD97 Phase 1, Antonine.
- J10.14** A necked jar with an outcurving rim, possibly a black burnished ware imitation, *cf.* J10.2 and J6.6. HTF B VI (F9).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine, Phase 4.3, Antonine; Teversham Group 4, early 2nd-century; MILEW95; Cambridge RGS, late Antonine shrine Group 5 (5).
Date: Overall the stratified examples seem to reflect the proposed Hadrianic–Antonine date range for the type.
- J10.15** A necked jar with an everted, hooked rim, *cf.* J10.12. MILEW95 2 (55).
Examples: MILEW95; Cambridge RGS, late Antonine shrine group, Group 6 shrine-slump, 3rd to 4th century (2).
- J11.0 Medium-mouthed jar with everted rim**
- J11.1** A medium-mouthed or constricted-necked jar with an everted, beaded rim, *cf.* Evans 1991b, no. 26. Horningsea.
Examples: Cambridge RGS, late Antonine shrine Group 5, (RGS VII 9B) 3rd- to 4th-century Group 7; Bottisham Tunbridge Hall (Peachey 2012).
- J11.2** A medium-mouthed jar with an everted, rising rim, *cf.* Evans 1991b, nos 21 and 24. LITCR (3019).
Examples: LITCR Phase 3, later 2nd to mid 3rd century; Cambridge RGS Group 6, 3rd to 4th century, shaft Group 9 (RGS VI 110), 3rd to 4th century; WATCD97 Phase 1, Antonine.
Date: The evidence suggests that the type appeared by the later 2nd or early 3rd century.
- J11.3** A medium-mouthed jar with an everted, rising rim, and heavily cordoned shoulder, *cf.* Evans 1991b, no. 20. Horningsea.
There are no examples of the type in the database.
- J12.0 Jars of poppy-headed beaker form**
- J12.1** A fairly narrow-mouthed jar with an everted rising rim and cordoned shoulder, a copy of a poppyhead beaker form, later 1st to early 2nd century. WATCD97 (109).
Examples: WATCD97 context 109, Phase 2, perhaps 3rd century; Cambridge RGS VI 11D Group 4 shaft group, Antonine, shrine-slump Group 6, 3rd to 4th century.
Date: All the stratified examples seem likely to be residual as this must be a later 1st- to early 2nd-century vessel.

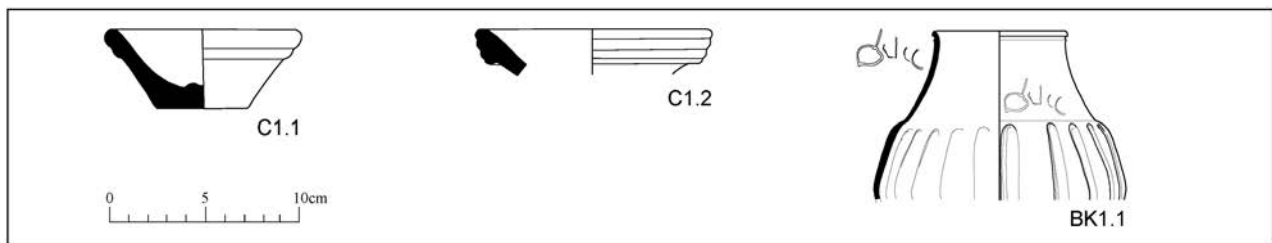


Figure 3.11 Class R, Horningsea wares. Cups/beakers. Scale 1:4

J13.0 Necked jar with outcurving rims

J13.1 A small rilled necked jar with an outcurving rim, *cf.* J6.4. BOTLII (246).
Example: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

J14.0 Long-necked jars with everted rising rims

J14.1 A tall necked jar with an everted, beaded rim, with cordoned neck. BOTLII (108).
Example: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

J14.2 A necked jar with an everted rising rim. BOTLII (318)
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine; LANDCF96 context 86; WATCD context 480, Phase 3a.

J15.0 Carinated necked jars

J15.1 A carinated necked jar with a beaded rim and grooved shoulder, *cf.* J10.17. HTF B VI (F9).
Example: Teversham Group 4, early 2nd-century date.

Cups/beakers

Fig. 3.11

C1.1 A cup(?) with a cordoned rim, *cf.* Evans 1991b, no. 50. Horningsea.
There are no examples of this type in the database.

C1.2 A cup(?) with a grooved, collared rim, *cf.* Evans 1991b, no. 51. Horningsea.
There are no examples of this type in the database.

BK1.1 An indented beaker with a fairly vertical neck and a beaded rim, perhaps *cf.* Howe *et al.* 1980, no. 53, mid 3rd to mid 4th century. MILEW95 1 / 2 (672).
Example: MILEW95.
Date: Perhaps mid 3rd- to 4th-century.

Bowls

Figs 3.12–3.13

B1.0 Carinated bowls

B1.1 A carinated bowl with an everted, often beaded rim, *cf.* Evans 1991b, no. 15. WATCD97 (109).
Examples: Bottisham Tunbridge Lane, Phase 3 Hadrianic–early Antonine (18), Phase 4.1 early Antonine, Phase 4.2 early Antonine (2), Phase 4.3 Antonine, unstratified (2); Kings Hedges Farm, Flavian–Hadrianic; LANDCF96 context 61; MILEW95; Cambridge RGS, Group 4 Antonine shaft (RGS VI 11F), Group 5 late Antonine shrine (3), Group 8 shaft (RGS VI 30) 3rd to 4th century; WATCD97, Phase 1 (4), Phase 2.
Date: These occurrences suggest that the type must extend into the Hadrianic period, so a Flavian–Hadrianic date range seems appropriate. The type is also common at New Hall (Going 1996) which again confirms this date range.

B1.2 A bowl(?) with outcurving wall and grooved beaded rim. WATCD97 (538).
Example: WATCD97 context 538, Phase 3a, 3rd to early 4th century.

B1.3 A carinated bowl (or jar) with a horizontal flange rim. LP92 A (1636).
Example: Little Paxton

B2.0 Segmental bowls

B2.1 A beaded segmental bowl, beaded and flanged, *cf.* Evans 1991b, no. 54, later 1st to early 2nd century. WATCD97 (445).

Examples: Bottisham Tunbridge Lane, Phase 3 Hadrianic–early Antonine (2); Cambridge, Group 6 (RGS IV 110) 3rd to 4th century; WATCD97, Phase 3a, 3rd to early 4th century (2), and unstratified.

Date: The occurrences suggest that the type continued into the Hadrianic period. Perhaps Flavian–Hadrianic.

B2.2 A segmental bowl without bead and with undercut flange. WATCD97 (480).

Example: WATCD97 context 480, Phase 3a.

Date: Perhaps Flavian–Hadrianic. The very occurrence of the type on this site suggests that it continues into the Hadrianic period.

B2.3 A segmental bowl, beaded, with a deeply undercut flange, grooved at the tip. LP 92.

Example: Bottisham Tunbridge Lane Phase 3 of Hadrianic–mid Antonine date.

Date: Perhaps Flavian–Hadrianic.

B3.0 Flange rimmed bowls

B3.1 A flange rimmed bowl, a black burnished ware BB copy, *cf.* Evans 1991b, no. 59. RGS VII (9B).

Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine, and Phase 5, mid–late Antonine. Teversham, Group 4, early to mid 2nd century, Group 3, Antonine (2), Group 2, late 4th century; Milton MILEW95 (4); Waterbeach Old Tillage WATCD97, Phase 3a, 3rd to early 4th century and unstratified; Cambridge RGS, Group 3 Antonine shaft, Group 5 late Antonine shrine (3), Group 6 and Group 7, both 3rd to 4th century. Bottisham Tunbridge Hall (Peachey 2012).

Date: Hadrianic–Antonine.

B3.2 A flange rimmed bowl with triangularly-sectioned flange, *cf.* Little Paxton (Evans 2011) R04.5. WATCD97 (157).

Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (2), Phase 5, Antonine to early 3rd century (4); Teversham, Group 3, Antonine; LANDCF96, 76; Cambridge RGS, late Antonine shrine Group 5 (9), Group 6 shrine-slump, 3rd to 4th century; WATRL95, context 470; WATCD97, Phase 2, Antonine, Phase 3a, 3rd to early 4th century (19), Phase 4, and unstratified or post-Roman (8).
Date: The Bottisham evidence suggests that this form had emerged by the Hadrianic period. Hadrianic–Antonine.

B3.3 An internally beaded flange rimmed bowl. HTF B IV (F2 3X)

Examples: Teversham Group 3, Antonine; WATCD97, unstratified; Cambridge RGS IV 11B Group 5, late Antonine, Group 6 (RGS IV 110) 3rd to 4th century (2).
Date: Hadrianic–Antonine.

B3.4 A flange rimmed bowl with deep basal chamfer. WATCD97 (430).

Examples: WATCD97, Phase 3a, 3rd to early 4th century; Cambridge RGS IV 11K, Group 5, late Antonine.
Date: Hadrianic–Antonine.

B3.5 A bowl with a straight, rising, stubby rim and deeply corrugated curving wall. BOTLII (158). Not illustrated.

Example: Bottisham Tunbridge Lane, Phase 3.

Date: A Flavian–early Hadrianic date might be appropriate.

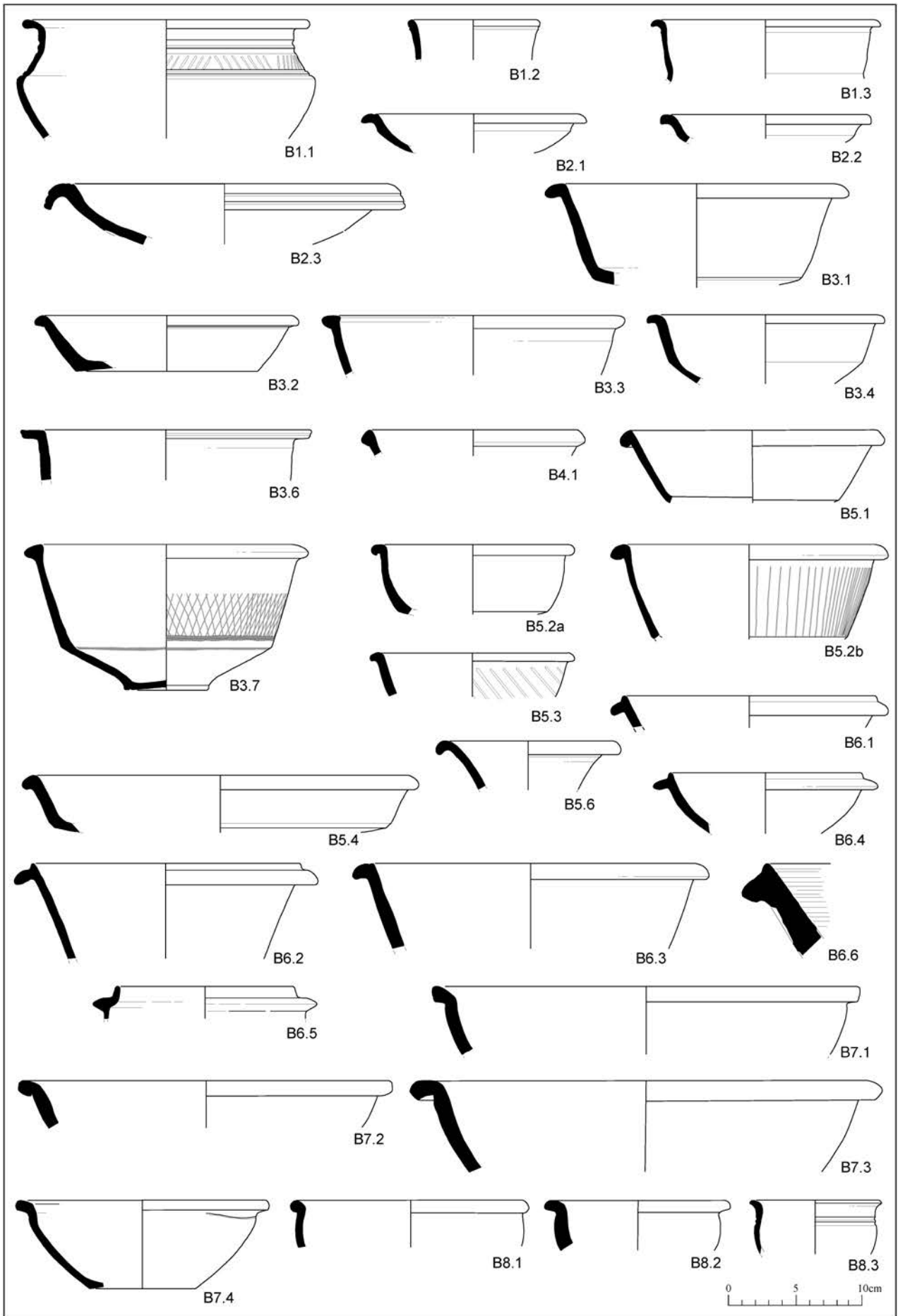


Figure 3.12 Class R, Horningsea wares. Bowls. Scale 1:4

- B3.6** A flange rimmed bowl(?) grooved on the rim tip. MILEW95 1 (335).
The only example is from MILEW95.
- B3.7** A carinated bowl with triangularly-sectioned bead rim. RGS IV (11G).
Examples: Cambridge, RGS IV 11C and RGS IV 11G, both Group 5, late Antonine.
Date: Probably Hadrianic–Antonine
- B4.0 Bowls with triangularly-sectioned rims**
- B4.1** A straight sided bowl with a thickened, triangularly-sectioned rim, *cf.* Evans 1991b, no. 62. MILEW95 1 / 2 (549).
Example: The only example is from MILEW95.
Date: Probably Hadrianic–Antonine
- B5.0 Bowls with beaded rims**
- B5.1** A straight walled bowl with a beaded rim, a BB2 copy, *cf.* Evans 1991b, no. 58. Horningsea.
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine, Phase 4.2, Antonine (2), Phase 5, late Antonine (2), unstratified; Teversham, Group 3, Antonine (7), Group 2, very late 4th century; LITCR, Phase 1, Phase 3, Phase 4, Phase 5 (3), Phase 7 and Phase 8; Milton MILEW95 (8); Cambridge RGS, Phase 5 late Antonine shrine (16), Group 6 3rd- to 4th-century shrine-slump (16), shaft fill Group 9, 3rd to 4th century (3); WATCD97, Phase 3a, 3rd to early 4th century (24), Phase 4, unstratified or unphased (6); common at Bottisham Tunbridge Hall (Peachey 2012).
Date: Although the type starts in the Antonine period, like its prototype it then continues to be made until the second half of the 4th century. A similar phenomenon is seen with BB2-derived forms in the north where the Holme-on-Spalding Moor industry kept producing them for a similar period.
- B5.2** A straight walled bowl with beaded, undercut rim, a BB2 copy, Evans 1991b, no. 57, and Little Paxton (Evans 2011) R04.6, for date *cf.* Gillam (1970) type 225, AD 200–250. WATCD97 (430).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine, Phase 5, late Antonine; Teversham, Group 3, Antonine–early 3rd century (2), Group 2, later 4th century (2); LITCR, Phase 1, Phase 6 (2), and unphased; Milton MILEW95 (4); Cambridge RGS, late Antonine (Group 5) shrine (3), Group 6, shrine-slump, 3rd to 4th century (4), shaft Group 7, 3rd to 4th century; Old Tillage kiln site (WATCD97), Phase 2, Phase 3a, 3rd to early 4th century (12), unstratified (5); Cambridge Rowing Lake (WATRL95) context 476 (2).
Date: The forms is likely to span the 3rd century and might extend into the 4th.
- B5.3** A bowl or dish with a triangularly-sectioned beaded rim, possibly a BB2 copy, *cf.* Evans 1991b, no. 60. Horningsea.
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine; Teversham, Antonine Group 3 (5); LITCR, Phase 6; Cambridge RGS, Group 5, late Antonine, Group 6, 3rd to 4th century, Group 7, 3rd to 4th century; Bottisham Tunbridge Hall (Peachey 2012).
Date: Probably Antonine to mid 4th century.
- B5.4** A bead rimmed dish with undercut, ovoid bead, Evans 1991b, no. 56. WATCD97 (562).
Examples: Bottisham Tunbridge Lane, unstratified; LITCR, Phase 3; Cambridge RGS, Group 6 (RGS IV 110) 3rd to 4th century (2); WATCD97 Phase 3a, 3rd to early 4th century.
An Antonine date is probable, perhaps extending later.
- B5.5** Not used.
- B5.6** A flange rimmed bowl with deeply undercut rim. RGS VI (110).
Example: Cambridge RGS VI 110 Group 9, 3rd to 4th century.
- B6.0 Bowls with a bead rim and flange**
- B6.1** A developed beaded and flanged bowl, *cf.* Evans 1991b, no. 52, *cf.* Little Paxton (Evans 2011) type R04.4. WATCD97 (445).
Examples: Bottisham Tunbridge Lane, Phase 6.1, later 3rd to 4th century; Teversham Group 3 (2, probably intrusive); MILEW95; Cambridge RGS, Group 6 (8), Group 7, Group 9 (3), all 3rd- to 4th-century date; Old Tillage (WATCD97) Phase 1 (intrusive), Phase 3a, 3rd to early 4th century (2); Cambridge Rowing Lake (WATRL95) contexts 269 and 712; common at Bottisham Tunbridge Hall (Peachey 2012).
Date: Later 3rd to 4th century.
- B6.2** A developed beaded and flanged bowl with internal wavy line decoration, possibly copying Crambeck type 1b (Corder 1937), *cf.* Evans 1991b, no. 53, later 3rd to 4th century, if a ‘Crambeck type’ then *c.* AD 355–370/80. MILEW95 U/S.
Examples: MILEW95; Cambridge RGS Group 5, late Antonine (intrusive), Group 6, 3rd to 4th century; Bottisham Tunbridge Hall (Peachey 2012).
Date: Mid to later 4th century.
- B6.3** An incipient beaded and flanged bowl, presumably a BB copy. RGS VII (9B).
Examples: Teversham Group 3, late 2nd to early 3rd century; LITCR Group 4, mid 3rd century; Milton contexts 335, 463, 525, 549, and 1122; Cambridge RGS Group 7, 3rd to 4th century (3); WATCD97 Phase 3a, 3rd to early 4th century (3), unstratified (2).
Date: Early to mid 3rd century
- B6.4** A slightly unusual developed beaded and flanged bowl with a fairly high bead and downsloping, undercut flange. WATCD97 (430).
Examples: WATCD97, Phase 3a, 3rd to early 4th century (2).
Date: Later 3rd to early 4th century?
- B6.5** An unusual beaded and flanged bowl (or box) with a tall vertical bead and triangularly-sectioned flange. BOTTLII (311).
Example: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine date. This vessel probably does not relate to the rest of this class.
- B6.6** A very large, thick walled, developed beaded and flanged bowl/basin. HTF B NB F12.
Example: Teversham Group 4, late 4th century. The form appears to be a copy of a late shell-tempered ware form, *cf.* Going (1987) type B5.3, dated AD 360/70–400+.
- B7.0 Wide mouth bowls with stubby rims**
- B7.1** A curving walled bowl with a stubby, everted, rising, straight rim, Evans 1991b, no. 65. Horningsea.
There are no examples of this type from this study.
- B7.2** A splaying, curving walled bowl with a beaded rim, Evans 1991b, no. 64. Horningsea.
Examples: Bottisham Tunbridge Lane Phase 4.1, Antonine; MILEW95.
- B7.3** A curving walled bowl with an everted, undercut rim, Evans 1991b, no. 55. Horningsea.
There are no examples of this type from this study.
- B7.4** A curving walled bowl with a straight, everted stubby rising rim, *cf.* B7.1. BOTTLII (110).
Examples: Bottisham Tunbridge Lane, Phase 3 (2), suggesting perhaps a Hadrianic–mid Antonine date.
- B8.0 Small bowls with beaded rims**
- B8.1** A small curving walled bowl with a beaded rim, Evans 1991b, no. 63. Horningsea.
Example: Cambridge Group 5 (RGS IV 11C), late Antonine.
- B8.2** A small curving walled bowl(?) with a stubby everted rim, Evans 1991b, no. 61. Horningsea.
There are no examples of this type from this study.
- B8.3** A bowl with an everted rising tapering rim and grooved shoulder. WATCD97 445 Phase 3a.
Example: Waterbeach Car Dyke
- B9.0 Bowls with reeded rims**
- B9.1** A bowl with a reeded flanged rim with outcurving or vertical wall, *cf.* Little Paxton (Evans 2011) type R04.3, Little Barford (Lucas 1997, fig. 82, no. 28).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (5), unstratified (3); Cambridge RGS IV 11D Group 5, late Antonine.

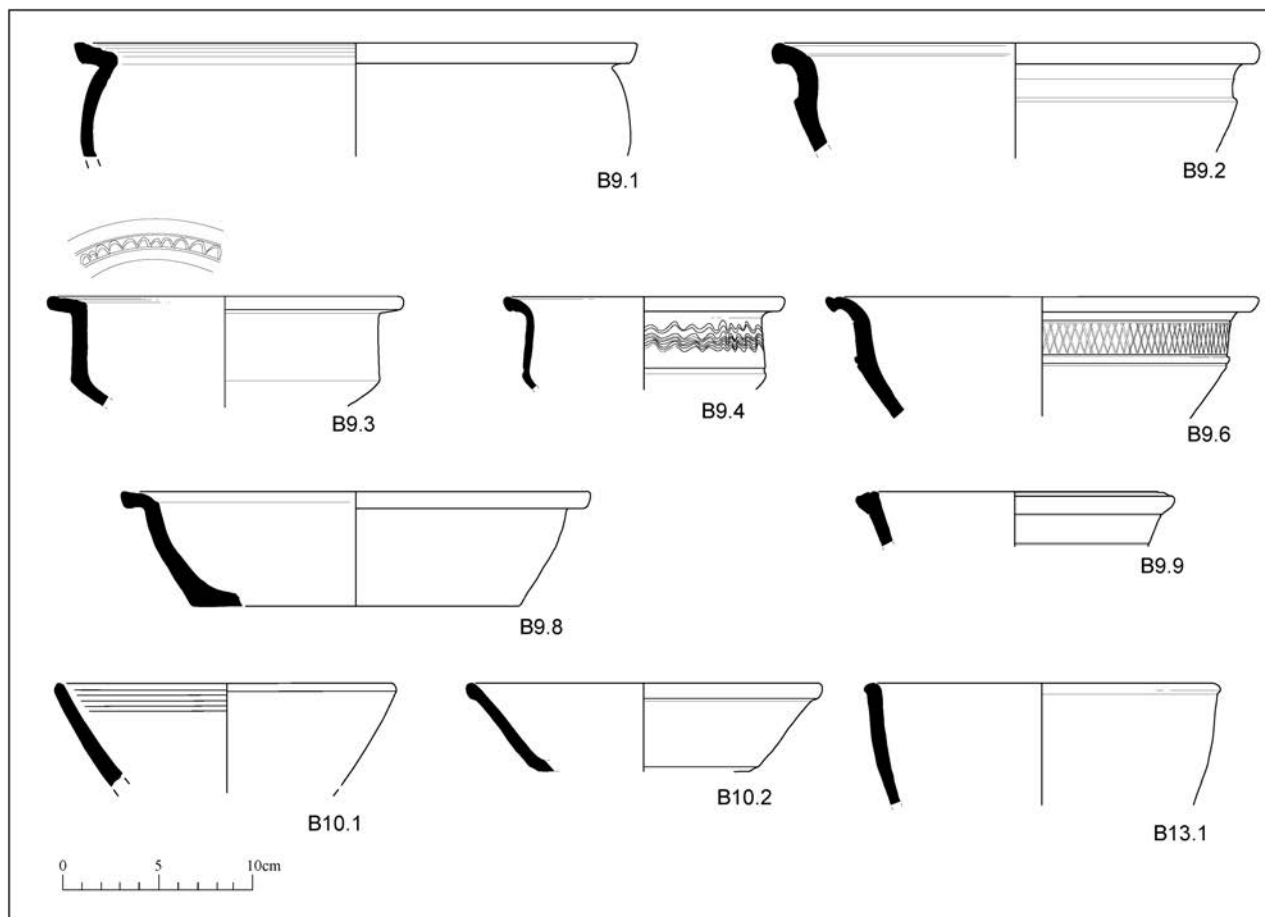


Figure 3.13 Class R, Horningsea wares. Bowls. Scale 1:4

- Date: Despite the contexts of the examples, the dating of the type is probably Flavian–Hadrianic.
- B9.2** A curving walled bowl with an everted, rising, reeded rim and pronounced neck. BOTTLLI (195).
Example: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine.
Date: Probably Flavian–Hadrianic.
- B9.3** A horizontal, reeded rimmed, carinated bowl. BOTTLLI (195).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine (2), unstratified (2).
Date: Flavian–Hadrianic.
- B9.4** A carinated bowl, decorated on wall with wavy line combing, with an everted, wedge-shaped, rising rim with lid-seating groove. BOTTLLI (190).
Example: Bottisham Tunbridge Lane Phase 3, Hadrianic–mid Antonine.
Date: Perhaps Flavian–Hadrianic.
- B9.5** A reeded rimmed bowl with an insloping wall and horizontal rim. *cf.* B9.1. BOTTLLI (165).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine (2), Phase 4.2, Antonine, Phase 5, late Antonine, and unstratified.
Date: Flavian–Hadrianic.
- B9.6** A reeded rimmed, carinated bowl with a rising rim. *cf.* B9.3. BOTTLLI (102).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine (3).
Date: Flavian–Hadrianic.
- B9.7** Not used.
- B9.8** A reeded rimmed, shallow bowl (or dish) with a rising reeded rim and insloping wall, *cf.* B9.5. BOTTLLI (110).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine (2), Phase 4.2, Antonine (2); Cambridge RGS VI 110, Group 9, 3rd to 4th century.
Date: Flavian–Hadrianic.
- B9.9** A reeded rimmed carinated bowl with a triangular-sectioned flange. HTF B IV (F2 3X).
Example: Teversham Group 3, Antonine.
Date: Flavian–Hadrianic.
- B10.0** Straight walled bowls with simple rims
- B10.1** A straight walled, simple rimmed bowl, *cf.* Little Paxton (Evans 2011) type R04.7.
There are no examples of this type from the study.
- B10.2** A straight walled bowl, grooved below the rim, perhaps a BB2 copy. RGS IV (11B).
Examples: LITCR, context 3010, unphased; Milton, MILEW95; Cambridge RGS, Group 5, late Antonine, Group 6, 3rd to 4th century.
Date: Perhaps mid to later 2nd century.
- B13.0** Dr 37 copy bowls
- B13.1** A Dr 37 copy(?) hemispherical bowl with beaded rim. LIT CR (3120).
Examples: Teversham Group 2, late 4th century; LITCR Phase 4, mid to later 3rd century; Cambridge RGS Shrine Group 5, late Antonine, Group 8, 3rd to 4th century.
Date: Perhaps Antonine to 4th century.
- B14.0** Other bowls
- B14.1** A complete necked bowl, handmade, irregular and crude with an everted horizontal rim. MILTONKH 0.
Example: There is a single example from Milton Fen End (Green’s Pits).

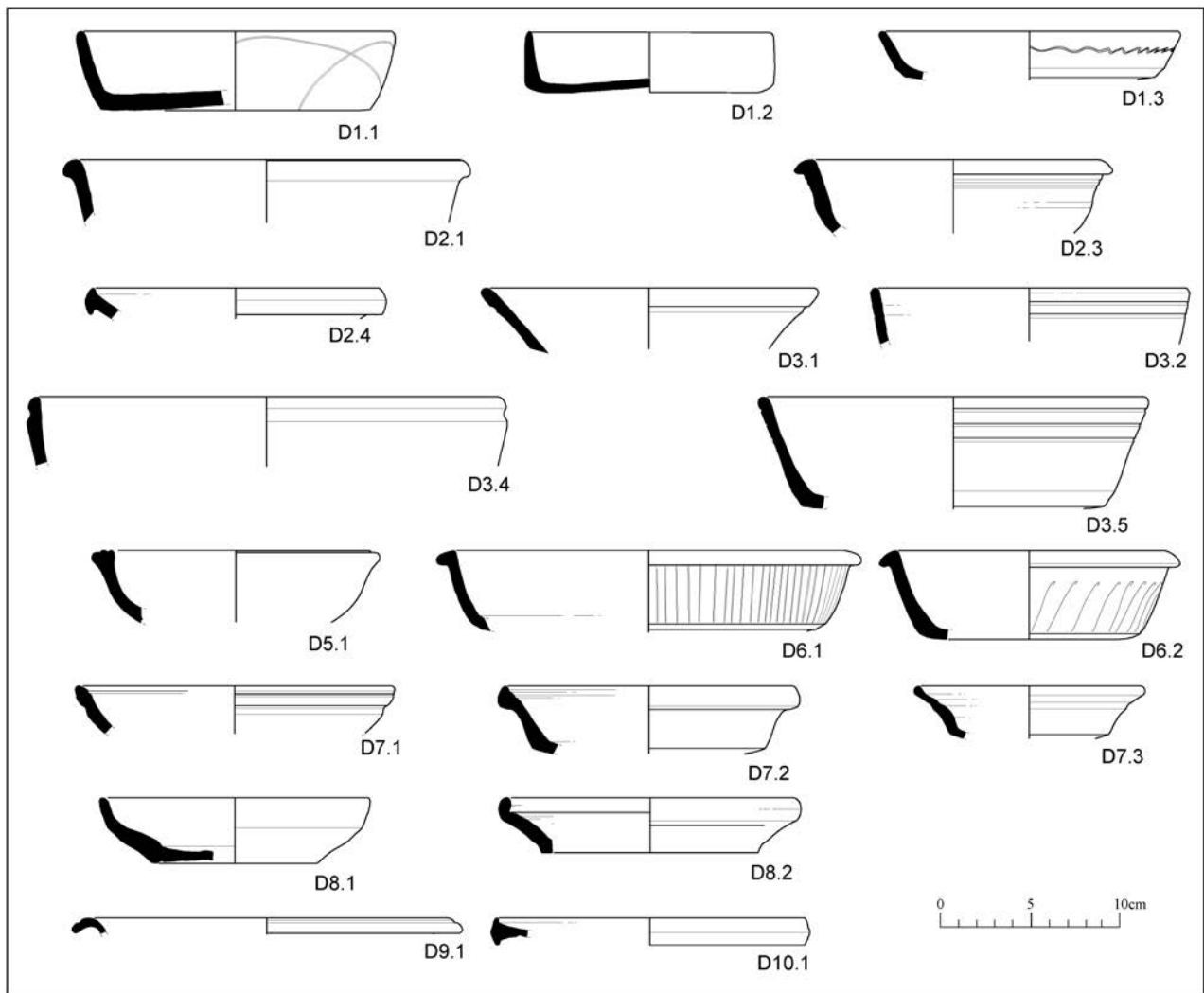


Figure 3.14 Class R, Horningsea wares. Dishes. Scale 1:4

Dishes

Fig. 3.14

D1.0 Simple rimmed dishes

- D1.1** A simple rimmed dish, *cf.* Evans 1991b, no. 66. LITCR (2093)
Examples: Bottisham Tunbridge Lane, Phase 2, Flavian–Trajanic, Phase 3, Hadrianic–early Antonine (2), and unphased; Teversham, Antonine–early 3rd century Group 3 (5), late 4th-century Group 2 (2); LANDCF96 context 76; Milton MILEW95 (12); Cambridge RGS, Antonine Group 4, Group 5, late Antonine (7), Group 6, 3rd to 4th century (21), Group 7 (3), Group 8, Group 9 (7), all 3rd to 4th century; Old Tillage (WATCD97), Phase 1, Antonine (2), Phase 3a, 3rd to early 4th century (24), Phase 4 (2), unstratified (4); Cambridge Rowing Lake (WATRL95) contexts 268 (2), 470 (2), 641, and 712 (2).
Date: Flavian to later 4th century.
- D1.2** A simple rimmed dish with vertical wall, *cf.* Evans 1991b, no. 67. Horningsea.
Example: Cambridge RGS IV 11A, Group 6, 3rd to 4th century.
- D1.3** A simple rimmed platter with a basal chamfer with wavy line decoration on the wall. RGS IV (11Q).
Examples RGS IV 11q Group 5, late Antonine.
Date: Antonine.

D2.0 Bead rimmed dishes

- D2.1** A bead rimmed dish, *cf.* Evans 1991b, no. 69. WATCD97 (538).

Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–early Antonine (3); Teversham Group 3, Antonine–early 3rd century, Group 2, later 4th century; LITCR, context 2147, unphased; MILEW95; Cambridge RGS late Antonine shrine group (5), Group 6 shrine-slump, 3rd to 4th century (4), shaft fill Group 8, 3rd to 4th century; Old Tillage (WATCD97), Phase 3a, 3rd to early 4th century; Bottisham Tunbridge Hall (Peachey 2012).

Date: Perhaps Antonine to mid 4th century.

- D2.2** A dish with an undercut bead rim. Not illustrated
Examples: MILEW95, context 708; Cambridge RGS IV 110, Group 6, 3rd to 4th century (2).
Date: Possibly 3rd to mid 4th century.
- D2.3** A dish with a triangularly-sectioned bead rim and basal chamfer, a BB2 copy. MILEW95 1 / 2 (505)
Examples: Bottisham Tunbridge Lane Phase 4.2, Antonine; LITCR, Phase 3, early to mid 3rd century (2), Phase 5, mid to late 3rd century; MILEW95; Cambridge RGS Group 5, late Antonine (2).
Date: Antonine.
- D2.4** A dish(?), or lid, with a hooked, beaded rim, *cf.* B5.4. RGS IV (11KC).
Example: RGS IV 11KC, Group 5, late Antonine.
Date: Probably 2nd century.

D3.0 Grooved rim dishes

- D3.1** A simple grooved rim dish, Evans 1991b, no. 68. WATCD97 (445).

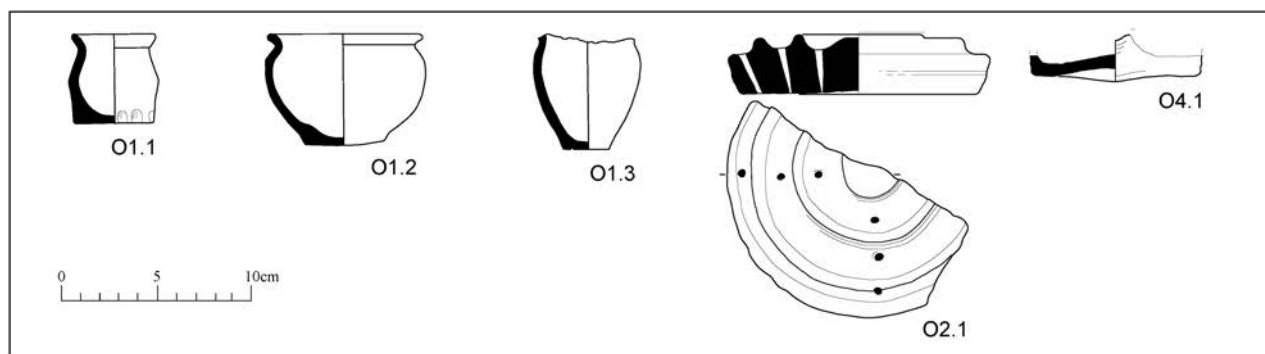


Figure 3.15 Class R, Horningsea Wares. Other forms. Scale 1:4

Examples: Teversham Group 3, Antonine–early 3rd century; LANDCF96, context 91; LITCR, Phase 6, early 4th century (2), Phase 7, mid 4th century; MILEW95 (2); Cambridge RGS, Group 5, late Antonine (16), Group 6, 3rd to 4th century, Group 7, 3rd to 4th century; WATCD97, Phase 3a, 3rd to early 4th century (11), unstratified (5); Bottisham Tunbridge Hall (Peachey 2012).
Date: Hadrianic–Antonine, perhaps continuing on until the mid 4th century.

- D3.2** A simple rimmed dish with double groove below rim. BOTTLLI (263).
Examples: Bottisham Tunbridge Lane Phase 5, Antonine–early 3rd-century; LITCR, Phase 8, mid to later 4th century; Cambridge RGS IV 110, Group 6, 3rd to 4th century (2).
Date: Perhaps Hadrianic–mid 4th century.
- D3.3** Not used.
- D3.4** A dish with a deep groove beneath the rim, defining a beaded rim, *cf.* D7.1. MILEW95 2 (376).
Examples: MILEW95; RGS IV 11E, Group 5, the later Antonine shrine.
- D3.5** A simple rimmed dish with three grooves on the wall. LITCR (2015).
Example: There is a single example from LITCR, unphased.

D4.0 Category not used

D5.0 Reeded rim dishes

- D5.1** A reeded-rimmed curving-walled dish, *cf.* Camulodunum (Hawkes and Hull 1947) type 42, 1st century; *cf.* Denny Abbey (Millett 1980, fig. 49), type CA18.

D6.0 BB copy dishes

- D6.1** A dish with a bead rim and basal chamfer, a BB2 copy. BOTTLLI (246).
Examples: Bottisham Tunbridge Lane, Phase 3, Hadrianic–mid Antonine; Cambridge RGS Group 5, late Antonine, and Group 6, 3rd to 4th century.
Date: Antonine (or later).
- D6.2** A dish with a triangularly-sectioned bead rim, a BB copy. RGS IV (11C).
There is a single example from Cambridge RGS Group 5, late Antonine.
Date: 2nd century.

D7.0 Internally grooved Gallo-Belgic copy dishes

- D7.1** A curving walled dish, heavily grooved beneath simple rim and internally grooved, a Gallo-Belgic dish copy, Camulodunum (Hawkes and Hull 1947) type 32c. BOTTLLI (103).
Example: Bottisham Tunbridge Lane, Phase 3, a Hadrianic–mid Antonine group containing much residual earlier material.
Date: Perhaps Flavian–Hadrianic.
- D7.2** A curving walled dish with thickened triangularly-sectioned rim, internally double grooved, probably carinated, probably

a Gallo-Belgic derived form, *cf.* Camulodunum (Hawkes and Hull 1947) type 23A. LITCR (2023).
There is a single example from LITCR context 2023, unphased.

Date: Perhaps Flavian–Hadrianic.

- D7.3** A Gallo-Belgic dish copy, perhaps *cf.* Camulodunum (Hawkes and Hull 1947) type 14. RGS VI (30).
There is a single example from Cambridge RGS VI 30, Group 8, 3rd to 4th century.
Date: Perhaps Flavian–Hadrianic.

D8.0 Other Gallo-Belgic dish copies

- D8.1** A Gallo-Belgic dish copy, perhaps derived from Camulodunum (Hawkes and Hull 1947) type 24. BOTTLLI (110).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–mid Antonine with residual earlier material; MILEW95.
Date: Perhaps Flavian–Hadrianic.
- D8.2** A concave walled Gallo-Belgic dish copy with interned rim, perhaps derived from Camulodunum (Hawkes and Hull 1947) type 28C. BOTTLLI (313).
Example: Bottisham Tunbridge Lane Phase 3, Hadrianic–mid Antonine with much residual earlier material.
Date: Perhaps Flavian–Hadrianic.

D 9.0 Other dishes

- D9.1** A rim fragment from a curving, undercut dish(?) rim, possibly a Dr 36 copy. MILEW95 1/2 (549).
Example: There is a single example from MILEW95.

D10.0 Dishes with collared rims

- D10.1** A dish with a collared rim. MILEW95 1/2 (495).
Example: There is a single example from MILEW95.

Other forms

Fig. 3.15

O1.0 Miniature jars

- O1.1** A miniature jar with beaded rim, *cf.* Evans 1991b, no. 49. There is no example of this form in the database.
- O1.2** A miniature bowl with a beaded rim, *cf.* Evans 1991b, no. 48. Horningsea.
There is no example of this form in the database.
- O1.3** A miniature jar with an everted rim, Evans 1991b, no. 47. Horningsea.
There is no example of this form in the database.

O2.0 Cheese Presses

- O2.1** A cheese press lid. WATCD97 (480/481).
Example: There is a single example of the form from WATCD97, unstratified.

O3.0 Miniature dish

- O3.1** A miniature groove rimmed dish with a basal chamfer, perhaps 2nd century. BOTTLLI (206). Not illustrated.

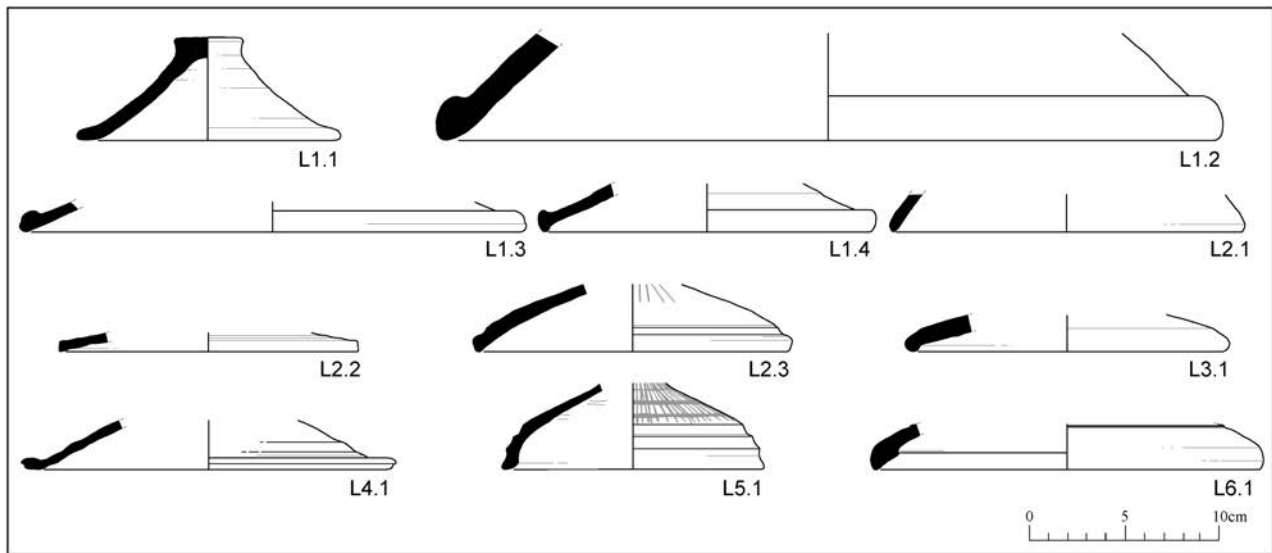


Figure 3.16 Class R, Horningsea wares. Lids. scale 1:4

Example: There is a single example from Bottisham Tunbridge Lane Phase 6.1, later 3rd to 4th century.

O4.0 Open lamps

O4.1 An open lamp. LITCR (3029).

Example: There is a single example from LITCR Phase 8, mid to later 4th century.

Lids

Fig. 3.16

L1.0 Lids with beaded rims

L1.1 A lid with a beaded rim. WATCD97 (445).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine, Phase 4.2, Antonine, unstratified (4); MILEW95 (2); Cambridge RGS Group 5, late Antonine (14), Group 6, 3rd to 4th century, Group 8, 3rd to 4th century (4); Old Tillage (WATCD97) Phase 3a, 3rd to early 4th century (9), unstratified (3);
Date: This distribution matches the general frequency of lids in Roman assemblages, and suggests, as usual, that they are almost an exclusively 1st- to 2nd-century type.

L1.2 A lid with an undercut, beaded rim. WATRL95 TR30 (287).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine; Cambridge RGS, Group 5, late Antonine (3), Group 6, 3rd to 4th century; Old Tillage (WATCD97), Phase 3a, 3rd to early 4th century (2), unstratified (3); WATRL95, contexts 287 and 1000.
Date: This distribution suggests a later 1st- to 2nd-century range for the type.

L1.3 A lid with a beaded, grooved rim. MILEW95 1 / 2 (704).
Example: There is a single example from MILEW95.
Date: Probably later 1st to 2nd century.

L1.4 A lid with a collared, internally and externally beaded rim. RGS IV (11C).
Examples: Cambridge RGS, Group 4, Antonine, Group 5, late Antonine (6).
Date: Perhaps Antonine.

L2.0 Simple rimmed lids

L2.1 A simple rimmed lid. WATCD97 (538).
Examples: Bottisham Tunbridge Lane, Phase 2, Flavian–Trajanic, Phase 3, Hadrianic–early Antonine (8), Phase 6.1, later 3rd to 4th century, unstratified (2); Waterbeach Old Tillage (WATCD97), Phase 2, Antonine, Phase 3a, 3rd to early 4th century (3).
Date: Probably 1st to 2nd century.

L2.2 A simple rimmed lid with a squared end. WATCD97 (430).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine; Waterbeach Old Tillage (WATCD97), Phase 1, mid to late Antonine, Phase 3a, 3rd to early 4th century.
Date: Probably 1st to 2nd century.

L2.3 A lid with a squared, stepped rim. BOTTLII (103).
Example: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

L3.0 Internally beaded lids

L3.1 A lid with an internally beaded rim. WATCD97 (119).
Examples: Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine; Waterbeach Old Tillage (WATCD97) Phase 1, Antonine.
Date: Perhaps Hadrianic–Antonine.

L4.0 Lids with out-turned rims

L4.1 A lid with an out-turned rim, squared and grooved at the tip. BOTTLII (108).
Example: There is a single example from Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

L5.0 Curving-walled lids with heavy grooves

L5.1 A curving walled lid, heavily grooved near the rim. BOTTLII (103).
Example: There is a single example from Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

L6.0 Lids with a squarely beaded rim

L6.1 A lid with a with a squarely beaded rim. BOTTLII (102).
Example: There is a single example from Bottisham Tunbridge Lane Phase 3, Hadrianic–early Antonine.

Decoration

Figs 3.17–3.19

Fine combing or rilling

1. Wide-mouthed carinated jar, Type J5.1.
2. Braughing-type jar, Type J10.5.
3. Globular jar with narrow band of rilling on neck, Type J6.1.
4. Globular jar with narrow band of rilling on shoulder, Type J10.2.
5. Globular jar with narrow band of rilling on body (Evans 1991b, no. 42).

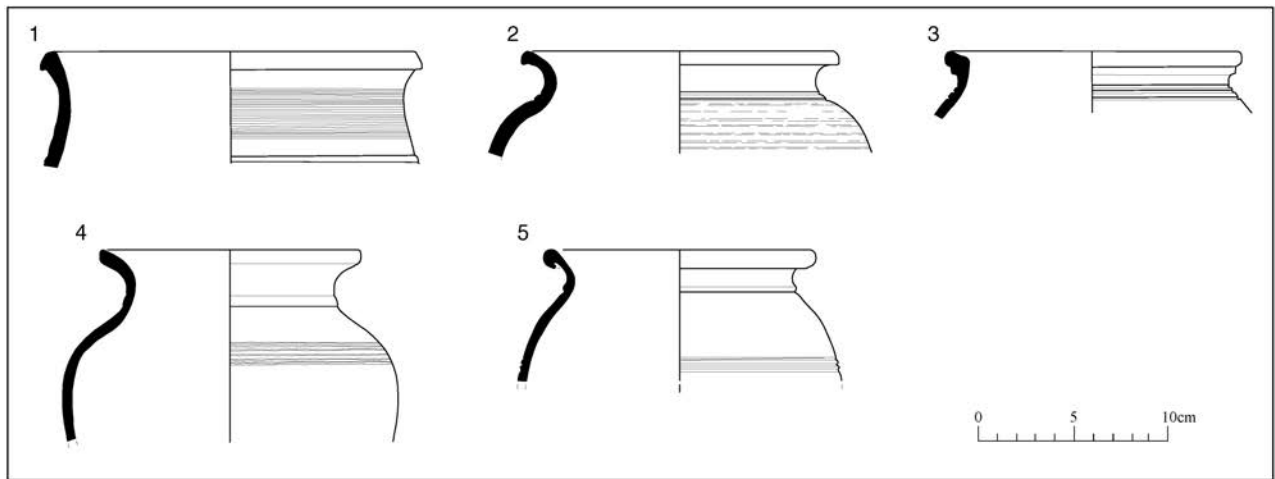


Figure 3.17 Decoration: rilling. Scale 1:4

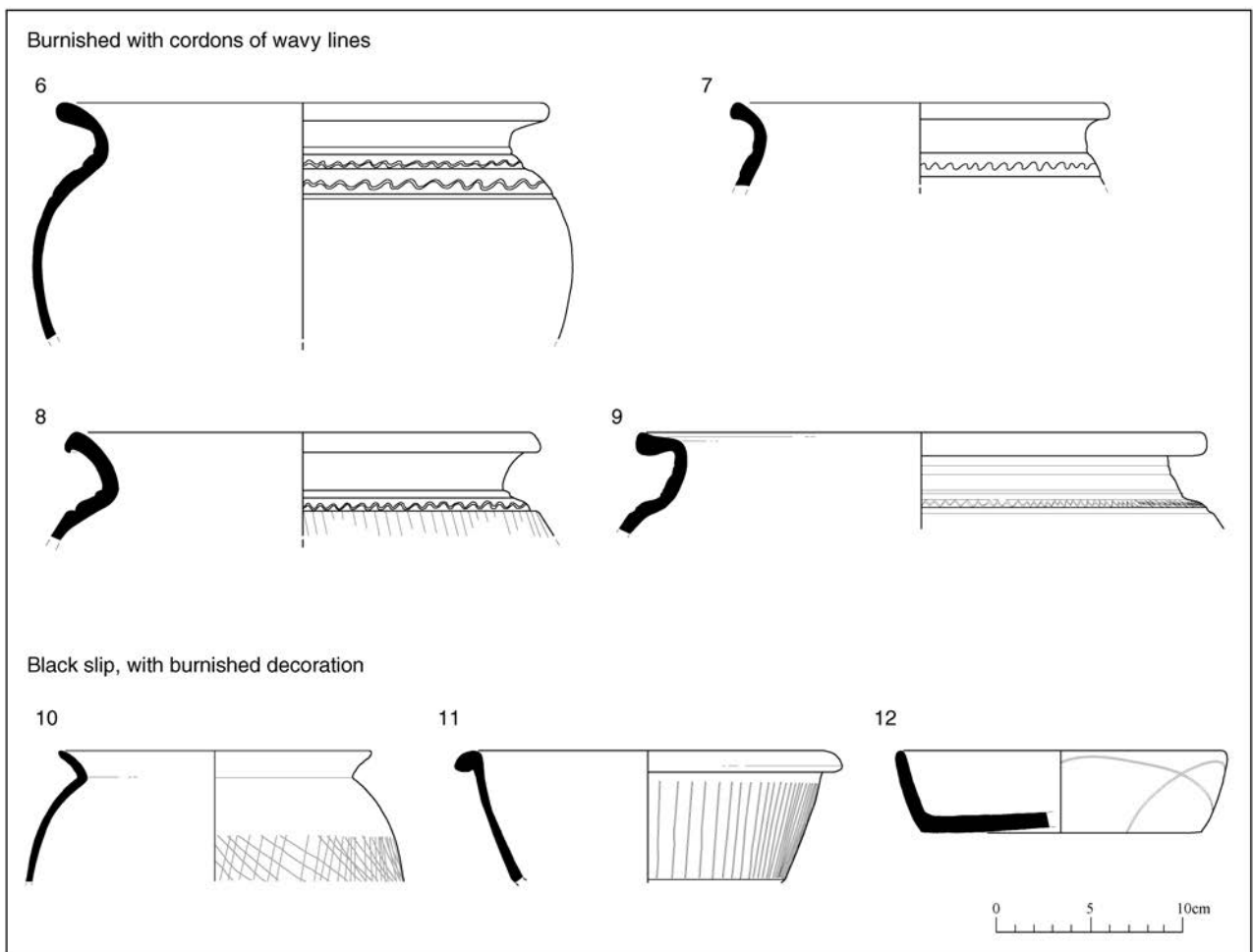


Figure 3.18 Decoration: burnishing and black slip. Scale 1:4

Burnishing

- | | |
|---|---|
| <p>6. Rim burnished and cordons decorated with burnished wavy lines, grey slip interior and exterior (Evans 1991b, no. 18).</p> <p>7. Rim burnished and cordon decorated with burnished wavy line, buff slip interior and exterior (Evans 1991b, no. 19).</p> <p>8. Hooked rimmed jar with shoulder cordons, rim and neck burnished (Evans 1991b, no. 25).</p> <p>9. A necked jar with an everted horizontal rim and cordon of burnished wavy line decoration, Type J10.13.</p> | <p>10. Neckless jar with an everted rim, BB2 copy, decorated with burnished cross-hatch, Type J6.6.</p> <p>11. A straight-sided bowl with a beaded undercut rim, BB2 copy, decorated with burnished vertical lines, Type B5.2b.</p> <p>12. A simple or straight-sided dish, decorated with burnished arcs, Type D1.1.</p> |
|---|---|

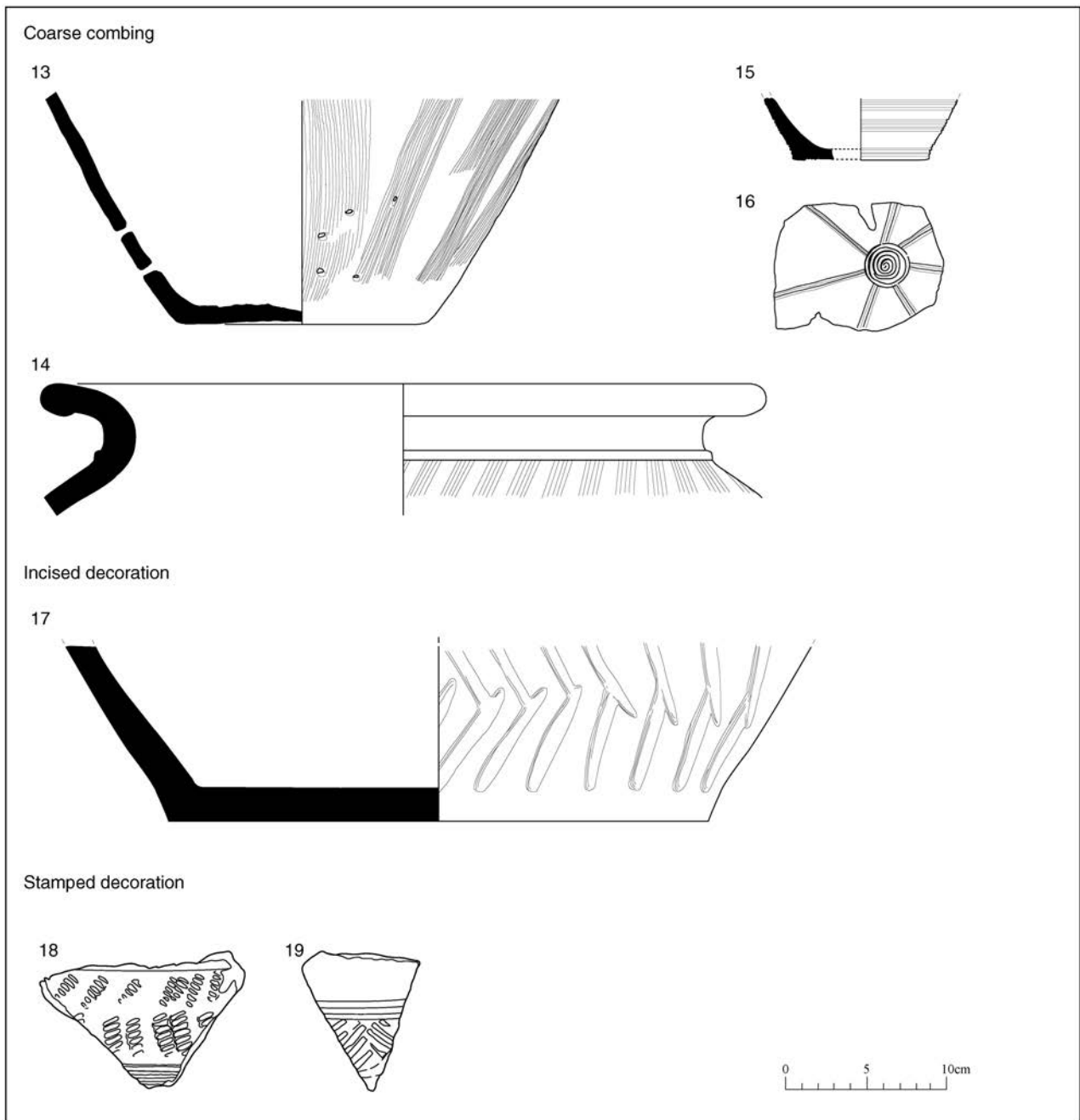


Figure 3.19 Decoration: coarse combing, incised and stamped decoration. Scale 1:4

Coarse combing

13. A storage jar base (Fabric R021) with bands of irregular coarse combing. This example has a circle of five surviving drilled holes in the lower wall (see Digital Chapter 11.VIII). Milton Fen End (Green's Pits).
14. Large storage jar with everted rim and bands of vertical coarse combing decoration (Cameron 1996, fig. 158, no. 107).
15. Jar with horizontal bands of coarse combing (Evans 1991b, 77).
16. Internal surface of jar base with radiating coarse combing, R021 LITCR LITCR98 context 2015, unphased.

Incised

17. Storage jar base, with typical gouged decoration (Walker 1912, 60, fig. 50; Evans 1991b, no. 76).

Stamping

18. A body sherd with stamped decoration. RO2 Cambridge RGS VII 9B, Group 7, 3rd–4th century.
19. A body sherd with roller-stamp decoration. RO2 Teversham HFT B NB, Group 2, later 4th century.

Miscellaneous

Fig. 3.20

Stamp

1. A Gallo-Belgic copy dish base in fabric R02 with fragmentary stamp terminal. Teversham HFT B 82 VI (lyyy) = Site B Trench VI, F.9, Group 4, early 2nd century.

Counters

2. About half of a counter in fabric R02, diam *c.*31mm. WATCD97 (423), Phase 3a, 3rd to early 4th century.

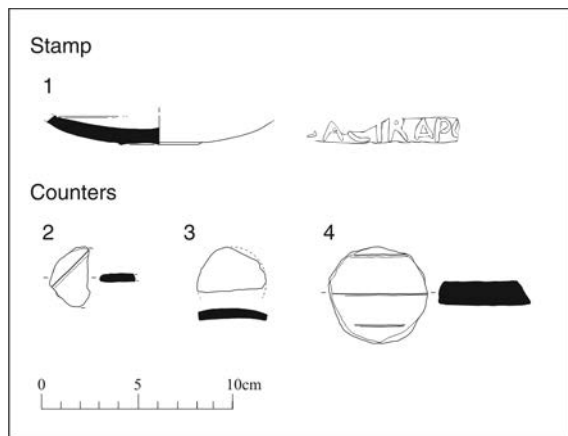


Figure 3.20 Stamp and counters. Scale 1:4

3. About half a counter in fabric R02, diam c.35mm. Teversham HFT B IV (2x) = Site B, 1986, Feature 2. Group 3, Antonine–early 3rd century.
4. A counter made from a storage jar body sherd in Fabric R021, c.47 x 52mm. LITCR 98, context 3047, Phase 5, mid to later 3rd century.

Functional analysis

Tables 3.9–3.14

Table 3.9 shows a functional analysis of all the vessels recorded from the Old Tillage site in fabric R02, fabric R021, and in all the Horningsea fabrics. As is well known, it is clear that the vast majority of the storage jars are in the handmade fabric R021. However, this was also used for about half the constricted-necked jars and a small minority of the other jars were also definitely handmade. Amongst the wheelmade products, jars still form a considerable majority, with table wares at around 32%. Overall around 10.6% (by rim count) of the Horningsea products here were storage jars, a level broadly comparable with those from most sites receiving the products, and 52% were jars, with table wares representing around 28%. Table wares are more common than in some grey ware industries, and levels were probably approximately in line with average consumption levels on basic level rural sites.

Table 3.10 shows the functional analyses of vessels in Horningsea fabrics from Phase 1 and Phase 3a, the two groups large enough to give meaningful results. It shows that the mid 2nd-century group from Phase 1 is largely dominated by jars with very few table wares, but with a considerable element of storage jars, well above the site average. This group includes the material from the excavated kiln specialising in jars and storage jars, and this material is distorting the assemblage composition

Fabric	Phase	CJ	J	SJ	B	D	O	L	N
R02	1	4.3	82.9	0	7.1	2.9	0	2.9	70 rims
R021	1	9.8	12.2	78.1	0	0	0	0	41 rims
R02	3a	4.3	58.1	0.3	22.2	10.3	0.3	4.6	351 rims
R021	3a	0	0	100	0	0	0	0	19 rims
All	3a	4.1	55.1	5.4	21.6	9.8	0.3	4.3	370 rims

Table 3.10 Waterbeach, Old Tillage. Functional analysis of Horningsea fabrics by phase, for groups containing adequate quantities of material, percentage of MNR

Fabric	CJ	J	SJ	B	D	L	O	N
R02	4.9	58.3	0.2	22.0	9.6	4.5	0.4	509 rims
R02	11.5	56.2	0.2	20.3	6.2	4.1	1.2	47.63 RE
R021	5.8	7.2	87.0	0	0	0	0	69 rims
R021	23.9	14.6	61.5	0	0	0	0	6.49 RE
All	5.0	52.3	10.6	19.4	8.5	4.0	0.4	578 rims
All	13.0	51.2	7.5	17.8	5.5	3.6	1.1	54.12 RE

Table 3.9 Waterbeach, Old Tillage. Functional analysis of all vessels in fabrics R02 and R021, percentage MNR and RE

figures in this phase. The Phase 3a assemblage is less jar dominated, although these vessels still form a majority of the rims, and there are many fewer storage jars. As a consequence table wares are better represented, although still a minority of the material.

Tables 3.11–14 show functional analyses of Horningsea grey wares from various sites for which data are available. Table 3.11 shows the analysis of vessels from Littleport, where the overall figures suggest that the vast majority of vessels were jars, particularly amongst the wheelmade sherds in R02. There is also an open lamp in R02 (Fig. 3.15, O4.1) from Phase 8. As might be expected, the vast majority of the handmade sherds were from storage jars, but there were a few clearly handmade jars. The black surfaced fabric variant (R04) was entirely restricted to table wares, in accordance with the BB2 repertoire which was being copied.

Digital Table App. 5.63 shows the incidence of sooting on vessels in the most common fabrics from Littleport. This has rather surprising results. As might be expected, the most frequently sooted fabric is shell-tempered ware C12, at 40.8%, but the second most commonly sooted fabric is Central Gaulish samian ware at 29.7%, whilst the third most common is R22, Nene Valley grey wares, at 18.5%. BB1 comes in at 14.3%, but the Horningsea wares are only around 6%. This tends to suggest that the Horningsea wares were not being used as cooking vessels on the site.

Table 3.11 shows the all-site functional analysis of Horningsea vessels from the predominantly later 1st- to mid 2nd-century assemblage from Bottisham Tunbridge Lane. Again around 60% of these are jars, with a relatively low representation of table wares, and in this earlier assemblage lids are relatively common at 11%. Overall functional levels are very similar between the two sites (*i.e.* Bottisham and Littleport). Fabric R04, Horningsea black surfaced BB copies, represent around 1.2% of the grey wares. They occur from Phase 3 onwards. Forms

<i>Site</i>	<i>Fabric</i>	<i>CJ</i>	<i>J</i>	<i>SJ</i>	<i>WMJ</i>	<i>B</i>	<i>D</i>	<i>L</i>	<i>O</i>	<i>N</i>
Littleport, Camel Road	R02	0.7	59.4	0	0.7	22.8	4.7	11.4	0.3	298
	R021	0	15.4	84.6	0	0	0	0	0	26
	R04	0	0	0	0	78.6	21.4	0	0	14
	All Horningsea	0.6	53.6	6.5	0.6	23.4	5.0	10.1	0.3	338 rims
Bottisham, Tunbridge Lane	R02	0.7	59.4	0	0.7	23.2	4.4	11.4	0.3	298 rims
	R02	0.8	56.1	0	0.4	24.7	3.8	13.0	1.3	3706%
	All Horningsea	0.6	53.6	6.5	0.6	23.7	4.7	10.1	0.3	338 rims
	All Horningsea	0.7	53.3	5.1	0.3	24.1	3.8	11.6	1.2	4131%
Cambridge, Newmarket Road	All Horningsea	0	69.7	15.2	0	0	15.2	0	0	33 rims
Waterbeach, High Fen	All Horningsea	4.9	63.4	7.3	0	14.6	7.3	2.4	0	41 rims
Waterbeach, Denny Abbey	All Horningsea	0.8	43.3	6.7	0	35.0	13.3	0.8	0	120 rims

Table 3.11 Functional analysis of Horningsea grey wares at five sites, percentage of MNR or RE

represented are again all dishes and bowls, three dishes and eleven bowls, most being BB2 copies.

The functional analysis of all the Horningsea wares from the Cambridge Newmarket Road site is presented in Table 3.11. The assemblage is relatively small but it has more jars and considerably more storage jars than the previous sites. This probably reflects the overall functional composition of the assemblage from this site, which seems to be below the level of the average basic level rural site.

Table 3.11 shows the functional analysis of Horningsea vessels from Waterbeach High Fen (data from Millett 1980). Here, jar levels are a little higher than at Littleport and Bottisham Tunbridge Lane and table ware a little lower. As at Newmarket Road this seems to reflect the overall functional composition of the site and its position, like that of Newmarket Road, at the very bottom of the settlement hierarchy. With both of these sites perhaps occasional or seasonal occupation might be considered as a model.

In contrast, the functional analysis of the collection from Denny Abbey shows relatively low jar levels and table wares are very strongly represented at 43.3% (Table 3.11). The assemblage here is many ways comparable to that from the 4th-century 'villa' site at Bottisham Tunbridge Hall (Peachey 2012) below, and the sites may have been of similar status.

Table 3.12 shows the overall occurrence of Horningsea fabrics and forms in the recorded groups at Cambridge Castle Hill. In Groups 5 and 6 the wheelmade grey ware (R02) vessels consist largely of jars, with some table wares and a few lids and constricted-necked jars. The handmade fabric (R021) is, of course, mainly in storage jars, but accompanied by small numbers of other jars, and the black burnished imitation fabric (R04) is predominantly in table wares, but accompanied by a minority of jars. Much the same appears to be true for all the Horningsea material examined from the site. The overall Horningsea assemblage from Castle Hill fits well with the pattern seen at Littleport and on most of the rural sites, with high levels of jars and moderate quantities of table wares. It does not fall into the table ware dominated pattern seen in the late phases at Bottisham Tunbridge Hall or Denny Abbey.

<i>Fabric</i>	<i>CJ</i>	<i>J</i>	<i>SJ</i>	<i>B</i>	<i>D</i>	<i>L</i>	<i>N</i>
R02	2.4	69.7	0.2	13.5	8.5	5.7	505 rims
R02	7.3	66.2	0.1	12.0	6.9	7.6	50.10 RE
R021	0	24.2	74.2	0	0	1.6	62 rims
R021	0	21.8	72.9	0	0	5.3	4.54 RE
R04	2.4	35.4	0	27.6	33.1	1.6	127 rims
R04	4.4	36.6	0	33.9	23.7	1.4	13.38 RE
All	2.2	59.4	6.8	14.8	12.2	4.6	694 rims

Table 3.12 Cambridge, Ridgeons Gardens South. Functional analysis of all Horningsea vessels, percentage of MNR and RE

Table 3.13 shows the functional analysis of the Horningsea wares from Little Paxton. There the BB copies (R04) are more common than on many sites and, overall, table wares are more common than jars. This falls into the pattern for Bottisham Tunbridge Hall and Denny Abbey but the overall site functional analysis does not. It may be that the Horningsea figures are distorted by the quantity of R04 here.

Table 3.14 shows the functional analysis of the Horningsea wares from the three 4th-century phases from Bottisham Tunbridge Hall (Peachey 2012). Here, jars are in a minority in the first two phases and table wares are dominant. The table ware dominance presumably reflects the overall functional composition of those assemblages (although these data are not available), reflecting the status of the site as a part of a 'villa' estate. The decline through the sequence suggests some possible decline in the status of the site with time. It should be noted that, although a majority of Horningsea grey ware products are jars, the assemblage is not totally jar dominated, unlike those of many grey ware producers. Rather, the Horningsea kilns seem to have produced overall quantities of types which well reflect the functional composition of assemblages on basic level rural sites, that is, they appear to have targeted a broad general range of types in appropriate quantities to suit the needs of most consumers on such sites.

<i>Fabric</i>	<i>CJ</i>	<i>J</i>	<i>SJ</i>	<i>B</i>	<i>D</i>	<i>N</i>
R02 & R021	3.0	65.2	1.5	9.1	21.2	66
R04	0	6.3	0	54.2	39.6	48
All	1.8	40.4	0.9	28.1	29.0	114 rims

Table 3.13 Little Paxton. Functional analysis of grey wares (percentage of MNR)

<i>Phase</i>	<i>J</i>	<i>SJ</i>	<i>B</i>	<i>D</i>	<i>L</i>	<i>N</i>
2	30.9	5.9	25.0	38.2	0	68 rims
2	38.1	5.6	24.2	32.1	0	6.66 RE
3	40.7	4.7	17.4	36.1	1.2	86 rims
3	44.3	3.6	20.2	30.2	1.7	6.99 RE
4	48.9	2.2	24.4	24.4	0	45rims
4	56.4	1.0	20.0	22.6	0	4.95 RE

Table 3.15 shows the form occurrences of Horningsea vessels at Foxton from Lucas' (1997) form type series and tabulation of occurrence by context.

Table 3.14 Bottisham, Tunbridge Hall. Functional analysis of Horningsea wares, percentage of MNR and RE (after Peachey 2012)

<i>Function</i>	<i>Lucas' form</i>	<i>Horningsea Type Series form</i>	<i>No of contexts of occurrence</i>	<i>Lucas' figure or reference</i>	<i>Date</i>	<i>Lucas' date</i>
CJ	NM1.1	CJ1.2?	1	-	Ant	M-LC1
CJ	NM1.2	CJ1.4	1	Cam 232A	Ant	M-LC1
SJ	SJ1.1	SJ1.1	3	-	Flav-MC4	C1-4
SJ	SJ1.2	SJ1.2	16	-	Flav-MC4	C1-4
SJ	SJ1.5	SJ2.2/2.3	7	Fig. 35, No. 86	Ant+	C2-4
SJ	SJ1.7	-	2	Fig. 35, No. 85	Ant+	LC4?
SJ	SJ12.1	-	1	Going (1987) type G42		C4
J	J1.1	J10.5	3		Flav-Ant?	
J	J1.3	J10.1/J10.3	1	Cam 266	Flav-MC4	MC1-EC2
J	J1.4	J10.1/J10.4?	2	Cam 277	Flav-MC4	AD180-330
J	J1.5	J10.5	6	Fig. 33, Nos 71-2	Flav-Ant ?	
J	J2.4	J1.1	2	Going (1987) type G28.1	Flav-MC4	
J	J2.5	J10.4	6	Cam 268B; Fig. 33, Nos 67-8	Flav-MC4	180-330
J	J2.7	-	2	Gillam (1970) type 109		
J	J3.2	J3.2?	3	Going (1987) type G5.3	Flav-E Ant?	LC1-EC2
J	J3.6	J7.1	1	Cam 256-9	?	M-LC1
J	J3.9	J6.2	2	Cam 256-9; Evans (1991b) type 43	Ant-MC4	LC2-C4
J	B1.14	J10.1	6	Cam 221 type; Going (1987) type E6	Flav-MC4	C2-4
J	B1.16	J2.5	1	Fig. 31, No. 41		C4
J	B1.3	cf. J5.1?	1	Cam 220B; Fig. 31, No. 34	Flav-Traj?	M-LC1
J	B8.1	J6.1/6.2	4	Cam 307; Going (1987) type E2.2	Flav-MC4	AD180-330
J	B1.1	J10.3?	1	Cam 220A	Flav-MC4	M-LC1
Bk	Bk5.1	-	1	Bag beaker w short, everted rim		AD70-230
Cu	D2.4	C1.1	1	Evans (1991b) type 50		LC1-C2/4
B	B1.9	B1.1	1	Cam 222	Flav-Ant	M-LC1
B	B6.5	-	1	Carinated bowl with everted flanged bead rim		AD70-120
B	B9.1	B6.1	1	Going (1987) B6.1	AD 270+	AD 240-320
B	B9.2	B6.1	1	Pointed angular flange and bead rim	AD 270+	AD 270+
B	B9.4	B6.1	7	Going (1987) B6.3	AD 270+	AD 260+
B	D2.5	B13.1/B8.1?	4	Dr 31 copy, Fig. 40, No. 10	Ant-C3+	C2-4
B	D5.1	B5.3	3	Fig. 30, No. 29, flanged rimmed bowl	Had-C4	C2-4
D	D3.4	-	1	Gillam (1970) type 334		AD 350+
D	D4.1	D1.3	3	Gillam (1970) type 328	Ant	AD 160-200
D	D4.2	D1.1	4	Fig. 30, Nos 24-25	Flav-MC4	C2-4
D	D5.2	D2.2/D2.3	3	Fig. 30, No. 28	Flav-MC4	C2-4
L	L3.1	-	1	Fig. 32, No. 60		?C4

Table 3.15 Horningsea forms at Foxton after Lucas' (1997) form type series, by numbers of contexts including the type

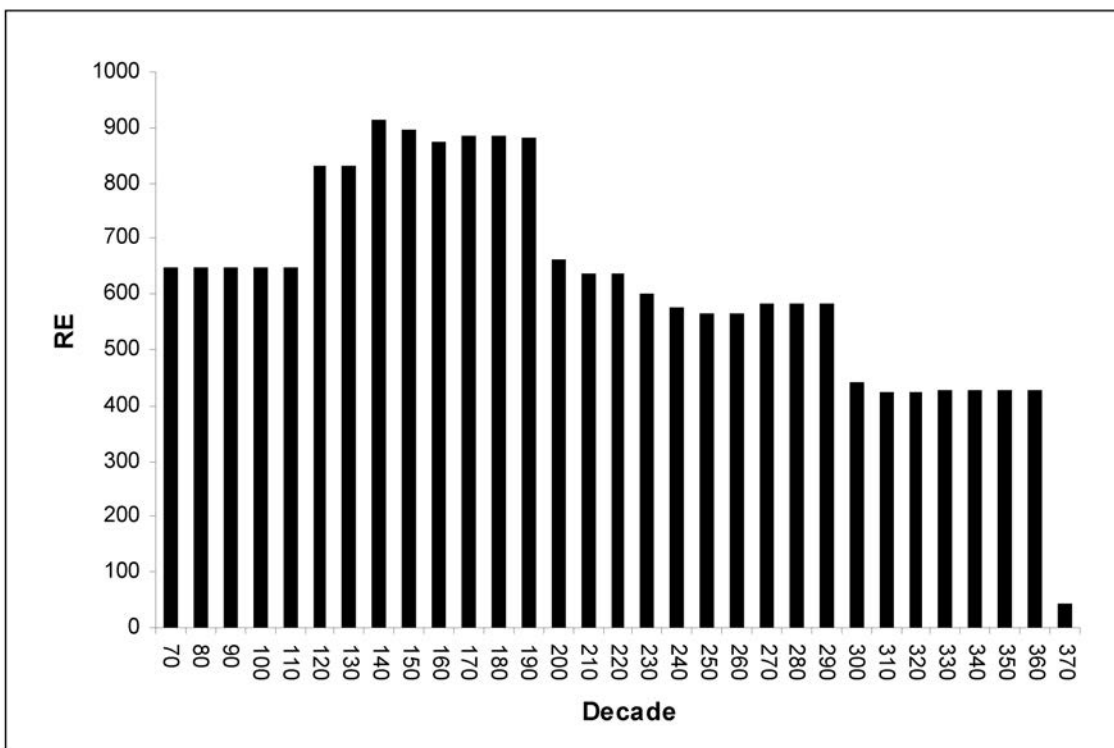


Figure 3.21 Date distribution of all Horningsea forms from the study, by RE

VI. Discussion: the Date and Distribution of Horningsea Ware

Horningsea ware dating

Fig. 3.21

The sites encompassed by this entire study have provided a very useful sequence for dating Horningsea products and elucidating the date of the commencement of the industry: the date distribution by RE is given in Figure 3.21. Key to this is the assemblage from Bottisham Tunbridge Lane. Here the site samian list consists of 49% South Gaulish pieces, all of Flavian–Trajanic date, 11% from Les Martres-de-Veyre, largely of Trajanic date, and 39% from Central Gaul, of Hadrianic–early Antonine date. Only 1.4% of the assemblage consists of ‘Belgic’ type grog-tempered fabrics and this low occurrence combined with the absence of pre-Flavian samian ware strongly suggests a lack of pottery deposition and activity at Bottisham Tunbridge Lane before the Flavian period. The South Gaulish samian includes a number of pieces which must be of Flavian date, although some of this material could be Trajanic, and the relatively strong representation of Les Martres material suggests strong deposition of pottery on the site in this period. Ward (Digital Appendix 1) notes that ‘More than half of the SG ware appeared to have been produced in the Flavian period; three vessels were dated specifically c.AD 75–95/100 and only four vessels were dated firmly after c.AD 80’. Amongst the Central Gaulish material late Antonine forms are almost absent. Overall it would appear that the vast majority of the Central Gaulish samian from the site is of Hadrianic, rather than later, date.

The absence of pre-Flavian activity at Bottisham Tunbridge Lane and the absence of Horningsea products from early levels at Castle Hill (although there are Belgic

storage jars of similar forms), combined with their strong early showing at Bottisham, suggests that the industry commenced in the Flavian period. At this time the continuation of production of Gallo-Belgic imitations (Form classes D7–D8) and 1st-century reeded rim bowl/dish forms (Form classes B9 and D5) is explicable, and some other grey ware industries also produced a few of the former, presumably at this date. The decade AD 60–70 is suggested as there is a region-wide phenomenon of ‘Belgic’ style (largely) grog-tempered wares being replaced by grey ware industries of much more disparate cultural influences at this time. (Of course, the ‘Belgic’ pottery horizon might be much better termed Gallo-Roman (Creighton 2000; Evans 2005). See Digital Chapter 4.II.)

Confirmation of a Flavian date for the inception of the industry comes from Great Chesterford. Here, the Flavian latrine pit F101 on the Eastgate site contained Horningsea wares (Martin 2011). Similarly Pit 10 in trench IV of the Churchyard site dated c.AD 60–80/90 produced 4% of Horningsea wares (Martin 2011).

The lack of occupation at Old Tillage, Waterbeach in the Flavian–Trajanic period suggests that the earliest focus of the industry may well have been around Eye Hall Farm. The Waterbeach assemblage provides a good group in which none of the material can be residual from the pre-Hadrianic period, with most being of Antonine to 3rd-century date, and a little dated to the early 4th century. An assemblage starting at a similar date comes from Littleport. Here, the samian ware includes no South Gaulish samian; there is 93% Central Gaulish ware and 7% East Gaulish, in a list of 147 sherds and 109 vessels. This conclusively points to a lack of Flavian–Trajanic activity on the site. Digital Fig. App.1.8 shows all the samian ware plotted by its date distribution. Deposition clearly starts in the Hadrianic–early Antonine period, but

it is weak until the later 2nd century. Relatively speaking the East Gaulish samian list is reasonably strong and should imply 3rd-century samian deposition. Digital Fig. App. 1.9 shows a similar date distribution plot for all rim sherds with a fairly restricted date range. Again it shows the Hadrianic start to pottery deposition and an Antonine peak. This figure of course incorporates the samian evidence, meaning that it is somewhat exaggerated. A further good late Antonine group comes from the Shrine, Group 5, at Cambridge Castle Hill (see Digital Chapter 10).

The 3rd and particularly the 4th century have presented difficulties in producing closely dated groups in which the presence of substantial residual elements can be discounted. Horningsea wares are clearly present in considerable quantities in groups of this date, to such an extent that it is difficult with quantified assemblages not to conclude that these wares are contemporary, but distinguishing the types in use has been difficult. The early to mid 4th-century villa estate site at Bottisham Tunbridge Hall (Peachey 2012) largely solves this problem, although in doing so it becomes clear that the main difficulty in seeking new later Roman types for the industry is that they largely do not exist. Horningsea turns out to be an intensely conservative industry where the last major change in repertoire took place in the Antonine period, the only common type added after this time being the developed beaded and flanged bowl, which presumably appeared sometime after AD 270 when the BB1 prototype appeared.

Horningsea ware distribution

Distribution by period

Fig. 3.22

Introduction

This brief discussion provides a summary overview of the distribution of Horningsea wares, and draws on the period-based analysis of the Horningsea ware distributions in Chapter 4 which discuss the industry in the context of other contemporary fabric distribution. The findings are set into their wider context in the thematic discussions in Chapter 5. The distributions by period are mapped in Figs 4.1–4.4 and compared here in Fig. 3.22.

Flavian–Trajanic (c.AD 70–c.AD 120)

The Horningsea industry commenced in the Flavian period. Whilst data are not extensive for this period they do enable an initial assessment of the distribution of Horningsea wares. From its commencement, the industry was producing on some scale and assemblages on the southern fen edge are dominated by its products. This was no doubt also the case at Cambridge. The industry also managed to extend its distribution as far south as Great Chesterford, and by the Trajanic period had a reasonable market share there. The evidence from Little Paxton suggests that it did not extend its distribution so far to the west of Cambridge as in later periods, but material does appear to have reached Little Barford, and more data from sites west of Cambridge but east of Little Paxton would be desirable. Although absent from London Road, Godmanchester, it appears that Horningsea products reached Watersmeet, Huntingdon, although this must

have been about their northern limit on this road since they are absent from the Sawtry sites and the Nene Valley.

Unfortunately, the data are not available to determine exactly the extent of penetration of Horningsea products down the Cam corridor into the central fenlands at this period. Thus the distribution of Horningsea wares may have had a more circular shape around the kiln site at this date, rather than its later broadly crescent shape, but the data are too few for any certainty. See Chapter 4.I for further discussion on early Horningsea ware distribution.

Hadrianic–Antonine (c.AD 120–c.AD 200)

Figure 3.22 shows the quantified distribution of Horningsea wares in the Hadrianic–Antonine period. The basic distribution – which remains for the rest of the life of the industry – is now set. This is something of a crescent shape, which extends from the kiln site down the Cam corridor deep into the central fenland, and in the other direction extends west of Cambridge at least as far as Little Paxton and Little Barford, with a strong probability that it encompasses Sandy, were data available. However, further south, at Baldock (Stead and Rigby 1986) the fabric is absent and the strong fall-off between Little Barford and Little Paxton and its very low level at London Road, Godmanchester shows the limited extent of this western distribution. From Cambridge north the distribution mechanism would seem to have been along the River Cam, but west from Cambridge it can only have been by road. There is a direct link to Wimpole Lodge, and it is difficult not to see this as having extended to Sandy in this context.

If the Old Tillage was serving as a canal connecting the Cam with the Ouse around Earith it does not at first seem to have had much of an effect on the Horningsea distribution pattern. Horningsea wares reached the (later) Haddenham shrine site and Langdale Hale, Earith in some quantities, and they also reached Stonea, albeit in lesser quantities. Lucas, reporting on fieldwalked material (some 1410% by RE) from Langwood Farm, Chatteris notes ‘the majority of vessels were acquired locally and consist of sandy coarsewares, most probably deriving from Horningsea whose wares were only positively identified in a small number of cases’ (Lucas 2003, 190). This tends to suggest that, south of Stonea, sites between the Ouse and the Cam were largely being supplied with Horningsea grey wares. If this is the case, then for central fen island sites like Chatteris – far from accessible from the Cam or Akeman Street – supply along the Ouse seems more likely.

Demonstration of competition can only be made in relation to comparable goods: Nene Valley grey ware and Horningsea vessels are often not comparable. The Horningsea vessels include large storage jars, and many other jars which would appear to make good cooking pots. From the fabric type it might be thought that Nene Valley jars would not make good cooking vessels, and were probably rarely used for that purpose. However, Digital Table 6.26 suggests that this view is quite mistaken. Equally it might be expected that Horningsea would produce good cooking vessels, but Digital Table 6.26 again suggests otherwise. Thus, while one might expect the Old Tillage to enable Nene Valley grey wares to reach the Cam in quantity, and Horningsea wares the *Durobrivae* area, this is not seen. Neither is there any real evidence of Nene Valley colour-coated wares reaching the

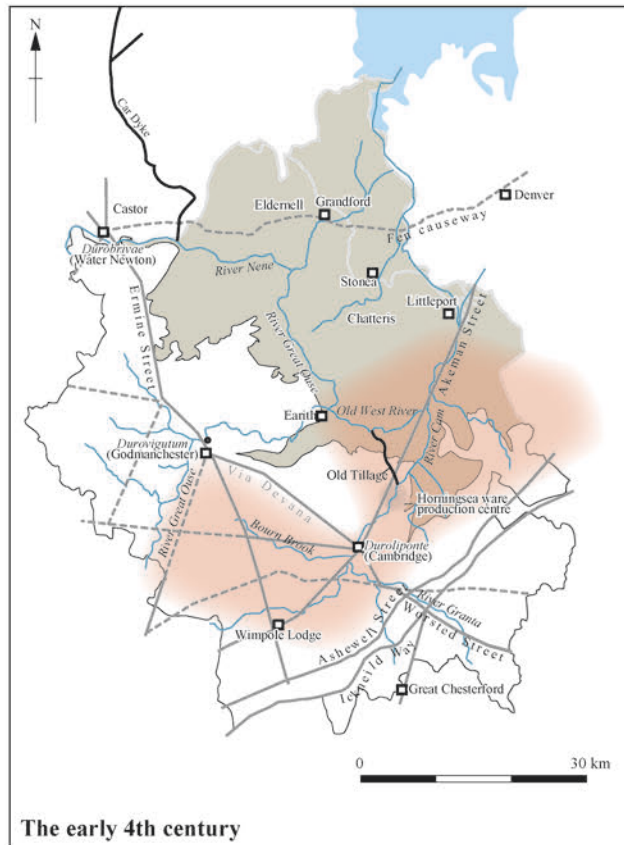
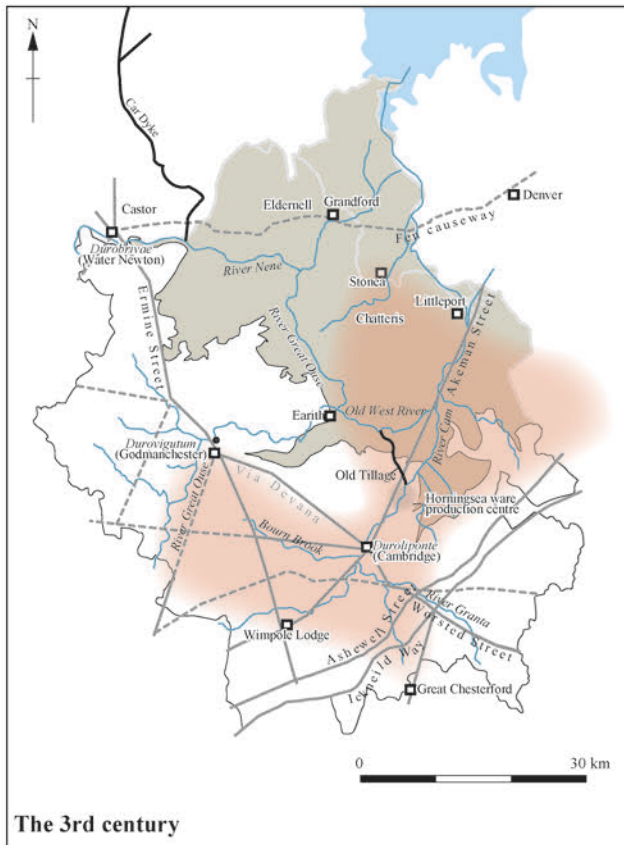
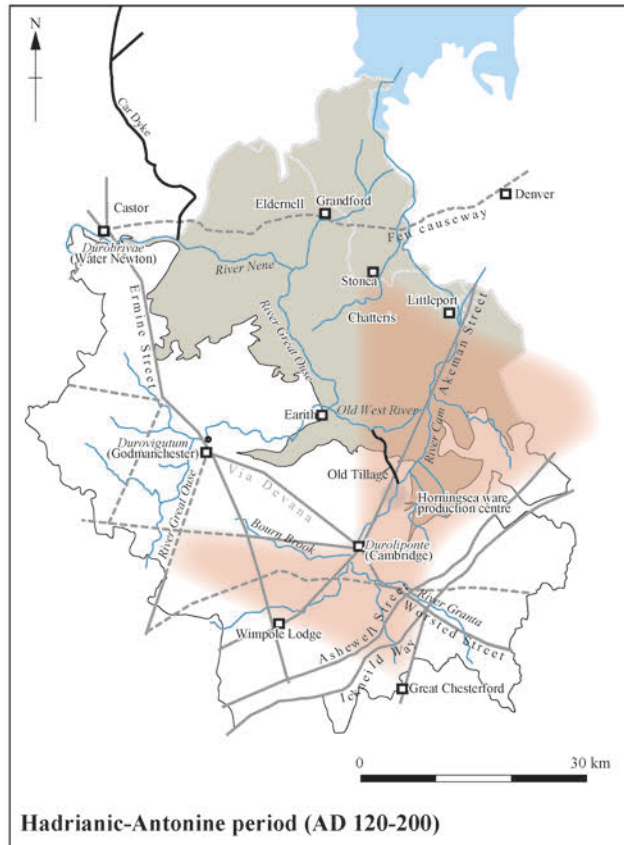
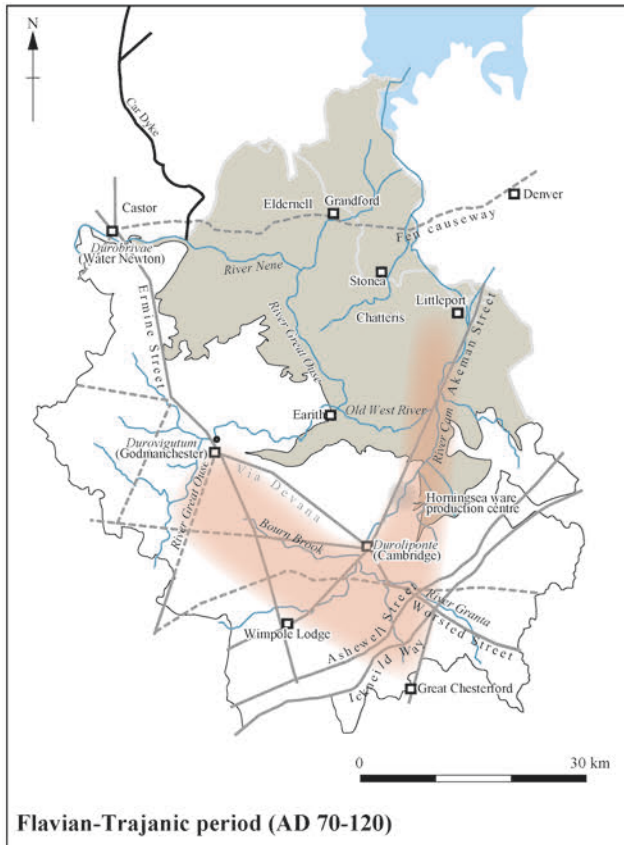


Figure 3.22 Roman Cambridgeshire, showing the pattern of Horningsea ware distribution over time. Scale 1:1,000,000

Cam by way of the Old Tillage, as there are relatively low levels of this fabric in the assemblage from Waterbeach.

The 3rd century

The overall distribution of Horningsea wares in this period is very similar to that in the 2nd century. However, as the evidence from Little Paxton and Stonea, in particular, demonstrates there seems to have been some intensification of marketing within its core distribution. The distribution is very definitely 'crescent'-shaped, extending down the Cam corridor, but also west of the kiln sites inland for some considerable distance. The use of water transport down the Cam corridor is not so surprising and is seen with a number of other fabrics which reached the Cambridge area at the limit of their distribution, but also extended in this direction.

The westward extension of the Horningsea distribution remains difficult to explain. Although sites such as Wimpole Lodge are on streams that connect to the Cam, the use of these streams for transport, even by flat-bottomed boats, must be in doubt, whilst the nearest streams to Little Paxton and Little Barford connect to the Ouse. What does seem clear is that the distribution is constrained to the south by Hadham grey wares and to the north by 'other grey wares' (chiefly R01) for which an origin in the Godmanchester area seems most probable. The full extent of the westward distribution of Horningsea wares is not determined in this study. It is clear, however, that they did not reach Towcester (Brown and Alexander 1982; Woodfield 1983) or Milton Keynes (Marney 1989).

The early to mid 4th century

The overall distribution of Horningsea wares in this period is again very similar to that in the 2nd and 3rd centuries. Although some sites seem to show a slight loss of market share, others do not, and there is no evidence that the industry was in difficulties. There is no real indication that in the following quarter century the industry would apparently cease production.

The later 4th century

The distribution of Horningsea wares in about the middle of the 4th century shows much the same pattern as for the preceding two and a half centuries. There may be small signs of slightly receding market penetration, but they are faint and unclear. However, sometime around c.AD 370/380 the industry appears to have ceased production fairly suddenly and for no obvious economic reason. Many of the sites in the study area which have been used to provide data for this study ended at the same time (namely Haddon, Littleport, London Road, Godmanchester, Bottisham Tunbridge Lane, Little Paxton), and a number of other sites do not have good enough chronological data to be certain that they lasted beyond this date.

What is clear is that after the demise of the Horningsea industry the Cambridgeshire region seems to fall into a pattern of pottery distribution seen across much of the South and East of England which is characteristic of the latest Roman deposits. This will be discussed further in subsequent chapters, but it does not appear to be a pattern

reflecting prosperity, as it can at first appear, with its high levels of fine wares, but rather one of serious economic distress. This pattern also seems to include only a limited number of sites, generally urban or of higher status, and there is a suspicion that pottery ceased to be available on at least some rural sites.

Distribution patterns: marketing or social constraints?

The Horningsea fabric distribution area is undoubtedly 'crescent'-shaped; this form seems to be stable from at least the Hadrianic period to the mid 4th century (Fig. 3.22). All other things being equal, a circular distribution around the production site would be expected. The extended distributions seen to the north along the Cam corridor and to the west of Cambridge are the sort of extensions classically caused by accessibility to road or water transport (Hodder 1974). However, as noted above only the northern extension here has an obvious possible transport basis with access via the Cam (and Akeman Street) and the Old Tillage and the Ouse. However, other possibilities exist for interpretation of the shape even of this distribution. As is described in Digital Chapter 4.II, the distribution of Suffolk/Norfolk Wattisfield-type fine micaceous grey wares has a relatively hard boundary on the eastern fen edge, with very little penetrating into the Cam corridor, and this seems to be reciprocated in a similarly hard boundary on the eastern fen edge for Horningsea products. Some of the latter may reach into Norfolk and Suffolk, but in very minor quantities.

When it comes to the western side of the fens there also seems to be quite a hard edge to the Horningsea distribution. Data are not as good as they might be, but Horningsea grey wares appear dominant on most of the central fen islands, but clearly are more or less absent on the western fen edge, e.g. at Godmanchester. In an economic interpretation of this pattern the major complex of grey ware kilns at Godmanchester can be pointed to as a source of competition. However, the western boundary of the Horningsea distribution appears to have a notably steep fall-off, and this does seem to coincide well with the previous cultural boundary between sites using scored ware or plain ware in the middle Iron Age tradition (cf. Digital Fig. 4.8).

Turning to the Horningsea distribution west of Cambridge, for which there is no easy explanation in terms of the transport economics, its northern limit does seem to be set by the scored ware/plain ware boundary, whilst its southern boundary seems to coincide roughly with the northern boundary of the core 'Eastern coinage' distribution of the *Catuvellauni*. Thus Horningsea ware is common at Little Paxton, but absent from Baldock. The western limit of this distribution has not been fully determined, but clearly ends east of Milton Keynes. The shape of the Horningsea fabric distribution could therefore have been largely determined by cultural factors, rather than simply by marketing and transportation constraints. As is discussed in Digital Chapter 10, there is no evidence of urban marketing of Horningsea wares through Cambridge.

Chapter 4. Chronological Development of the Horningsea Industry Distribution in the Study Area

I. The Flavian–Trajanic Period (c.AD 70 to c.AD 120)

Fig. 4.1; Table 4.1

Introduction

There is a limited number of sites in the study with good Flavian–Trajanic groups. Unfortunately, there are no such groups amongst the material examined from Castle Hill, Cambridge, nor are there any other good ‘urban’ groups in the study area of this date. Contemporary groups include the material from Haddon Phase 2 (mid–late 1st century; Rollo 1994; J. Evans 2003). Teversham Hinton Fields, Group 4 (Pullinger and White 1991) is predominantly of this date, although it extends into the Hadrianic period, likewise Tort Hill West Phase 3A (JE) is largely mid to later 1st century but has a tail of material extending through the 2nd century, as does a very small group from Tort Hill East (JE), Phase 1 (later 1st to mid 2nd century), and Little Paxton (Jones 2011) Phase 5, of Flavian to mid 2nd-century date. Further material comes from Bottisham Tunbridge Lane (JE), Phase 2 (Flavian–Trajanic), Monument 97 (Rollo 2001), Phase 2A, (AD 70/80–125) and the quarry at Caldecote Highfields (Sealey 2011), dated mid 1st to early 2nd century. The contents of these assemblages are discussed in some detail in Digital Chapter 5.

Early Horningsea wares

Distribution

As discussed in Chapter 3, Horningsea grey wares first appear in the Flavian period. They were present in some quantity from the advent of the industry, although production does appear to have expanded later in its life. To survey the study area in this period (Fig. 3.22; Fig. 4.1; Table 4.1), it is clear that Horningsea wares did not really penetrate into the Nene Valley. They are absent from Maxey, Werrington, Orton Hall Farm Period 1, and Monument 97. They are also absent from contemporary groups at Haddon (J. Evans 2003) although a few sherds reached the site to give an overall all-site occurrence of 0.03% (Nosh). Horningsea products are equally absent from contemporary groups from the Sawtry sites (Hancocks *et al.* 1998).

In the central fens there are few groups of this period (Digital Table 5.10). There is an all-site group from Langdale Hale, Earith, (Monteil 2013a) on the Ouse corridor, of Flavian to 4th-century date, where Horningsea wares amount to 15.5% (Nosh). Similarly, there is an all-site list from High Fen on the Cam corridor (Millett 1980) of Flavian to later 3rd-century date, where Horningsea fabrics amount to 92.6% (Nosh). Nearby is

the all-site list from Denny Abbey (Millett 1980) of Flavian to later 4th-century date where Horningsea wares amount to 80.3% (Nosh). On the western fen edge Horningsea wares are absent from the Phase 2 group (later 1st to early 2nd century) from London Road, Godmanchester (Hancocks 2003). However, they are present at the rural site of Watersmeet, Huntingdon (Peachey 2004) just north of Godmanchester, at 7.9% (Nosh) and 30.0% (Wt) in the small ($n = 229$ sherds, RE = 358%) later 1st- to mid 2nd-century group there.

On the southern fen edge near Cambridge, Horningsea wares are well represented in the early 2nd-century Group 4 from Teversham, at 36.8% (Nosh) and 41.0% (Wt). Most sherds are in fabric R02, but 1.4% of the assemblage is in the handmade fabric R021, most of which was used for storage jars. The imitation black burnished fabric R04 is absent as might be expected given the date of this group. The forms consist of twenty-seven jars and one bowl. Amongst the jar forms represented (Fig. 3.9) are J3.1, a lid-seated jar with a straight, everted, rising rim; J3.3, a necked lid-seated jar with an everted beaded rim, lid-seated; J6.4, a small jar with a short, everted, straight rim; and J9.2, a small necked jar, cordoned, with an everted swelling rim. Other jar forms (Fig. 3.10) included J10.1, a necked jar with everted, rising, swelling rim; J10.2, a necked jar with an everted, rising rim, the body often rilled; J10.4, a necked jar with a triangularly-sectioned rim, slightly undercut; J10.14, a necked jar with an outcurving rim, possibly a black burnished imitation, perhaps Hadrianic–Antonine; and J15.1, a carinated necked jar with a beaded rim and grooved shoulder. The bowl was a flange rimmed form (Fig. 3.12, B3.1), a black burnished imitation, of Hadrianic–Antonine date. This and the jar J15.1 suggest that the date range of this group extended a little into the Hadrianic period.

Similarly at Bottisham Tunbridge Lane, in the small Phase 2 group (Flavian–Trajanic), Horningsea wares are very strongly represented at 79.8% (Nosh) and 87.0% (Wt). Again most are wheelmade grey wares (R02) with a small element (9.1% Nosh) of handmade sherds mainly from storage jars. The imitation black burnished fabric R04 is again absent, as might be expected given the date of this group. Forms in this group consist of eight jars, a storage jar, a dish and two lids. The jars (Figs 3.9 and 3.10) include J3.1, a lid-seated jar with a straight, everted, rising rim; J6.4, a small jar with a short, everted, straight rim; J9.1, a necked, cordoned jar with an everted, swelling, rising rim; J10.4, a necked jar with a triangularly-sectioned rim, slightly undercut; and J10.8 a large necked jar with a triangularly-sectioned rim. The storage jar is of type SJ2.1 (Fig. 3.8), with an everted, bifid rim, grooved on the tip. This vessel comes from context 150 in Phase 2,

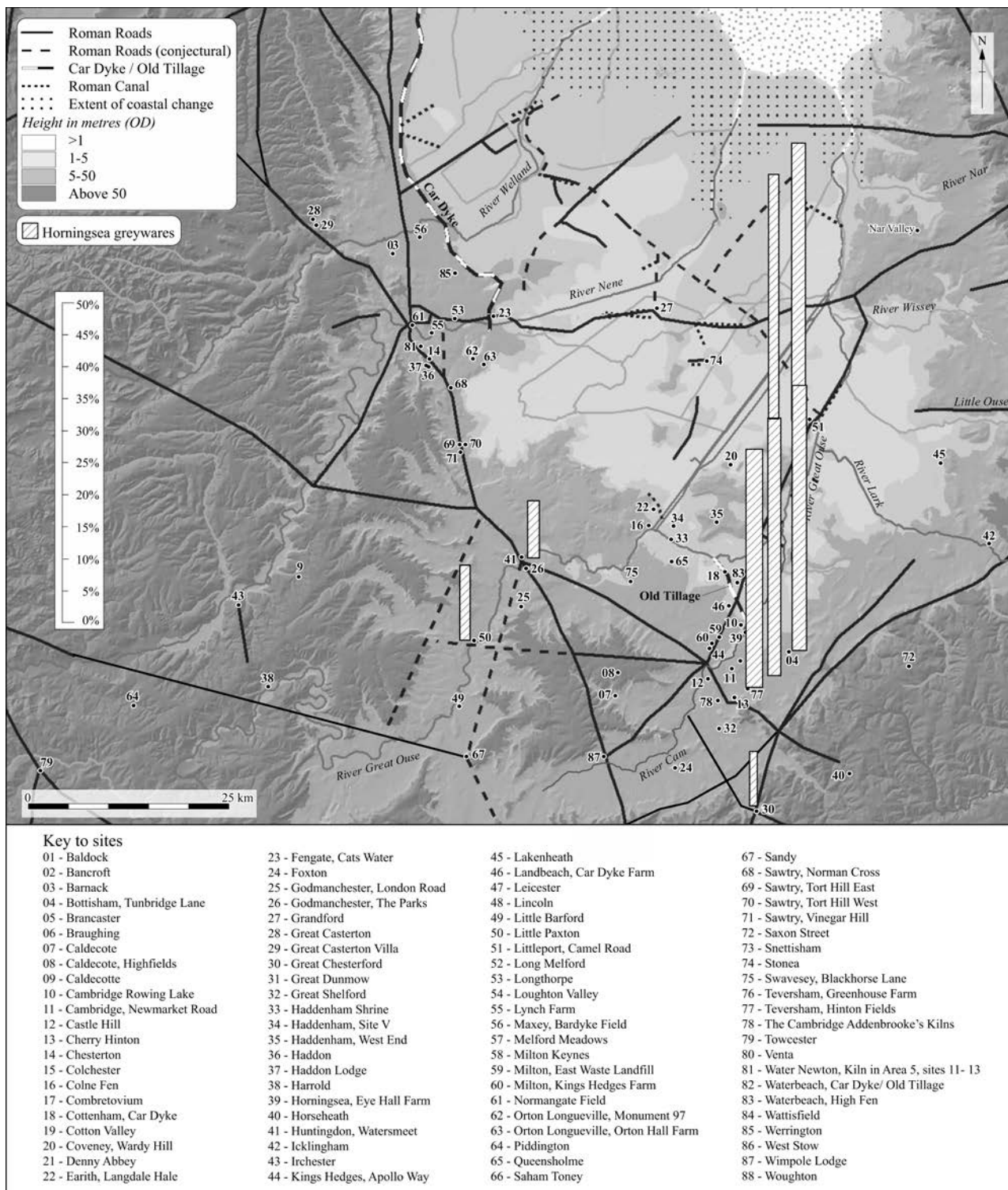


Figure 4.1 Distribution of Homingsea grey wares on sites in the study area in the Flavian–Trajanic period. Scale 1:75,000

but this context also contains a Hadrianic–Antonine samian sherd which was considered possibly intrusive. The other evidence in this study suggests a much later emergence for this class and type, and the storage jar rim does appear to be intrusive. Dish D1.1 (Fig. 3.14) is a simple rimmed dish and lid L2.1 (Fig. 3.16) is also a simple rimmed form.

At Bottisham Tunbridge Lane combed decoration is particularly common on Homingsea vessels in fabrics

R02 and R021. Some 15.7% of sherds in R02 and 48.1% of sherds in R021 have combed decoration. On R02 the commonest combed decoration is rilling, which occurs on 13.2% of all sherds in this fabric, with small numbers of sherds with horizontal, vertical, oblique or wavy combed bands. On sherds in R021 the commonest combed decoration is of lines on the interior of vessels, with 23.9% of all sherds in R021 showing this feature. The second commonest motif is rilling of the exterior at 10.5%, with

vertical combed bands at 9.1% and horizontal combed bands at 4.6%.

No groups from Castle Hill, Cambridge examined in this study are of this date, but Hull and Pullinger (1999) explicitly mention Horningsea material from the 'fort ditch' and some of the illustrated material from this feature seems consistent with such an identification. It might be expected, given the later situation in the town and in the southern fen edge assemblages, that Horningsea would have provided the majority of the grey wares here from the Flavian period. The storage jars (Hull and Pullinger 1999, nos 400–402) are of form SJ1.2.

South of Cambridge there are two good groups from Great Chesterford (Martin 2011). Horningsea wares first appear in the group from Trench VI, fill 10, dated AD 60–80/90 at 4.2% (Wt). They then rise to 9.3% (Wt) and 2.3% (RE) in the early 2nd-century group from Trench VI, Pit 2, fill 24. To the west of Cambridge there is only one site with a good contemporary group, Little Paxton (Evans 2011). Here the Flavian–Trajanic group from Area E/F, Phase 5, does not contain any Horningsea wares. They do, however appear in the group from Area A, Phase 5, which has a Flavian to Antonine range, suggesting that they perhaps first reached the site in the Hadrianic period. Area A, Phase 5, has 12.7% (Nosh) and 8.7% (Wt) Horningsea wares. The only other data for sites west of Cambridge are in the all-site list from Little Barford, a little to the south of Little Paxton, dating from the 1st to the mid 4th centuries. Here Horningsea wares amount to 33.4% (Nosh) of the assemblage with 5.9% (Nosh) of this being Horningsea BB copy ware. The Horningsea necked bowl (Horningsea Form B1.1, Fig. 3.12) and the Flavian–Trajanic reeded rimmed bowl of Horningsea Form B9.1 (Lucas 1997, fig. 41, no. 28) suggest that Horningsea products reached the site in the Flavian–Trajanic period or very shortly thereafter.

Discussion: early Horningsea wares

Whilst data are not extensive for this period they do enable an initial assessment of the distribution of Horningsea wares in the Flavian–Trajanic period. It is clear that from the outset the industry was producing on a moderate scale and assemblages on the southern fen edge are dominated by its products. This was no doubt also the case at Cambridge. The industry also managed to extend its distribution as far south as Great Chesterford, and by the Trajanic period had a reasonable market share here. The evidence from Little Paxton suggests that it did not extend its distribution so far to the west of Cambridge as in later periods but material does appear to have reached Little Barford, and some more data from sites west of Cambridge but east of Little Paxton would be desirable. Although absent from London Road, Godmanchester, it appears that Horningsea products reached Watersmeet, Huntingdon, although this must have been about their northern limit on this road since they are absent from the Sawtry sites and the Nene Valley.

The extent of penetration of Horningsea products down the Cam corridor into the central fenlands cannot be determined exactly at this period. The distribution of Horningsea wares may have been more circular around the kiln site at this date, rather than its later bent 'crescent' shape, but the data are too few for any certainty.

Discussion of regional pottery supply in the Flavian–Trajanic period

The Flavian period saw considerable change in pottery supplies throughout the region in comparison with the range of material available earlier. Amphorae appeared, although mainly on urban sites, and their sporadic occurrence on rural sites seems to be largely on those near the new road network. Shell-tempered wares continued to dominate assemblages in the north and west of the study area, but their dominance was reduced compared with the pre-Flavian period and earlier. The evidence from Haddon (Vince 2003; J. Evans 2003) suggests that shell-tempered wares may have been made by the same peripatetic potters making Class E fabrics there. This model of peripatetic potters seems a reasonable one for the later Iron Age and pre-Flavian production of shell-tempered wares in the Nene Valley area. In the Flavian period, production seems to have started to crystallise at fewer permanent centres. In north Bedfordshire the Harrold industry (Brown 1994) was established in the Flavian period, and this seems likely to have supplied much of the shell-tempered ware in the south-west of the study area, and in Northamptonshire. As discussed above, the channel-rimmed jars, which form a large part of the early Harrold production, whilst common in northern Northamptonshire, are generally absent from the Nene Valley. There would seem to have been several major shell-tempered ware production sites in this region although their location is uncertain. A kiln site is known at Earith, although its significance is not understood. The one shell-tempered ware industry in the north of the region which can be plotted quantitatively is Bourne/Greetham (Precious 2001, 139–40), which seems to have supplied around 5% of the pottery to some of the Nene Valley sites.

The most striking feature of Flavian assemblages in the region is the absence of Class E 'Belgic' wares. These disappear very suddenly in the decade AD 60/70, along with their associated Gallo-Belgic fine wares. As noted in Digital Chapter 4.II, the most probable context for this is the destruction of the client kingdoms, and with them an ending of the 'embedded' economy in the aftermath of the Boudiccan revolt and the incorporation of the client kingdoms into the Roman province. The ending of the client kingdoms would have removed their attractiveness as a model for social emulation, and the revolt may have made the traditions associated with them look treasonous. From then on 'Roman' was based on what happened in the military and the planted settler towns.

An interesting footnote to this is provided in the distribution of Flavian *Terra Nigra*. This had been the pre-eminent fine ware type for the south-east in the pre-Flavian period, but importation did not stop in the Flavian period, although quantities certainly dropped; rather it was imported for use on military sites in the west and north, but largely disappeared from the south-east (Rigby 1977). When combined with the fact that samian ware became the dominant fine ware tradition for the first time in the Flavian period on sites of all types in the south-east, the scale of the radical change taking place c. AD 60/70 is clear. Another feature of the Flavian supply of fine wares across the region is that they are uniform. The previous strong difference between the south of the region, with Class E wares and Gallo-Belgic fine wares, and the north with continuing middle Iron Age tradition forms, abruptly ends. This is, of course, quite intelligible if

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
Maxey, all-site	C1–MC4	NVGW	23.6	20.0	-	-
		other grey wares	15.5	12.3	-	-
Maxey, Phase 7–8	LC1–MC2	NVGW	-	-	12	-
		other grey wares	-	-	34	-
Werrington, Period 1	LIA–AD 50/60	other grey wares	6.7	2.8	-	-
Werrington, Period 2	AD 50/60–100	other grey wares	39.4	14.7	-	-
Werrington, Period 3	AD 100–175/200	other grey wares	22.9	15.0	-	-
		NVGW	15.3	12.4	-	-
Orton Longueville, Orton Hall Farm, Period 1	MC1–AD 175	other grey wares	31	-	-	-
		NVGW	16	-	-	-
Orton Longueville, Orton Hall Farm, F.588, Period 1	AD 60/80–120/130	other grey wares	34	-	-	-
		NVGW	6	-	-	-
Orton Longueville, Monument 97, Phase 1a	LIA	other grey wares	0.4	0.2	-	-
Orton Longueville, Monument 97, Phase 1b	AD 40–60	other grey wares	4.1	2.1	-	-
Orton Longueville, Monument 97, Phase 2a	AD 60–120	other grey wares	22.0	13.0	-	-
Haddon 1999, all-site	LIA–MC4	other grey wares	16.5	-	-	-
		NVGW	17.8	-	-	-
		Horningsea	0.03	-	-	-
Haddon 1999, Phase 2	M–LC1	other grey wares	2.0	0.9	2.0	2.1*
Haddon 1999, Phase 3	LC1–MC2	other grey wares	14.2	11.1	14.1	20.1*
		NVGW	12.5	12.6	7.4	15.5*
Sawtry, Tort Hill East Phase 1	LC1–MC2	other grey wares	44.2	22.60	6.25	24.37
		NVGW	3.2	0.76	0.00	0.00
Sawtry, Tort Hill West, Phase 3A	AD50–MAnt	other grey wares	16.3	11.32	18.79	19.12
		NVGW	7.02	5.64	8.05	8.18
Earith, Langdale Hale, all-site	Flavian–C4	Horningsea, R02, R021, R04	15.5	-	-	-
		fine sandy grey wares, R05?	3.1	-	-	-
		NVGW R21–R23	2.0	-	-	-
		Hadham grey, R06	0.9	-	-	-
		‘Swanpool white-slipped ware’	0.4	-	-	-
		Nar Valley, R085	0.2	-	-	-
		Wattisfield grey, R33	0.1	-	-	-
		other grey wares	14.8	-	-	-
Waterbeach, High Fen	Flavian–LC3	Horningsea, R02, R021, R04	92.6	-	-	-
		NVGW, R21–R23	0.4	-	-	-
		other grey wares	2.8	-	-	-
Denny Abbey	Flavian–LC4	Horningsea, R02, R021, R04	80.3	-	-	-
		Wattisfield, R33	1.9	-	-	-
		other grey wares	0.2	-	-	-
Huntingdon, Watersmeet	LC1–MC2	sandy grey ware, ?R01	52.0	38.9	33	32.1
		Horningsea, R02, R021, R04	7.9	30.0	5.6	11.2
		NVGW, R21–23	0.4	6.7	5.6	8.4
		Wattisfield, R33	0	0	0	0
		other grey wares(?)	9.2	5.3	5.6	2.0
Godmanchester, London Rd, Phase 2	LC1–EC2	NVGW	1	-	-	-
		Godmanchester, The Parks grey ware	5	-	-	-
		other grey wares (slipped and unslipped), ?R01	68	-	-	-
Teversham, Hinton Fields, Group 4	EC2	R01	5.5	4.2	11.3	5.4

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
		R02	35.4	38.0	45.2	46.0
		R021 handmade	1.4	3.0	0	0
		R05	0.6	0.6	0	0
		R51	14.9	15.8	14.5	14.8
		R55	12.0	7.3	11.3	13.0
		other grey wares	8.0	9.2	11.3	15.1
Bottisham, Tunbridge Lane, Phase 2	Flav–Traj	R01	1.0	1.2	-	-
		R02	70.7	74.8	-	-
		R021	9.1	12.2	-	-
		R05	3.0	3.0	-	-
		R11	0	0	-	-
		R12	0	0	-	-
		NVGW, R21–R23,	0	0	-	-
		R33, Wattisfield	3.0	1.8	-	-
		R51	0	0	-	-
		R55	0	0	-	-
		other grey wares	2.0	1.3	-	-
Cambridge, Newmarket Road	EC2–EC3	Horningsea	74.9	-	-	-
		Horningsea BB copy	2.6	-	-	-
		other grey wares (not Horningsea)	11.0	-	-	-
Great Chesterford Trench VI, fill 10	AD 60–80/90	Horningsea	-	4.2	-	0
		Hadham reduced, R06	-	0.9	-	3.1
		NVGW	0	0	-	-
		Wattisfield	0	0	-	-
		other grey wares	-	71.2	-	11.8
Great Chesterford, Trench VI, Pit 2, fill 24	EC2	Horningsea	-	9.3	-	2.3
		Hadham grey, R06	-	11.3	-	5.2
		NVGW	-	1.5	-	3.3
		Wattisfield grey	0	0	-	-
		other grey wares	-	63.7	-	68.9
Little Paxton, Area E/F, Phase 5	LC1–EC2	R01	1.0	1.41	2.40	0.38
		Hadham grey, R06	0.2	0.8	0	0
Little Paxton Area E/F, Phase 5	Flav–Traj	R05	3.8	3.3	5.6	5.7
		R11	1.8	2.1	4.0	1.8
		R12	0.3	0.2	0.0	0.0
		other grey ware	26.9	22.94	33.60	31.26
Little Paxton, Area A, Phase 5	Flav–Ant	R01	21.6	19.2	22.2	14.3
		Horningsea, R02, R021, R04	12.7	8.7	11.1	3.9
		R11	1.8	0.4	0	0
		R33, Wattisfield	1.8	0.8	0	0
		other grey ware	1.8	0.6	0	0
Little Barford, all-site	C1–MC4	R01	6.3	5.8	-	11.3
		R02 & R021	27.5	17.0	-	32.0
		R04 BB copy	5.9	4.7	-	7.0
		R06, Hadham	7.3	4.6	-	10
		fine grey ware, R11	4.7	2.7	-	1.6

Key: * = EVE data (not RE) *i.e.* RE+BE/2; 0.0% = less than 0.05%; - = no data by this method

Table 4.1 The occurrence of Horningsea grey wares in Flavian–Trajanic groups in the study area

the latter reflected the cultural values of the Icenian polity. Areas which seem to have been culturally resistant to 'Gallo-Romanised' types in the pre-Flavian period now accepted these in the same manner as the rest of the area.

In terms of ways of eating, table wares become the vast majority of the fine ware types, and must imply an aspiration to a single agreed form of high status dining. Butt beakers virtually disappeared and large drinking vessels seem to have been replaced by small Dr 27 cups. Similarly, high status deposits with large numbers of drinking vessels, found with some frequency in the pre-Flavian period, seem to disappear. This suggests an end to the sort of high status feasting and drinking, associated with what often appears to be ritual deposition, found in the pre-Flavian period.

Equally the take-up of the small Dr 27 cups seems to suggest an aspiration to drink relatively small quantities of what was presumably wine, in contrast with the use of the much larger drinking vessels of the pre-Flavian period which may more likely have been associated with 'Celtic beer' (technically an ale). It is of note not just that samian ware was being used across the area, but that it was being used in the same manner as across the province as a whole. It was not being used in the same way as fine wares were previously. This would seem to mark a major and rapid cultural transition, or in Hill's (e.g. 2002, 156–7; 2007, 26–8) terms a major transformation of the foodways in use. The separate Gallo-Roman traditions of the south of the study area and the continuing middle Iron Age traditions of the north, which approximate to the area of the *Iceni*, in the pre-Flavian period had been completely swept away.

'London type' fine wares appear in the Trajanic period, along with mica-dusted fabrics. The former, although black and glossy, are not closely related to the *Terra Nigra* series, but rather more so to samian ware, and these types appear to fill the gap in the market left by supply shortages of samian ware in the Trajanic era. 'London type' wares are found across the area. There was a production site in the Nene Valley (Perrin 1980) and sources in the south probably include Hadham and Suffolk. The mica-dusted wares are essentially limited to the south-east of the study area and are likely to originate at London, Hadham and *Verulamium*.

Mortaria do appear in this period, whereas they were very scarce in the pre-Flavian period, but they are absent from most rural sites and their occurrence even on urban sites is at a low level. *Verulamium* region products are found throughout the study area, in the north supplemented by occasional lower Nene Valley products, and in the south by Colchester ones. It is interesting to reflect that the users of the Gallo-Roman assemblages of the south of the study area in the pre-Flavian period clearly had no need of mortaria for food preparation. Mortaria are very much an innovation of the Flavian period, and one that comes from the towns and penetrates little into the countryside before the Hadrianic–Antonine era. This forms a strong contrast with the adoption of mortaria in the north of England, where the type seems to have met some pre-existing need and was very rapidly adopted upon its introduction (Evans and Mills 2009).

Oxidised wares are found widely across the study area in this period, with most sites receiving them, but quantities are small, generally below 4% of the assemblages. This forms a very strong contrast with the

assemblages from the major towns/colonia of London, *Verulamium* and Colchester. The assemblages at these sites, with their high oxidised ware levels, a feature also seen consistently in most military assemblages up to the Hadrianic period at least, seems to reflect pottery use by largely immigrant communities, with strong connections to the army. The corollary of this seems to be, as might be expected, that the urban as well as rural communities represented in the study area, were different in character from those at the major towns, and were presumably of local origin.

Sandy grey wares emerged in this period as very much the dominant fabric type. They seem to have originated from permanently based kiln sites, some from industries which persevered throughout the Roman period. The sources of the grey wares in the north of the county are not known, but in the south the Horningsea industry was founded at this time, and there was probably an industry at or in the vicinity of Godmanchester, and others at Hadham and Wattisfield. The Horningsea industry seems to derive from the production sites at Addenbrooke's and Greenhouse Farm, where there are considerable parallels in some of the key features of the kiln design (see Chapter 3.IV). The Horningsea industry clearly developed quite a wide distribution on the southern fen edge and at Cambridge, but it is unclear if it extended much to the west of this at so early a date.

Samian ware was widely, if thinly, distributed in this period. It reached rural sites in small quantities, as is demonstrated by the presence of South Gaulish material on most of them. The more expensive (Evans 1987) decorated ware is commonest on military sites, such as Grandford, but is also more common on the urban sites. This forms a marked contrast with the pre-Flavian period when samian was rare and the predominant fine wares were Gallo-Belgic wares, both in the study area and throughout the south-east. It is difficult to see that samian ware was distributed on anything but a commercial basis. There is clear evidence that it was marketed through urban centres, and thus it is highly probable that it was distributed by market mechanisms rather than through an embedded economy, such as seems to have prevailed in the pre-Flavian period.

Overall the beginning of the Flavian period seems to have produced a transformational change in the Roman pottery in use in the area, with previous differences between north and south largely set aside. Market mechanisms seem to have been responsible for at least some of the pottery distributions. The stimulus for this, as discussed in Digital Chapter 4.II, seems to have been the Boudiccan revolt, or rather the suppression of the client kingdoms in its aftermath. This resulted in these territories needing to pay cash taxes and to participate in a market economy, rather than into the social networks of the client kingdoms. This would appear to be the departure point from which a market economy begins to develop across most of the province, rather than just in the settler towns and early military *vici*. This would also provide the context in which elite power based on royal families and their nobles based in the countryside and in *oppida* transfers much more to an urban basis in newly founded *civitas* capitals.

II. The Hadrianic–Antonine Period (c.AD 120 to c.AD 200)

Fig. 4.2; Table 4.2

Introduction

Almost all sites in the study area contain Hadrianic–Antonine assemblages and a significant number of site assemblages considered here appear in the analysis for the first time. In the north, material from this period occurs in increasing quantities from the Nene Valley sites around Peterborough (Perrin 1999) and south down Ermine Street to Sawtry (Hancocks *et al.* 1998) and beyond. In the central fenland, material appears at Stonea (Potter 1996a) and at Littleport (Macaulay 2002b) for the first time and continues at Earith, Langdale Hale (Monteil 2013a). In the south of the county there are several groups from Cambridge (Alexander and Pullinger 1999) and also close to the town, for example at King’s Hedges, Apollo Way (Fawcett 2003) and Newmarket Road, as well as at numerous sites to the immediate north such as those at Milton East Waste (JE), Akeman Street at Landbeach (JE) and the Old Tillage at Waterbeach (JE), which also included the Horningsea kiln site detailed in Chapter 3. To the south and west of Cambridge relevant assemblages are found at Wimpole Lodge (Lucas 1994) and at Teversham Hinton Fields (Pullinger and White 1991; JE). Bottisham Tunbridge Lane (JE) to the east of Cambridge also produced material from this period. The contents of these assemblages are discussed in some detail in Digital Chapter 6.

Horningsea wares

‘Black burnished’ type ware

Black burnished wares (both BB1 and BB2) appear in the region for the first time in this period, but not all material assigned to these categories was necessarily from the well-known source areas (broadly south-east Dorset and the Thames estuary respectively). At Orton Hall Farm ‘BB1’ from Period 1 was thought perhaps not to be of Dorset origin (Perrin 1996, 138), possibly suggesting that this was Horningsea material. A single vessel (Perrin 1996, 128, no. 92), the only example of possible BB2 from Period 1, might also be a Horningsea vessel.

At Stonea, Cameron (1996, 474) records black burnished wares as ‘BB types’, recognising the difficulty of positive identification of imitations, including possible Nene Valley examples. This suggests the possibility that some of the better Horningsea BB2 copy vessels might fall into this category. Quantities are small except in the Phase III/IV group, which is largely 3rd century. Such a date would not be inconsistent with a Horningsea origin for some of this material.

At Little Barford BB2 apparently accounted for 5.9% (Lucas 1997). The large element of ‘BB2’ from the site seems anomalous (as does, especially, the fact that it outnumbers BB1) when compared to most other sites in the study. It seems likely to this author that these are actually largely Antonine and 3rd-century BB2 copies of Horningsea origin in this study’s fabric R04. The forms illustrated (nos 1, 3–6, 8 and 15), including BB1 copies, seem more consistent with a Horningsea origin than with true BB2. That this is the case is reinforced by the evidence from Great Chesterford (Martin 2011) where BB2 only reaches a maximum level of 3.3% in the

Antonine period, at an urban site which is much closer to the kilns

Mortaria

At Waterbeach Old Tillage, mortaria were poorly represented at 0.5% of the entire assemblage, some thirty-three sherds. One third of these were of Horningsea fabric (M21). The reduced Horningsea mortaria (Digital Fig. App. 3.14, M21.1, M21.2) are probably of 2nd-century date, and perhaps late Antonine, particularly the forms based on a Colchester cream ware wall-sided type (M21.2). They do not occur in the sequence until the 3rd- to early 4th-century Phase 3a. At the adjacent Cambridge Rowing Lake site, three of the six mortarium sherds were of Horningsea fabric (M21), perhaps of 2nd-century date but possibly later.

The mortaria from the Hadrianic–Antonine phases at Castle Hill, Cambridge, quantified by MNR, include 5% assigned to an unknown Cambridgeshire source, sherds from which are stamped. Their use of slag trituration grits suggests a possible link with fabric M21, which is fairly certainly of Horningsea origin.

Oxidised wares

As in the Flavian–Trajanic period, oxidised wares are not common on any site and do not exceed 7% anywhere in the study area, but they are widespread, being present on most sites. Most of the fabrics in this group were probably not in production after the end of the 2nd century, but fabric O04, often the most common oxidised fabric, is the one fabric in this group which, perhaps, runs on into the early 3rd century. The relative frequency of this coarse sand-tempered fabric suggests a fairly local origin to Cambridge. This might well be Horningsea, and the geochemical results from the ICPMS analysis strongly reinforce this suggestion (Chapter 3.V; Digital Appendix 4). The frequency of bifid rimmed jars in this fabric (Class J5) echoes the frequency of this type amongst the white ware products of *Verulamium* ware tradition from the London Road kilns at Godmanchester (C.J. Evans 2003) and suggests manufacture by a potter in the *Verulamium* ware tradition. There is no suggestion that oxidised wares were produced at The Parks (C.J. Evans 2003) and these products and similar white wares from Cambridge (Digital Chapter 10.II) that do not appear to be Godmanchester products seem to suggest the existence of a more local *Verulamium* ware tradition kiln site. The proportions of fabric O04 amongst the oxidised wares in the groups examined are not hugely illuminating; some 37% at Bottisham Tunbridge Lane, 56% at Teversham, 41% at Milton and 46% at Cambridge Rowing Lake rising to 69% at the Waterbeach Old Tillage kiln site, 64% at Cambridge and 74% at Littleport. The data from Little Paxton, where fabric O04 comprised some 17% of oxidised ware, however, suggest that this was not a fabric coming from the west, and the figures would not be inconsistent with a source at the Horningsea kilns.

Fabric O04 occurs predominantly in jar forms at Castle Hill (Digital Chapter 10, Table 10.18) and throughout the sites examined. This fabric shows a high proportion of jars for an oxidised fabric, the proportion being similar to that more generally found in grey ware fabrics.

Illustrated vessels in this fabric include a necked jar with an everted, slightly rising rim with slight lid-seating

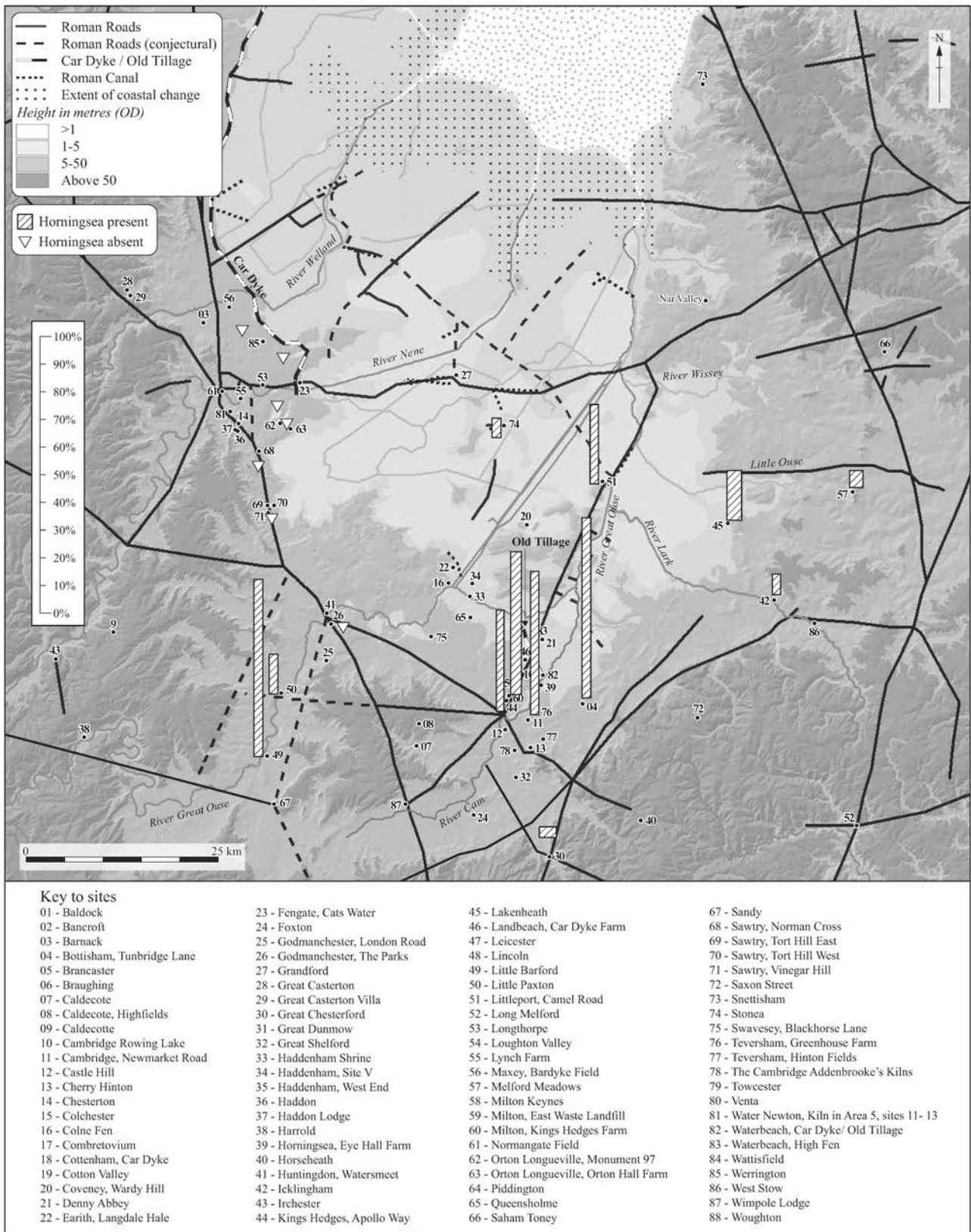


Figure 4.2 Distribution of Horingsea grey wares on sites in the study area in the Hadrianic–Antonine period. Scale 1:75,000

(Digital Fig. App. 3.15, O04.4) from Littleport, residual in Phase 6; a necked jar with an undercut triangularly-sectioned rim (Digital Fig. App. 3.15, O04.13) from Teversham, Group 3 (Antonine to early 3rd century); and a necked jar with a beaded rising rim (Digital Fig. App.

3.15, O04.3), a segmental bowl (Digital Fig. App. 3.15, O04.14) and a lid with a hooked rim (Digital Fig. App. 3.15, O04.23) from Bottisham Tunbridge Lane, Phases 3 and (Hadrianic–early Antonine and Antonine–early 3rd century).

Forms in fabric O04 at Milton East Waste are O04.9, a jar of channel-rimmed form, perhaps later 1st to early 2nd century, O04.10, a jar with a thickened everted rim grooved on the tip, O04.11, a jar with an undercut bifid rim, and O04.13, a necked jar with a triangularly-sectioned beaded, undercut tip. At the Horningsea production site at Waterbeach Old Tillage, oxidised wares represent 2% (Nosh) in the overall site assemblage. The majority comprised fabric O04 (1.2% (Nosh) of the overall assemblage). Forms represented (illustrated in Digital Fig. App. 3.15) are O04.2, a constricted-necked jar with an everted, slightly undercut, rim, O04.3 (x4), a necked jar with a beaded, rising rim, O04.6 (x2), a large jar or storage jar with an everted, near horizontal rim, O04.8 (x2), a necked jar with a triangularly-sectioned rising rim, O04.11, a jar with an undercut bifid rim, O04.21, a reeded-rimmed triangularly-sectioned flanged rim dish (or bowl), probably later 1st to early 2nd century, O04.22, a triangularly-sectioned bead rimmed dish, and O04.23, a lid with a horizontal rim, grooved on the tip.

White-slipped wares

Class Q fabrics behave unusually in the study area compared with their national distribution. First, they usually have a Flavian to later 2nd-century date range, whereas here they seem to be very scarce or absent before the Hadrianic period, if not the Antonine period. Secondly, they are usually flagon fabrics, whereas here the majority of vessels are jars. Digital Table 6.21 shows an overall functional analysis of vessels in Class Q fabrics from the study. These are jar-dominated on rim measures, although flagons dominate on RE measures because of the 'chunkiness' problem (Orton *et al.* 1993, 174) and the large number of complete flagons from the shrine group at Castle Hill, Cambridge. Functional analysis for the more common Class Q fabrics indicates that whilst Q02 is largely a flagon fabric, Q01, Q03 and Q05 all appear chiefly to have been produced in jar forms.

Whilst the numbers are too small to be very significant it is clear that fabric Q01 is the dominant fabric type in the Cam corridor and on sites east of Cambridge, whilst Q02 is quite a lot more common at Cambridge than on sites to the east and north and is almost as common as Q01 at Little Paxton, suggesting a source for Q02 to the west of Cambridge and for Q01 to the east of Cambridge.

Fabrics Q01, Q03 and Q05 all include bifid rimmed jars, a *Verulamium* region ware form, in their repertoire. These, like the similar vessels in oxidised fabrics O01, O04, O12 and O19, do seem to suggest that there may have been a *Verulamium* region ware copy industry in the vicinity of Cambridge as well as the one in Godmanchester. The concentration of fabric Q01 at the Car Dyke Farm, Landbeach kiln site and neighbouring sites does seem to open the possibility that this putative industry was based at Horningsea, as does the similar nature of the basic fabric of Q01 to that of other Horningsea vessels.

Horningsea wheelmade reduced wares (grey wares) (R02, R021 and R04)

The distribution of Horningsea wares expanded quite considerably in this period (Fig. 3.22; Fig. 4.2; Table 4.2; Digital Table 6.22), although they remain largely absent from the Nene Valley and are still absent from Maxey, Werrington, Orton Hall Farm, Monument 97 and Tort Hill

East and West. They are also absent from contemporary groups from Haddon (J. Evans 2003), although a few sherds reached the site to give an overall all-site occurrence of 0.03% (Nosh). They do, however, appear at Stonea in the northern central fenland at 7.0% (Wt) in Phase III, Antonine and at 2.7% (Wt) in Phase III/IV, Antonine to early 3rd century.

To the south-west of Stonea, at Littleport, Horningsea wares are the dominant grey ware in Phase 1, Antonine, at 44.4% (Nosh) and 55.1% (Wt). Some 4.4% of this is in the R04 sub-group with black burnished surfaces. In the all-site group from Earith, Langdale Hale, (Monteil 2013a) on the Ouse corridor, of Flavian to 4th-century date, Horningsea wares amount to 15.5% (Nosh). West of this, and south of Littleport, at West End, Haddenham (Peachey 2005) Horningsea wares amounted to 78.6% (Nosh) and 73.7% (Wt) – a considerable increase on the already high level at Littleport. Further south in the 1st- to 3rd-century all-site list from High Fen in the Cam corridor (Millett 1980), Horningsea fabrics amounted to 92.6% (Nosh), while at nearby Denny Abbey (Millett 1980), Flavian to later 4th century, they totalled 80.3% (Nosh).

On the western fen edge, Horningsea wares are present in the Phase 2 group (later 2nd to mid 3rd century) from Godmanchester, London Road (Hancocks 2003), but only at around 1% (Nosh). The only form recorded is a curving walled black burnished copy bowl, perhaps of Class B5. Just north of Godmanchester at Huntingdon, Watersmeet, the later 1st- to mid 2nd-century group reported by Peachey (2004) contained rather more Horningsea wares, with 7.9% (Nosh) and 30.0% (Wt).

On the southern fen edge near Cambridge, Horningsea wares are well represented in the later 2nd- to mid 3rd-century Group 3 from Teversham, at 71.5% (Nosh) and 69.1% (Wt). This represents nearly a doubling of the quantity here compared with the Flavian–Trajanic period. Some 0.3% (Nosh) of this is in the imitation black burnished fabric R04 which first appears in this period. At Bottisham Tunbridge Lane, Horningsea wares represent 70.9% (Nosh) and 69.1% (Wt) in Phase 3 (Hadrianic to early Antonine) and 59.8% (Nosh) and 57.1% (Wt) in Phase 5 (Antonine to early 3rd century). Handmade fabric R021, the vast majority of which was used in storage jars, is particularly common in Phase 3 at 23.6% (Nosh), 34.4% (Wt), and still remains quite common at 10.7% (Nosh) and 15.8% (Wt) in Phase 5. The decline in the quantity of R021 seems to account for most of the overall decline in quantity of the Horningsea wares between these two phases.

At Milton East Waste in the all-site list Horningsea wares amount to some 55.3% (Nosh), 67.1% (Wt) with the handmade fabric R021 accounting for 14.0% (Nosh). At Cambridge Rowing Lake, another all-site list of 2nd- to 4th-century span, Horningsea wares accounted for 73.4% (Nosh) and 80.0% (Wt) of the assemblage. Storage jars were strongly represented here, with R021 providing 31.0% (Nosh) of this and amounting to 11% of rim sherds. At the Waterbeach, Old Tillage kiln site, Horningsea wares were, of course, very strongly represented at 88.3% (Nosh), 92.7% (Wt) in the overall Antonine to early 4th-century site assemblage. The storage jar fabric R021 was also quite strongly represented at 23.5% (Nosh). In the Antonine Phase 1 group, Horningsea wares were totally dominant at 99.0% (Nosh) and 99.1% (Wt), of which 38.7% (Nosh) and 62.2% (Wt) were in the

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
Stonea, Phase III	Ant		-	7.0	-	-
Stonea, Phase III/IV	Ant-EC3		-	2.7	-	-
Littleport, Phase 1	Ant	R02	28.9	22.6	7.7	12.6
		R021	11.1	23.5	0.0	0.0
		R04	4.4	9.0	15.4	15.4
Haddenham, West End, Phase 1	LC2-MC3	R02, R021, R04	78.6	73.7	-	65.9
Waterbeach, High Fen	Flavian-LC3	R02, R021, R04	92.6	-	-	-
Denny Abbey	Flavian-LC4	R02, R021, R04	80.3	-	-	-
Godmanchester, London Rd, Phase 3	LC2-MC3		c.1	-	-	-
Huntingdon, Watersmeet	LC1-MC2	R02, R021, R04	7.9	30.0	-	-
Teversham, Hinton Fields, Group 3	LC2-MC3	R02	66.7	62.2	57.3	59.8
		R021	4.5	16.3	4.9	3.2
		R04	0.3	0.6	1.2	1.5
Bottisham, Tunbridge Lane, Phase 3	Had-EAnt	R02	46.7	34.3	59.7	58.7
		R021	23.6	34.4	5.8	6.1
		R04	0.6	0.4	1.3	0.8
Bottisham, Tunbridge Lane, Phase 5	Ant-EC3	R02	45.7	36.6	40.0	22.0
		R021	10.7	15.8	4.0	1.1
		R04	3.4	4.7	20.0	12.1
Waterbeach, Old Tillage	Ant-MC4	R02	64.8	40.5	72.5	69.1
		R021	23.5	52.2	11.9	12.0
Milton East Waste	Flavian-C4	R02	41.0	27.7	46.2	37.7
		R021	13.8	38.8	8.8	5.9
		R04	0.5	0.6	2.3	1.4
Waterbeach, Cambridge Rowing Lake	C2-C4	R02	42.4	23.3	53.2	60.3
		R021	31.0	56.7	12.6	9.6
Cambridge, Newmarket Road	EC2-EC3		74.9	-	-	-
		R04	2.6	-	-	-
Milton, King's Hedges, Apollo Way	AD 150-180		55.4	66.3	-	36.4
Cambridge, Castle Hill, RGS, Group 3	Ant	R02	-	-	21.7	11.3
		R021	-	-	8.7	5.4
		R04	-	-	17.4	20.0
Cambridge, Castle Hill, RGS, Group 4	Ant-EC3	R02	3.5	5.3	39.1	40.8
		R021	0.2	0.4	0.0	0.0
		R04	0.8	2.0	6.5	10.3
Cambridge, Castle Hill, RGS, Group 5	Ant-EC3	R02	-	-	28.6	18.5
		R021	-	-	3.5	1.3
		R04	-	-	7.6	4.4
Suffolk, RAF Lakenheath Outdoor Rec Centre			18.3	29.6	-	-
Suffolk, Icklingham, Mitchells Farm	C1-C4		7.1	15.4	-	-
Norfolk, Brettenham, Melford Meadows	C2-C4		4.0	8.1	-	1.9
Great Chesterford, Trench XIV, context 9	Hadr		-	29.0	-	4.6
Great Chesterford, Pit 18, fill 3L	AD 120-160		-	10.0	-	3.6
Great Chesterford, Trench VI, Pit 12	AD 160-200		-	17.4	-	5.6
Wimpole Lodge, all-site	AD 180-400		35.4	37.3	-	29.6
Wimpole Lodge, Phase 1	AD 180-240	R02, R021, R04	-	-	-	37.0
Little Paxton, Area A, Phase 6	L Ant-MC3	R02, R021, R04	12.7	11.9	23.2	9.3
Little Barford, all-site	C1-MC4	R02, R021	27.2	17.0	-	32.0
		R04	5.9	4.7	-	7.0

Key: 0% = present at less than 0.05%; - = no data by this method. For Haddon and Earith, Langdale Hall, all-site data see Table 4.1

Table 4.2 The occurrence of Horningsea grey wares in Hadrianic-Antonine groups in the study area

handmade, predominantly storage jar fabric, R021. These figures reflect the fact that most of the pottery in this phase comes from debris from the excavated kiln.

Close to Roman Cambridge, at Newmarket Road the all-site list, of early 2nd- to mid 3rd-century date, produced 77.5% (Nosh) of Horningsea wares. At Kings Hedges, Apollo Way (Fawcett 2003), the group from Pit F.3026, dated AD 150–180, contained 55.4% (Nosh) and 66.3% (Wt) of Horningsea wares. At Cambridge itself, Castle Hill Groups 3–5, of Antonine to early 3rd-century date, tended to produce rather lower levels of Horningsea ware generally around 40–50%. In Group 3 Horningsea wares amount to 47.8% (MNR) and 36.7% (RE). Amongst these the imitation black burnished ware (R04) represents 17.4% (MNR) and 20.0% (RE). In Group 4 Horningsea wares comprise 45.6% (MNR) and 51.1% (RE) with imitation black burnished ware representing 6.5% (MNR) and 10.3% (RE). In Group 5 Horningsea ware makes up 39.7% (MNR) and 24.2% (RE) of which 7.6% (MNR) and 4.4% (RE) were in the imitation black burnished ware fabric R04.

On the eastern fen edge there are some data from published sources and unpublished data kindly provided by Cathy Tester, which show the rapid eastward fall-off of Horningsea products here. East of Littleport in the substantial collection of 1st- to 4th-century date from the RAF Lakenheath Outdoor Recreation Centre site, Horningsea wares amount to 18.3% (Nosh) and 29.6% (Wt) and amongst these 8.8% (Nosh) and 10.3% (Wt) are from the BB copy vessels in R04. East of Lakenheath there is a 2nd- to 4th-century all-site group from Melford Meadows, Brettenham (Rollo 2002), where the Little Ouse intersects with the Icknield Way. Here Horningsea wares are present, but in considerably lower quantities than at Littleport, namely 4.0% (Nosh) and 8.1% (Wt). South of this at Icklingham, roughly located at the intersection of the Icknield Way and the River Lark, unpublished data from the 1st- to 4th-century site at Mitchells Farm (C. Tester pers. comm.) show Horningsea wares providing 7.1% (Nosh) and 15.4% (Wt). Unsurprisingly, 32km further east at Scole (Rogerson 1977) the fabric is entirely absent.

South of Cambridge Horningsea wares again appear at Great Chesterford, and in increased quantities compared to the Flavian–Trajanic period. In trench XIV, context 9, of Hadrianic date, Horningsea wares amount to 29.0% (Wt) and 4.6% (RE), whilst in Pit 18, fill 3L, dated AD 120–160, they comprised 10.0% (Wt) and 3.6% (RE), and in Trench VI, Pit 21, dated AD 160–200, they amounted to 17.4% (Wt) and 5.6% (RE). The relatively high weight levels compared to the RE values suggests a strong element of storage jar sherds in these groups.

To the west of Cambridge there is a good group from Phase 1 of the urban edge site at Wimpole Lodge (Lucas 1994), dated AD 180–240, which contains 37% (RE) of Horningsea wares. Further west and a little to the north Horningsea wares amount to 33.1% (Nosh) and 21.7% (Wt) in the 1st- to mid 4th-century all-site list from Little Barford. They are likely to be contemporary by this period here as they are present at the nearby site of Little Paxton (Evans 2011), where they occur in Area A, Phase 6, dated late Antonine to mid 3rd century, at 12.7% (Nosh) and 11.9% (Wt). They also appear in the group from Area A, Phase 5, which has a Flavian to Antonine range, but not in Area E/F, Phase 5 with a Flavian–Trajanic range,

suggesting that they first reached the site in the Hadrianic period. Area A, Phase 5, has 12.7% (Nosh) and 8.7% (Wt) Horningsea wares.

Figure 3.20 shows the quantified distribution of Horningsea wares in the Hadrianic–Antonine period. The basic distribution, which remains for the rest of the life of the industry is now set. This has been discussed in detail in Chapter 3 above.

Discussion: grey wares

This period sees a major but fairly gradual change in grey ware supplies across the study area. In the Cam corridor and to the west of Cambridge the Horningsea industry seems to have generally increased its market share and perhaps extended its markets a little, although the data for the Flavian–Trajanic period (Digital Chapter 5.1) are not adequate for this to be very certain. However, this industry does not extend its range by much, rather the major dynamic comes from the appearance of the lower Nene Valley grey ware industry. This seems, from its outset, to have been marketed through the town of *Durobrivae*, as the figures from Chesterton show. Urban marketing is a relatively unusual feature for a grey ware, and not one for which there is any evidence in the case of the Horningsea industry, for example. Outside *Durobrivae* on the rural sites in the Nene Valley, lower Nene Valley grey wares slowly increased in importance and overtook the sandy grey wares dominant in the area in the previous period.

Hadham grey wares were near the edge of their distribution in the study area at this date. They did not reach the north of the study area and they were relatively rare on the southern skirt west of Cambridge where they were more common later. Cambridge did receive a little of the fabric, along with sites in its hinterland, and the distribution seems to extend down the Cam, as witnessed by the fabric's occurrence at West End, Haddenham.

Wattisfield grey ware is a little more strongly represented in this period than previously. It is again absent from the Nene Valley and Littleport, Phase 1, although it does appear in the Phase 1 group from West End, Haddenham (Peachey 2005). It is absent from other southern fen edge sites such as High Fen (Millett 1980), Kings Hedges, Apollo Way (Fawcett 2003), Old Tillage and Teversham, but is again well represented at Bottisham Tunbridge Lane, the easternmost site in the study area. At Cambridge it appears in Group 5, the shrine. It also reached Great Chesterford (Martin 2011) from the Hadrianic period, but is absent from the mid-late Antonine group there.

'Other grey wares' remain of significance at Godmanchester and on sites in the south-west of the study area, although there is also a significant element of them at Cambridge. The latter may partly reflect local production in the town and vicinity, for which there is evidence in the form of the kiln from Castle Court, Kiln CH 84 kiln/furnace 44 (Alexander and Pullinger 1999, 73 and 144) of later 2nd- to early 3rd-century date, and from Jesus Lane (Hartley 1960). Nevertheless, the environs of Godmanchester might have been a more important source of these fabrics, while some could have come from Northamptonshire.

Of clear significance in the distribution of grey wares in this period is the Cam corridor. As might be expected, the Cam appears to have been a primary transport route through the fenlands. Equally of note is how little material

seems to pass east to west across the fens and from the Norfolk and Suffolk fen edge into the fens. Generally the fenlands impeded transport rather than assisted it, except on the major waterways. There is not the level of evidence that might be expected for the role of the Ouse. It certainly does not show up in changing the shape of the distribution of Nene Valley grey wares, either southwards towards Cambridge or eastwards towards Norfolk, nor is it visible in the distribution of Nene Valley colour-coated ware. The level of Horningsea ware on the central fen islands between the Ouse and the Cam may suggest that they were being supplied along both rivers, but more data on this would be useful. The only clear indication of the use of the Ouse in pottery movements seems to be for the Godmanchester *Verulamium* tradition white wares (see Digital Chapter 6.I).

Discussion of pottery supply in the Hadrianic–Antonine period

This period saw the rise of some major industries which then continued to be significant in the region throughout the rest of the Roman period, along with the continuation and development of some others with Flavian origins. As is usual more generally, but still of note, few pre-Flavian industries survived to this period and beyond, the principal examples being the *Verulamium* region industry, the Harrod industry and possibly the Hadham industry.

In this period amphorae reached many rural sites, usually in the form of Dressel 20 oil amphora sherds, although not all sites received them. Wine amphorae were generally restricted to urban sites and sites in their vicinity, or to high-status rural sites. BB1 first appeared in this period, but is very uncommon. BB2 is a little more common but only appears in any quantity at all on the urban sites at Cambridge and Littleport. The role of both was perhaps taken by the Horningsea industry which produced a range of BB2 copies from the mid 2nd century onwards in some quantity.

Shell-tempered wares remained dominant in assemblages in the north of the study area in this period, although they continued to be of minor significance around Cambridge and on the Cam corridor in the fens. They also remained fairly common on sites to the west of Cambridge. Nonetheless they were less common overall than in the Flavian–Trajanic period. Material in southern Cambridgeshire and Bedfordshire is most likely to have originated from the kilns at Harrod (Brown 1994), which were in production from the mid 1st century. In the north of the study area the division between Northamptonshire sites, with many channel-rimmed jars, and Cambridgeshire sites, without them, seems to remain. As in the previous period it seems likely that the former were Harrod products. The distinction between Orton Hall Farm and apparently Langdale Hale, Earith with their rilled shell-tempered wares, and the other northern sites suggests that several different sources were drawn upon. The preponderance of handmade fabrics at Norman Cross, Sawtry and Haddon suggests another possible grouping. The one source clearly identifiable in this period on the basis of vessel forms is the Bourne/Greetham industry, which emerged as a minor source on many of these northern sites.

Fine wares saw considerable change in this period. In the Hadrianic–early Antonine period non-samian fine wares were rare, as in the Flavian–Trajanic period, and

were mainly restricted to ‘London type’ wares and mica-dusted wares. Fine ware traditions completely changed in the mid 2nd century when the Nene Valley kilns started producing colour-coated ware beakers in considerable quantities. These types of vessel had been available earlier as Colchester or Cologne products, but it was not until the advent of the Nene Valley industry that they took off as the dominant non-samian fine ware type. It must be presumed that the Nene Valley vessels were much cheaper, or better marketed, than the products of these other industries. The tradition is a ‘Rhenish’ one and the potters were certainly immigrants, either directly from the Rhineland or from the Colchester industry.

This period saw mortaria being adopted on sites across the region and not just at urban sites, as is largely the case in the preceding period. Numbers tend to be fairly low, however, and some rural sites still seem not to have accessed them. The most important mortarium source in this period was probably Mancetter-Hartshill. The distribution of vessels from this source extended across the whole of the study area, although tailing off markedly in the south. Its rise seems to have taken place in the Hadrianic period, but the absence of Mancetter-Hartshill reeded hammerhead mortaria at sites in the region suggests that it had lost these markets by the end of the second decade of the 3rd century. In the south of the study area, Colchester and *Verulamium* region mortaria were important in supply, but in the north the lower Nene Valley industries were of greater significance, albeit not to any great extent in this period. Products of the upper Nene Valley industry mainly appear on the western fringes of the study area, and particularly in the south-west, rather than the north.

Amongst the reduced wares, in the north of the county the Hadrianic period saw the emergence of the Nene Valley grey ware industry. The range of its products gradually expanded, and there seems to be evidence from Chesterton that it did so with urban marketing through *Durobrivae*. By the end of the 2nd century on most Nene Valley sites, Nene Valley grey wares were supplanting the previous range of sandy grey wares, the sources of which are unclear. In the Cambridge area and along the Cam corridor to the north, as well as to the west of Cambridge, Horningsea solidified its bent ‘crescent’-shaped distribution. The extension along the Cam corridor is easily explained in terms of transport costs, but it is difficult to see its advantage in extending west of Cambridge. The evidence from Cambridge does not suggest that Horningsea wares were marketed through this centre. Indeed, there seem to have been several small potteries associated with the town itself, although not on the scale seen at Godmanchester. There, ‘other grey wares’ remained important, and may have come from industries in the vicinity of Godmanchester itself, at least in part, and to a lesser extent west of Cambridge.

Hadham grey wares were near the edge of their distribution in the study area at this date. They did not reach the north of the study area and they are relatively rare on the southern skirt west of Cambridge where they were more common later. Cambridge did receive the fabric, however, along with sites in its hinterland, and the distribution seems to extend down the Cam corridor, as witnessed by the fabric’s occurrence at West End, Haddenham. Wattisfield grey wares were now found in the south-east of the study area, rather than solely at

Bottisham Tunbridge Lane as in the Flavian–Trajanic period. Quantities are fairly small but their market was clearly expanding. They extended as far north as West End, Haddenham. Supplies again peaked at Bottisham Tunbridge Lane, the easternmost site in the study area, as might be expected.

This period is the first when samian wares reach rural sites in relative quantity. Since there is extensive evidence that samian was marketed through urban centres (Rhodes 1989; Evans 2005) this clearly demonstrates an increase in urban marketing into the countryside and an increased economic interdependence of urban and rural settlements. All the evidence, here and province wide, suggests that samian ware marketing peaked in the mid–late Antonine period. The correlation of this samian peak with the evidence from *denarii* in the coinage of a peak of monetary transactions in this period (Creighton 1992; cf. Creighton 2014, 135) points to a real peak of economic activity, followed by a slump in the early 3rd century. The evidence assembled by Creighton may be compared with the more theoretical model of economic activity proposed by Going (Going 1992). He argued for a series of four economic ‘long waves’ covering the Romano-British period, representing the periods AD 40–130, AD 130–240, AD 240–350 and AD 350–430. In each period there was an initial boom, followed by a slump, the latter falling in the Trajanic–early Hadrianic period, the early 3rd century, the early 4th century and the early 5th century in each of Going’s four periods respectively. Creighton’s data certainly substantiate an Antonine boom, although one dated AD 170–190 rather than earlier. They also may support one in the period AD 40–60, but in that case the subsequent slump lasted from c.AD 60 to c.AD 110/120. Creighton’s data are certainly consistent with a major economic change around AD 60. If Creighton’s evidence supports the view that there was a peak of monetised economic activity in the Antonine period, which the ceramic evidence seems to reflect, then it also suggests that this activity declined markedly in the earlier 3rd century, as Going (1992) also suggests.

The samian ware evidence suggests that the settlement at Littleport, which has not previously been considered as a small town, should be examined in this light. Independent data from the functional analyses and fine ware levels on this site also point in the same direction (Digital Chapter 11.V).

The ceramic evidence in the Hadrianic–Antonine period clearly demonstrates the role of the Cam as a corridor for transport through the fens for several industries, and not just Horningsea, in its distortion of pottery distribution patterns. There seems to be rather lesser evidence of this for the Nene, but a significant inland port on the Ouse has been excavated at Camp Ground, Colne Fen, Earith (C. Evans *et al.* 2013, 179–452). There may also be some evidence for the use of the Ouse in relation to the Horningsea distribution in the central fenland islands, but better data are still needed on this. The best data in respect of the Ouse may come from the white wares. The *Verulamium* white ware tradition industry based at Godmanchester (C.J. Evans 2003) would seem to have used this route to distribute its products to sites such as Stonea and Littleport.

III. The 3rd Century

Fig. 4.3; Table 4.3

Introduction

Almost all the sites in the study contained assemblages of 3rd-century material. In the north, most sites in the Nene Valley and western fen edge contained significant assemblages of this period: Maxey (Gurney 1985), Orton Hall Farm (Perrin 1996), Haddon (Rollo 1994; J. Evans 2003), Tort Hill East and West (Hancocks 1998; JE), Norman Cross (Hancocks *et al.* 1998) and Chesterton (Perrin 1999). In the central fenland and Ouse Valley the sites at Stonea (Cameron 1996), Littleport, Camel Road (JE), Haddenham Shrine (Lucas 2006a), West End, Haddenham (Peachey 2005), Langwood Farm (C. Evans 2003a) and Langdale Hale (Monteil 2013a) all had assemblages of this period. The sites at Godmanchester, London Road (Hancocks 2003), High Fen and Denny Abbey (Millett 1980) all had 3rd-century assemblages. In the south this period was well represented at Cambridge, Castle Hill (Hull and Pullinger 1999; JE) and the nearby sites at Newmarket Road (JE), Bottisham Tunbridge Lane (JE) and Teversham (Pullinger and White 1991; JE). The Old Tillage at Waterbeach (JE), the Cambridge Rowing Lake (JE) and Milton East Waste (JE) all produced material of this date. To the west the sites at Foxton (Lucas 1997), Little Paxton (Jones 2011), Little Barford (Lucas 1997) and Wimpole Lodge (Lucas 1994) contained sizeable 3rd-century assemblages. The contents of these assemblages are discussed in some detail in Digital Chapter 7.

Horningsea wares

‘Black burnished’ type ware

BB2 is consistently present at Littleport and on some other central fenland sites. It might be present at Stonea, but the material there is more probably of Horningsea origin (see Section II above).

Mortaria

Horningsea mortaria from Waterbeach Old Tillage and from Cambridge Rowing Lake have been discussed in Section II above, though in both cases a 3rd-century rather than 2nd-century date is possible. A 3rd-century date is likely for the Horningsea sherds which formed a minor part of the small mortarium assemblage from Milton East Waste. Mortaria from the groups at Cambridge, Castle Hill are discussed in Digital Chapter 10. A possible Horningsea piece in fabric M21 from Group 6 is of particular note.

Horningsea wheelmade reduced wares (grey wares) (R02, R01, R04)

The distribution of Horningsea grey wares in the 3rd century is similar to that in the 2nd (Fig. 3.22; Fig. 4.3; Table 4.3). In the north of the study area they are absent from the Nene Valley sites. On Ermine Street, however, the fabric does occur at Haddon in the form of a few sherds in the overall 1999 excavated assemblage, amounting to just 0.05% (Nosh). Further south the fabric is absent from most of the Sawtry sites, but body sherds of a Horningsea ware storage jar (R16) are found at the southernmost site of Norman Cross (Hancocks *et al.* 1998, 59) in Period 2, of 3rd- to early 4th-century date.

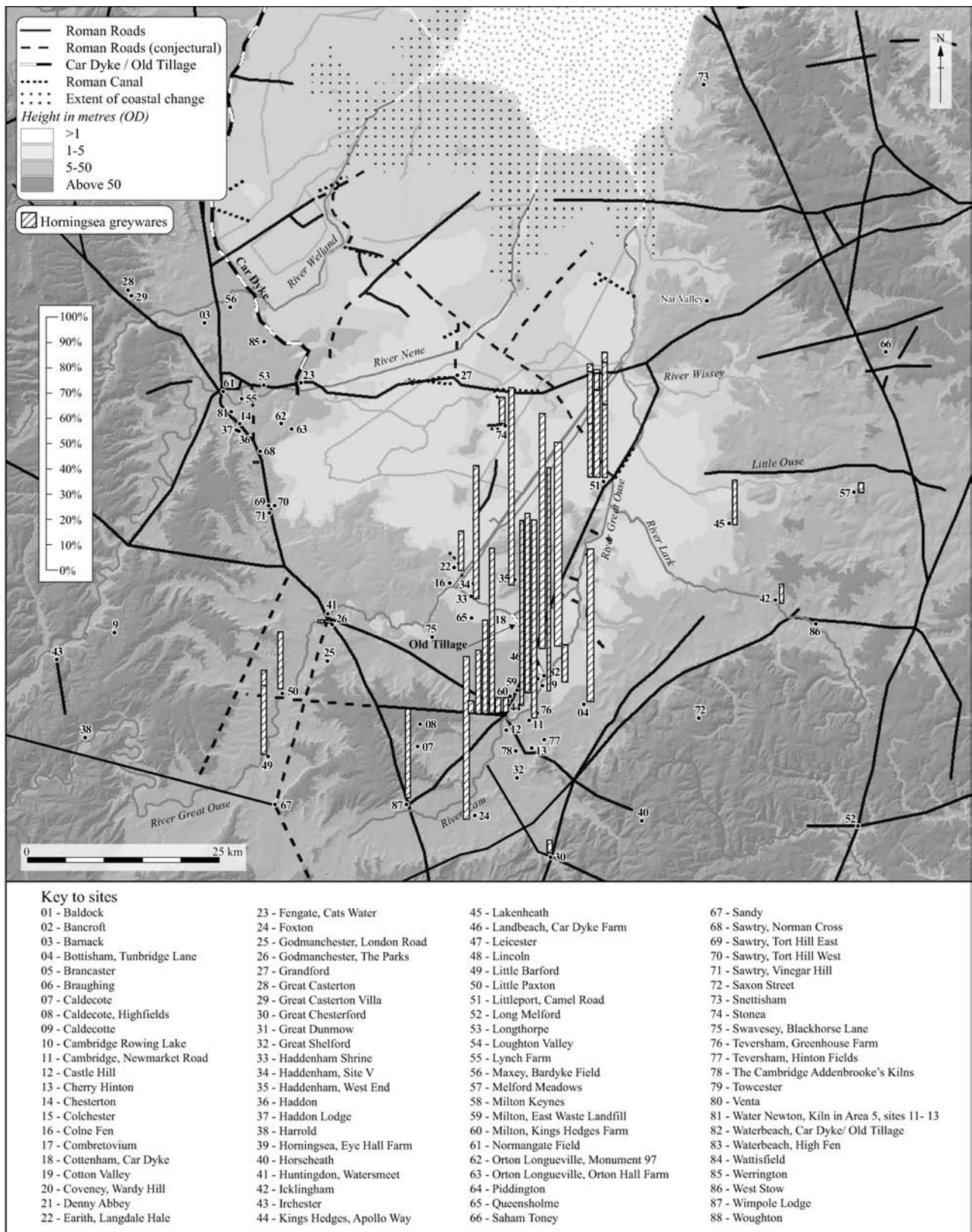


Figure 4.3 Distribution of Horningsea grey wares on sites in the study area in the 3rd century. Scale 1:75,000

East of the Nene Valley in the central fens at Stonea (Cameron 1996), Horningsea ware occurs at 2.7% (MNR) in the Antonine to early 3rd-century Phase III/IV deposits, at 9.5% (MNR) in the 3rd-century Phase IV deposits and at 10.4% in the later 3rd-century Phase IV/V deposits.

Thus it would seem to be slightly increasing its market penetration here in the course of the century. Moreover, many of the 'other grey wares' appear in forms which would fit the Horningsea repertoire and some of these may also have been from this source.

To the south-east at the Cam crossing of Akeman Street at Littleport, Horningsea wares amount to 45.0% (Nosh) and 51.7% (Wt), in the early to mid 3rd-century Phase 3, levels similar to those in the Antonine Phase 1. Handmade sherds in fabric R021 comprise 20.8% (Nosh) and imitation black burnished ware in R04 some 2.8% (Nosh). In the mid 3rd-century Phase 4 Horningsea wares comprise 41.9% (Nosh) and 39.3% (Wt) with R021 contributing only 6.6% (Nosh) and R04 1.0% (Nosh), and in the mid to late 3rd-century Phase 5 Horningsea wares amounted to 48.7% (Nosh) and 64.8% (Wt) with 16.5% (Nosh) being handmade sherds in R021 and 3.9% (Nosh) being R04. Forms (illustrated in Chapter 3.V) consist of a constricted-necked jar (Fig. 3.7, CJ1.1, Phase 3), a bifid rimmed jar (Fig. 3.9, J1.1, Phase 5), a shouldered jar with a grooved rim (Fig. 3.9, J2.5, Phase 5), an imitation BB2 jar rim (Fig. 3.9, J6.6 Phase 4), a necked, cordoned jar (Fig. 3.9, J9.1 Phase 4), four necked jars (Fig. 3.9, J9.3, Phase 3; Fig. 3.10, J10.1, Phase 5, J10.3, Phase 5 and J10.4, Phases 3 and 5), and a medium-mouthed jar (Fig. 3.10, J11.2 Phase 3). Storage jar types were SJ1.1, SJ1.2 (x 3), SJ1.3 (x 3), and SJ2.1 (Fig. 3.8), all in Phase 3. Open forms included a carinated bowl (Fig. 3.12, B1.1, Phase 5, probably residual), a straight walled bowl (Fig. 3.12, B5.1, Phases 3 and 4), a bead rimmed bowl (Fig. 3.12, B5.4, Phase 3), an incipient beaded and flanged bowl (Fig. 3.12, B6.3, Phase 4), and a Dr 37 copy(?) hemispherical bowl (Fig. 3.13, B13.1, Phase 4). There was also a dish with a triangular-sectioned bead rim and basal chamfer (Fig. 3.14, D2.3 x 2, Phase 3). The dating of the forms has been discussed in Chapter 3.VI.

To the east of Littleport, in a 1st- to 4th-century assemblage from RAF Lakenheath Outdoor Recreation Centre, Horningsea grey wares comprised 18.3% (Nosh) and 29.6% (Wt) of the total collection with 8.8% (Nosh) being in the burnished group R04. South-east of Lakenheath on the eastern fen edge at Icklingham (C. Tester, pers. comm.), in the 1st- to 4th-century all-site tabulation, Horningsea quantities rapidly fall-off to 7.0% (Nosh) and 15.4% (Wt), while a little further east, near the junction of Icknield Way and the Little Ouse, the Flavian to mid 4th-century all-site collection at Brettenham, Melford Meadows (Rollo 2002) shows that small quantities of Horningsea wares reached beyond the eastern fen edge with 4.0% (Nosh) and 8.1% (Wt).

South of Littleport, in the Ouse corridor, the all-site Flavian to 4th-century group from Earith, Langdale Hale, (Monteil 2013a) has 15.5% (Nosh) of Horningsea wares. At the Haddenham Shrine, a little to the east of this (Lucas 2006a) and near the Old Tillage, the 3rd- to early 4th-century all-site group contained 52.6% (Nosh) and 50.7% (Wt) of Horningsea wares. At Haddenham, West End (Peachey 2005), in the Cam corridor, Horningsea wares were even more common at 78.6% (Nosh) and 73.7% (Wt) in the later 2nd- to mid 3rd- century group from Phase 1 and 72.4% (Nosh) and 68.0% (Wt) in the later 3rd- to mid 4th-century Phase 2.

To the south in the Cam corridor at High Fen the all-site Flavian to later 3rd-century group contained 92.6% (Nosh) Horningsea wares and at the nearby all-site group from Denny Abbey Horningsea wares amounted to 80.3% (Nosh) (Millett 1980).

On the western fen edge at Godmanchester, London Road (Hancocks 2003) the later 2nd- to mid 3rd-century Phase 3 group contained only around 1% of Horningsea

wares, and a similar quantity came from the later 3rd- to early 4th-century Phase 4A group.

On the southern fen edge at Teversham, Horningsea wares account for 71.5% (Nosh) and 79.1% (Wt) of the Group 3 assemblage of later 2nd- to mid 3rd-century date, with 4.5% (Nosh) being in the handmade R021 and 0.3% being the black burnished ware imitation R04. At Bottisham Tunbridge Lane, in the Antonine to early 3rd-century Phase 5, Horningsea wares comprise 59.8% (Nosh) and 35.2% (RE), of which 10.7% were handmade R021 sherds and 3.4% R04 imitation black burnished ware sherds.

At Waterbeach, the kiln site on the Old Tillage produced high levels of Horningsea wares as might be expected – with 87.5% (Nosh) and 92.7% (Wt) – of which 21.8% (Nosh) were handmade sherds in R021. No sherds were recorded in R04, reflecting the fact that identification of this group requires reasonable survival of vessel surfaces, which this assemblage did not yield. In Phase 3a (3rd to early 4th century), Horningsea wares amounted to 85.1% (Nosh) and 89.3% (Wt). Quantities of the handmade fabric R021 were notably high at 18.1% (Nosh) and 45.5% (Wt). These high levels are nevertheless below those of the Antonine Phase 1 group, reflecting other activities on the site as well as pottery production. In both the major Old Tillage phase groups the storage jar fabric R021 is very strongly represented.

At the nearby site of Milton East Waste, in the Flavian to 4th-century all-site group, Horningsea wares amounted to 55.8% (Nosh), of which 14.0% (Nosh) were in the handmade fabric R021 and 0.5% was in R04. At Cambridge Rowing Lake the all-site 2nd- to 4th-century assemblage produced 73.4% (Nosh) and 80.0% (Wt) of Horningsea wares of which 31% (Nosh) were handmade sherds in R021. At Cambridge, Newmarket Road (Evans 2002a) some 77.5% (Nosh) of the sherds were Horningsea wares, of which 2.6% (Nosh) were in fabric R04.

At Cambridge, Castle Hill the Antonine to early 3rd-century Group 5 contained 39.7% (MNR) and 24.2% (RE) of Horningsea wares, of which 3.5% (MNR) was in the handmade fabric R021, and 7.6% (MNR) was in R04. Groups 6-9 are all of 3rd- to 4th-century date, and have between 40–46% by MNR. Clearly Horningsea ware levels at Cambridge were fairly consistently around 40% in later Roman groups, well below those on rural sites on the southern fen edge, or further north in the Cam corridor. Consequently, it is very difficult to argue that these wares were particularly marketed through the ‘town’. This proves to be fairly usual for coarse ware producers (Evans 2005) where there is very little convincing evidence of urban marketing. The form composition and functional analyses of the Horningsea wares at Cambridge are discussed elsewhere (Chapter 3 and Digital Chapter 10).

South of Cambridge at Great Chesterford (Martin 2011) an early 3rd-century group from Trench VI, context 32, contained 12.5% (Wt) of Horningsea wares. South-west of Cambridge in the later 3rd- to 4th-century all-site group from Foxton, in contrast to Great Chesterford, Horningsea wares made up 64.4% (Nosh) and 69.9% (Wt) of the assemblage, a greater quantity than at Cambridge itself (Lucas 1997). West of Foxton at Wimpole Lodge (Lucas 1994) the Phase 1 group, dated AD 180–240, contained 37% (RE) of Horningsea wares and the Phase 2 group, dated AD 240–300, contained 35% (RE). North-west of Wimpole Lodge at Little Paxton

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
Haddon 1999 all-site	LIA-MC4		0	-	-	-
Stonea, Phase III/IV	Ant-EC3		-	2.7	-	-
Stonea, Phase IV	AD C3			9.5	-	-
Stonea, Phase IV/V	LC3		-	10.4	-	-
Littleport, Phase 3	E-MC3	R02	21.4	15.1	7.4	8.1
		R021	20.8	35.1	11.8	8.6
		R04	2.8	1.5	4.4	4.7
Littleport, Phase 4	MC3	R02	34.3	21.0	16.7	18.3
		R021	6.6	17.9	0	0
		R04	1.0	0.4	4.2	6.1
Littleport, Phase 5	M-LC3	R02	28.3	26.6	31	44.2
		R021	16.5	31.4	3.5	2.6
		R04	3.9	6.8	10.3	8.7
RAF Lakenheath Outdoor Rec	C1-C4		18.3	29.6	-	-
Icklingham, all-site	C1-C4	R02, R021, R04	7	15.4	-	-
Brettenham, Melford Meadows	Flavian-MC4		4	8.1	-	1.9
Earith, Langdale Hale, all-site	Flavian-C4	R02, R021, R04	15.5	-	-	-
Haddenham Shrine	C3-EC4	R02, R021, R04	52.6	50.7	-	48
Haddenham, West End, Phase 1	LC2-MC3	R02, R021, R04	78.6	73.7	-	65.9
Haddenham, West End, Phase 2	LC3-MC4	R02, R021, R04	72.4	68	-	53.8
Waterbeach, High Fen	Flavian-LC3	R02, R021, R04	92.6	-	-	-
Denny Abbey	Flavian-LC4	R02, R021, R04	80.3	-	-	-
Godmanchester, London Rd, Phase 3	LC2-MC3		c.1.0	-	-	-
Godmanchester, London Rd, Phase 4A	LC3-EC4		c.1.0	-	-	-
Teversham, Hinton Fields, Group 3	LC2-MC3	R02	66.7	62.2	57.3	59.8
		R021	4.5	16.3	4.9	3.2
		R04	0.3	0.6	1.2	1.5
Bottisham, Tunbridge Lane, Phase 5	Ant-EC3	R02	45.7	36.6	40	22
		R021	10.7	15.8	4	1.1
		R04	3.4	4.7	20	12.1
Waterbeach, Old Tillage	Ant-MC4	R02	65.7	40.5	73	69.3
		R021	21.8	52.2	10.4	9.9
Waterbeach, Old Tillage, Phase 3a	C3-EC4	R02	67.0	43.8	77.9	75.2
		R021	18.1	45.5	4	2.7
Milton East Waste	Flavian-C4	R02	41.3	27.7	46.2	37.7
		R021	14	1.0	9.0	5.9
		R04	0.5	0.0	2.3	1.4
Waterbeach, Cambridge Rowing Lake	C2-C4	R02	42.4	23.3	53.2	60.3
		R021	31	56.7	12.6	9.6
Cambridge, Newmarket Road	EC2-EC3		74.9	-	-	-
		R04	2.6	-	-	-
Cambridge, Castle Hill, RGS Group 4	Ant-EC3	R02	3.5	5.3	39.1	40.8
		R021	0.2	0.4	0.0	0.0
		R04	0.8	2	6.5	10.3
Cambridge, Castle Hill, RGS, Group 5	Ant-EC3	R02	-	-	28.6	18.5
		R021	-	-	3.5	1.3
		R04	-	-	7.6	4.4
Cambridge, Castle Hill, RGS, Group 6	C3-C4	R02	-	-	34.2	31.0
		R021	-	-	2.3	1.6
		R04	-	-	5.5	5.0
Cambridge, Castle Hill, RGS, Group 7	C3-C4	R02	42.1	23.2	24.0	21.2

Site and phase details	Date	Fabric	% Nosh	% Wt	% MNR	% RE
		R021	16.0	46.8	4.0	3.3
		R04	6.6	8.9	12.0	16.1
Cambridge, Castle Hill, RGS, Group 8	C3–C4	R02	3.5	10.4	31.4	41.6
		R021	0.4	1.0	2.3	1.4
		R04	1.0	1.5	9.3	10.5
Cambridge, Castle Hill, RGS, Group 9	C3–C4	R02	3.4	4.9	27.5	23.7
		R021	0.9	6.0	5.5	4.3
		R04	1.7	2.9	13.2	11.6
Great Chesterford, Trench VI, context 32	EC3		-	5.0	-	-
Foxton	AD 270–400	R02, R021, R04	64.4	69.9	-	49.5
Wimpole Lodge, all-site	AD 180–400	R02, R021, R04	35.4	37.3	-	29.6
Wimpole Lodge, Phase 1	AD 180–240	R02, R021, R04	-	-	-	37.0
Wimpole Lodge, Phase 2	AD 240–300	R02, R021, R04	-	-	-	35.0
Little Paxton, Area A, Phase 6	LAnt–MC3	R02, R021, R04	12.6	11.9	23.2	9.3
Little Paxton, Phase 7A	C3	R02, R021, R04	22.8	26.1	23.5	24.6
Little Paxton, Phase 7B	LC3–EC4	R02, R021, R04	22.5	19.2	22.5	24.3
Little Barford, all-site	C1–MC4	R02, R021	27.2	17.0	-	32.0
		R04	5.9	4.7	-	7.0

Key: 0.0% = present at less than 0.05%; - = no data by this method

Table 4.3 The occurrence of Horningsea grey wares in 3rd-century groups in the study area

(Evans 2011) the Area A, Phase 6 group, dated late Antonine to mid 3rd century, contained 12.6% (Nosh) and 11.9% (Wt) of Horningsea wares. The succeeding Area A, Phase 7A group, dated to the 3rd century, included 22.8% (Nosh) and 26.1% (Wt) Horningsea wares, whilst the later 3rd- to early 4th-century Phase 7B group contained 22.5% (Nosh) and 19.2% (Wt) of Horningsea wares. Thus, levels of Horningsea wares here seem to have risen markedly in the early 3rd century and then remained at this level for the remainder of the century.

South of Little Paxton, and more or less west-north-west of Wimpole Lodge, was the site of Little Barford (Lucas 1997). Here, Horningsea wares comprise a considerable 33.1% (Nosh) and 21.7% (Wt) of the 1st- to mid 4th-century assemblage.

The overall distribution of Horningsea wares in this period is very similar to that in the 2nd century. However, as the evidence from Little Paxton and Stonea, in particular, demonstrates there seems to have been some intensification of marketing within its core distribution. In plan the distribution is very definitely ‘crescent’-shaped, extending down the Cam corridor, but also west of the kiln site inland for some considerable distance. The use of water transport down the Cam corridor is not surprising and is seen with a number of other fabrics which reach the Cambridge area at the limit of their distribution, but extend in this direction. The westward extension of the Horningsea distribution remains difficult to explain. Water-based distribution seems unlikely. What does seem clear is that the distribution is constrained to the south by Hadham grey wares and to the north by ‘other grey wares’ (chiefly R01) for which an origin in the Godmanchester area seems most probable. The full extent of the westward distribution of Horningsea wares is not determined in this study.

Summary of pottery supply in the 3rd century

Overall, most of the major patterns of pottery supply and distribution seen across the study area in the 2nd century are repeated in the 3rd. There are few major changes and radical breaks. One of the notable changes is in relation to amphora supply, with contemporary amphorae virtually disappearing from the study area. This, however, is part of the province-wide pattern that seems to have seen a sudden end to the importation of Spanish olive oil and a failure to replace this with any other source (e.g. Funari 1996). The reason for this is not easily explained but it is a clear material fact and it does not seem likely that importation in barrels replaced the amphora supply. Thus in Cambridgeshire, as throughout the province, olive oil seems to have dropped out of urban diets in particular in the 3rd century. The other major break, again a province-wide phenomenon, is the massive decline in the importation of samian ware after c.AD 200. This may indicate the collapse of the national network of *negotiatores* which had previously distributed Central Gaulish samian ware.

Otherwise, ceramic patterns remained fairly stable. BB2 disappeared from the market in the later 2nd century, but the evidence from Cambridge in particular (Digital Chapter 10) suggests that it was largely replaced by a little more BB1, although this was at the limit of its distribution and largely restricted to table ware forms. Shell-tempered wares remained a significant element of pottery assemblages in the period in the Nene and Welland Valleys, although still in declining quantities on many sites, at least in the earlier part of the century. They are also a significant element in assemblages on sites to the west of Cambridge moving towards the kiln site at Harrold (Brown 1994). They decline as a proportion of the

assemblage compared to the previous period on some sites but not on others. Since the reason for this decline in the Hadrianic–Antonine period was seen as reflecting further diversification of assemblages as a whole, rather than the result of competition from other sources of cooking and storage vessels, then it follows that this process seems to have been coming to an end in the 3rd century. The distributions again tend to suggest production of shell-tempered wares in the Welland/Nene/lower Ouse corridor area in north Cambridgeshire as well as at Harrold. The figures from Cambridge and the sites around it suggest that the Harrold potters were making steady progress in extending their share of the market here, but they seem to have been falling back nearer to the kiln site in Bedfordshire. The Bourne kilns did not apparently outlive the century, and fairly distinctive types produced at Harrold started to be common across the north of the region towards the end of the period.

Overall fine ware levels in assemblages in the region increased during the 3rd century. By far the most significant fine ware in the region in this period, as in the later 2nd century, was Nene Valley colour-coated ware, quantities of which tend to rise in the course of the century. Other aspects of this development have been discussed above.

Amongst other fine wares Hadham oxidised ware may have been one of the more significant. Moselkeramik is occasionally found across the study area and there is an equally small number of pieces of 3rd-century Oxfordshire red colour-coated ware.

The 3rd century saw a major change in mortarium supply across the region. This came to be dominated by products of the lower Nene Valley industry, eventually supplemented at low levels by Oxfordshire vessels. The marginalisation of Mancetter-Hartshill products after the early 3rd century is notable.

In terms of grey wares, these were, as usual, the most important fabric class in most assemblages in the region. There were three significant blocks of these. In the north of the study area the Nene Valley grey ware industry largely retained the markets it had established by the end of the 2nd century. In the fens and south of the study area the overall distribution of Horningsea wares in this period is very similar to that in the 2nd century, but again there seems to have been some intensification of marketing within its core area. The third major grey ware group in the study area are the ‘other grey wares’. In the north of the county these tended to be replaced by Nene Valley grey wares through the course of the century. They are commonest on the western fen edge in the vicinity of Godmanchester and on the southern fringe of the study area. Given the distribution of the often grey/black slipped sandy grey wares, particularly in the R01 group, it would appear that many of these originated in the Godmanchester area, although some could have come from further west. It seems likely that the calcareously tempered grey ware R11 (and possibly also R12) found principally in the south of the study area, originated to the west or south of Cambridge, perhaps in Hertfordshire or Bedfordshire. Minor grey ware groups include Wattisfield grey wares and Hadham grey wares; it is notable that the repertoires of both industries included a high proportion of table wares.

IV. The Earlier 4th Century

Fig. 4.4; Table 4.4

Introduction

There is a similar spread of sites in the early 4th century to that in the 3rd, with most sites within the study area producing early 4th-century assemblages. The Nene Valley sites at Chesterton (Perrin 1999) and Werrington (Perrin 1988) produced material of this period, whilst along the western fen edge the sites at Sawtry Tort Hill (JE), Orton Hall Farm (Perrin 1996) and Haddon (Rollo 1994; J. Evans 2003) all have significant assemblages. In the central fenland material appears at Littleport, Camel Road (JE) and Langwood Farm (C. Evans 2003a). Fourth-century pottery is also present in the Ouse Valley at Haddenham (Lucas 2006a) and Earith, Langdale Hale (Monteil 2013a). In the south there are large groups at Castle Hill and the Cambridge sites (Hull and Pullinger 1999; JE). Material is present at the sites at Bottisham (Tunbridge Lane, JE; Tunbridge Hall, Peachey 2012), Teversham (Pullinger and White 1991; JE) and Milton East Waste (JE), at the Old Tillage at Waterbeach (JE) and the Cambridge Rowing Lake (JE). The western sites at Foxton (Lucas 1997), Little Paxton (Jones 2011), Little Barford (Lucas 1997) and Wimpole Lodge (Lucas 1994) all contain relevant material. The contents of these assemblages are discussed in some detail in Digital Chapter 8.

Horningsea wheelmade reduced wares (grey wares) (R02, R021, R04)

Distribution

The distribution of Horningsea grey wares in the earlier 4th century (Fig. 3.22; Fig. 4.4; Table 4.4) is again similar to that in the 3rd and 2nd centuries. In the north of the study area, Horningsea ware appears on Nene Valley sites, albeit rarely. At Orton Hall Farm a storage jar body sherd (Perrin 1996, 154) is noted from Period 3, dated AD 225/50–300/325, and in Period 4, dated AD 300/325–375, a storage jar rim (SJ1.1) is illustrated (Perrin 1996, no. 481) and Horningsea ware is stated to make up ‘less than 1%’ of the assemblage. At Chesterton three Horningsea storage jars are illustrated (Perrin 1999, nos 383–5), two of which came from later 4th-century contexts. In addition, two constricted-necked jars from later 3rd- to 4th-century contexts (Perrin 1999, nos 377–8) look as if they may be Horningsea products. Perrin (1999, 114) comments that the large jars are found on most lower Nene Valley sites of later 2nd- and 3rd-century date.

On Ermine Street the fabric occurs at Haddon in the form of a few sherds in the overall 1999 excavated assemblage, amounting to just 0.05% (Nosh). However, it is absent from the later 3rd- to early 4th-century group from Phase 5/6 of the 1989 excavations (Rollo 1994) and is again absent from the mid 4th-century Phase 6 group. Further south the fabric is absent from most of the Sawtry sites but body sherds of a Horningsea ware storage jar, R16, were found at the southernmost site of Norman Cross (Hancocks *et al.* 1998) in Period 2, of 3rd- to early 4th-century date.

In the central fens on the Cam crossing of Akeman Street at Littleport, in the early 4th-century Phase 6 Horningsea wares account for 34.6% (Nosh) and 16.4% (Wt). Amongst these the handmade fabric accounts for

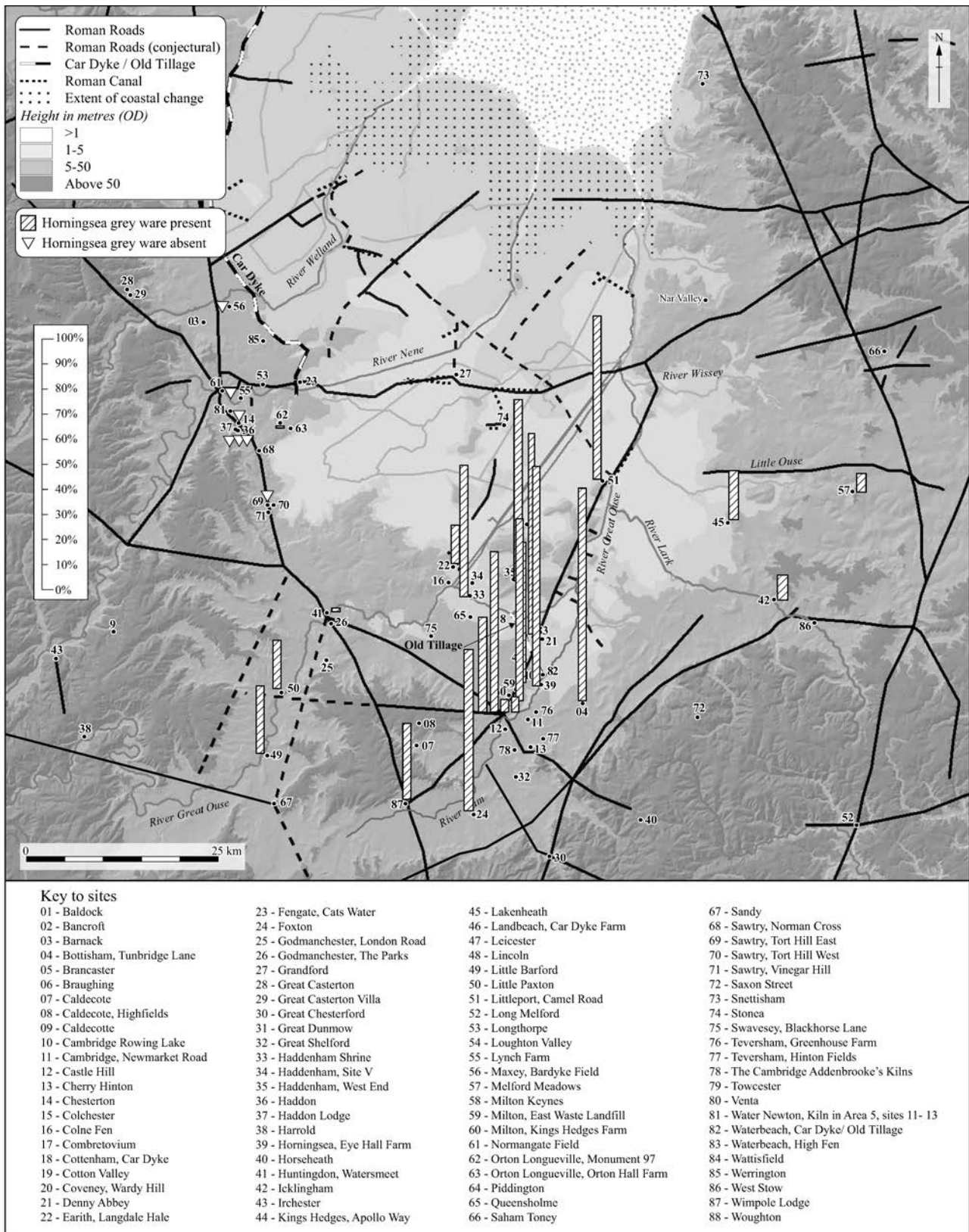


Figure 4.4 Distribution of Horningsea grey wares on sites in the study area in the early 4th century. Scale 1:75,000

6.2% (Nosh) and 4.7% (Wt) and the black burnished copy fabric 2.1% (Nosh) and 1.5% (Wt). In the following Phase 7 group, of mid 4th-century date, Horningsea wares make up 64.9% (Nosh) and 56.5% (Wt) of the assemblage, with the handmade fabric R021 providing 17.1% (Nosh) and

30.3% (Wt) and the black burnished copy fabric R04 contributing 5.7% (Nosh) and 4.3% (Wt).

Digital Fig. 8.7 shows the proportions of Horningsea wares at Littleport throughout the sequence. Although the Nosh figures tend to suggest some decline in quantity in

the 4th-century groups this is not reflected in the RE figures. Forms in these groups consisted of a bead rimmed jar (Fig. 3.9, J6.2, Phase 8), a necked, cordoned jar (Fig. 3.9, J9.1 x2, Phase 8), a necked jar with everted, rising, swelling rim (Fig. 3.10, J10.1, Phase 6 x2, Phase 8; J10.2 Phase 7), a constricted-necked jar (Fig. 3.7, CJ1.4, Phases 6 and 8), a BB2 copy straight walled bowl with a beaded rim (Fig. 3.12, B5.1, Phase 8), a BB2 copy bowl with beaded, undercut rim (Fig. 3.12, B5.2, Phase 6 x2), a bowl or dish with a triangularly-sectioned beaded rim (Fig. 3.12, B5.3, Phase 6), a simple rimmed dish (Fig. 3.14, D1.1 x3, Phase 6), a simple grooved rim dish (Fig. 3.14, D3.1, Phase 6 x2, Phase 7), a simple rimmed dish with double groove (Fig. 3.14, D3.2, Phase 8), and an open lamp (Fig. 3.15, O4.1, Phase 8).

Representation of Horningsea ware in the all-site assemblage lists from RAF Lakenheath, Brettenham Melford Meadows, Icklingham, Earith Langdale Hale, Denny Abbey, Waterbeach Old Tillage, Cambridge Rowing Lake and Milton East Waste, and in mainly late 3rd- to mid 4th-century groups at Haddenham shrine, Haddenham West End and Godmanchester London Road has been discussed under the previous period (Section III, above).

At Bottisham Tunbridge Hall (Peachey 2012) the early to mid 4th-century activity associated with the villa estate provides further data. In the early 4th-century (Phase 2) Horningsea wares amount to 84.1% (Nosh) and 81.1% (Wt). The mid 4th-century Phase 3 group produced similar levels with 85.4% (Nosh) and 82.9% (Wt). Within these groups the BB copy fabric accounted for 5.6% (Nosh) and 6.3% (Wt) in Phase 2 and 4.2% (Nosh) and 3.8% (Wt) in Phase 3. In Phase 4 the overall Horningsea figure falls marginally to 82.1% (Nosh) and 77.5% (Wt), with R04 providing 7.5% (Nosh) and 7.4% (Wt). In terms of the forms in Phase 2, Peachey reports 'In total, a minimum of 45 Horningsea dish and bowl forms were recorded... including 16 plain rim dishes comparable to Evans 66 and 67 [D1.1–D1.2], 14 bead and flange rim bowls comparable to Evans 52 and 53 [B6.1–B6.2] and 11 bead rim bowls comparable to Evans 68 and 69 [Classes B5 and D2]. None of these vessels exhibits any form of decoration beyond the plain burnishing of interior/exterior surfaces, which appears to have been applied to approximately half the recorded dishes and bowls in this group, although abrasion may have masked the true number... Of the 21 jars recorded in this group in Horningsea fabrics only 11 can be assigned a probable type, while the remaining 10 comprise miscellaneous fragments from vessels with either plain or beaded, everted rims. The jar types that could be identified include types with everted plain rims and a shoulder cordon (Evans 18, 19 and 22) [J9.1–J9.2], with everted bead rims and, where extant, a shoulder cordon (Evans 28, 29, 41 and 44) [J10.1–J10.5] and with ledge rims (Evans 32) [J4.2]' (Peachey 2012, 301).

Amongst the storage jars Peachey notes that 'Variants include plain everted rims (Evans 2) [SJ1.1], everted bead rims (Evans 9 and 10) [SJ1.2] and everted bifid rims (Evans 6 and 7) [SJ2.2]' (Peachey 2012, 301). In Phase 3 Peachey records that 'a minimum of 47 dish or bowl forms were recorded in the Phase 3 rectilinear enclosures (Areas 1 and 2) group, including 15 plain rim dishes comparable to Evans 66 and 67 [D1.1–D1.2], 15 bead and flange rim bowls comparable to Evans 52 and 53 [B6.1–6.2] and 13

bead rim bowls comparable to Evans 68 and 69 [Classes B5 and D2]... Only approximately 33% of the recorded jars could be reliably cross-referenced with Evans's typology, with the bulk comprising plain or beaded everted rims that could potentially be derived from Evans 18–29 [Class J9 and J10.1–J10.3]: the most common types amongst those that could be defined. The jar types that could be positively identified include types with plain rims and a shoulder cordon (Evans 22) [J9.2], with everted bead rims and, where extant, a shoulder cordon (Evans 25–29, 42 and 46) [J9.3, J10.1, J10.7], and with ledge rims (Evans 31) [J10.6]... Four Horningsea storage jars are present... and include a single everted bead rim type (Evans 10) [SJ1.2] with three bifid rim variants (Evans 5 and 7) [SJ2.2]' (Peachey 2012, 305–6).

In Phase 4 'the bead and flange rim bowls (Evans 52–54 [B6.1–6.2]) continue to comprise about half of the open vessels, with a significant element comprising bead rim dishes (Evans 58 [B5.1]). However, in this group the quantity of plain rim dishes (Evans 66 [D1.1]) appears to have declined. The Horningsea jars largely conform to the pattern set in Phases 2 and 3, with everted bead and plain rim types common and ledge rim jars sparse; however narrow-necked (Evans 12 [CJ1.1] and 14 [CJ1.4]) and wide-mouthed (Evans 17) types [Class J5] are also present in Phase 4, albeit in very low numbers. These types may simply be uncommon forms, but were not recorded in any of the previous Roman phases. A bifid rim variant (Evans 6 [SJ2.2]) represents the only diagnostic storage jar sherd in this group' (Peachey 2012, 312). Amongst the mortaria from this phase (dominated by Nene Valley vessels) are a very few sherds attributed to the 'Nar Valley'. Given that the Horningsea industry also used iron slag trituration grits and produced reduced mortaria, it may be that this is a more probable source for these sherds.

At Castle Hill, Cambridge the 3rd- to 4th-century Groups 6–9 all produced Horningsea wares. It is very clear from this that Horningsea ware levels in the town of Cambridge were fairly consistently around 40% in later Roman groups, well below those on rural sites on the southern fen edge, or further north in the Cam corridor. As noted above (Chapter 3.VI) it is difficult to argue that these wares were particularly marketed through the town. The form composition and functional analyses of the Horningsea wares at Cambridge are discussed in Chapter 3 and Digital Chapter 10.

At Apollo Way, Kings Hedges Farm (Fawcett 2003) on the outskirts of Cambridge the 4th-century group from ditch 2007 produced 48% (Nosh) and 36% (Wt) Horningsea wares. South-west of Cambridge, in the later 3rd- to 4th-century all-site later Roman group from Foxtton (Lucas 1997), Horningsea wares made up 64.4% (Nosh) and 69.9% (Wt) of the assemblage, a greater quantity than at Cambridge itself. Table 3.15 (Chapter 3) shows the form occurrences of Horningsea vessels at Foxtton from Lucas' (1997) form type series and tabulation of occurrence by context. West of Foxtton at Wimpole Lodge (Lucas 1994) the Phase 3 group, dated AD 300–360, contained 30% (RE) of Horningsea wares. Here, there does seem to be some consistent though very moderate decline in Horningsea supply from 37% (RE) in Phase 1 and 35% (RE) in Phase 2. North-west of Wimpole Lodge at Little Paxton (Evans 2011) the later 3rd- to early 4th-century Phase 7B group contained 22.5% (Nosh) and 19.2% (Wt) of Horningsea wares. Thus, quantities of

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
Orton Longueville, Orton Hall Farm, Period 4	AD 300/325–375	Horningsea	<1	-	-	-
Haddon 1999 all-site	LIA–MC4	Horningsea	0.0	-	-	-
Littleport, Phase 6	EC4	R02	26.3	11.2	19.2	13.8
		R021	6.2	4.7	0	0
		R04	2.1	1.5	10.6	6.1
Littleport, Phase 7	MC4	R02	42.1	21.9	20.0	20.6
		R021	17.1	30.3	0	0
		R04	5.7	4.3	10.0	3.7
Littleport, Phase 8	M–LC4	Horningsea	36.1	35.4	-	-
		R021	6.3	7.2	-	-
		R04	0.4	0.1	-	-
Huntingdon, Watersmeet, Ditch system F.2276 <i>etc</i>	M–LC4	R02, R021, R04	1.4	4.7	0	0
Bottisham, Tunbridge Hall, Phase 2	EC4	R02 & R021	78.5	74.8	-	-
		R04	5.6	6.3	-	-
Bottisham Tunbridge Hall, Phase 3	MC4	R02 & R021	81.2	79.1	-	-
		R04	4.2	3.8	-	-
Bottisham, Tunbridge Hall, Phase 4	MC4	R02 & R021	74.6	70.1	-	-
		R04	7.5	7.4	-	-
Cambridge, Castle Hill, RGS, Group 6	C3–C4	R02	-	-	34.2	31.0
		R021	-	-	2.3	1.6
		R04	-	-	5.5	5.0
Cambridge, Castle Hill, RGS, Group 7	C3–C4	R02	42.1	23.2	24.0	21.2
		R021	16.0	46.8	4.0	3.3
		R04	6.6	8.9	12.0	16.1
Cambridge, Castle Hill, RGS, Group 8	C3–C4	R02	3.4	10.4	31.4	41.6
		R021	0.4	1.0	2.3	1.4
		R04	1.0	1.5	9.3	10.5
Cambridge, Castle Hill, RGS, Group 9	C3–C4	R02	3.4	4.9	27.5	23.7
		R021	0.9	6.0	5.5	4.3
		R04	1.7	2.9	13.2	11.6
Milton, King's Hedges, Apollo Way	C4	Horningsea	48.0	36.0	-	40.0
Foxton	AD 270–400	R02, R021, R04	64.4	69.9	-	49.5
Wimpole Lodge, all-site	AD 180–400	Horningsea	35.4	37.3	-	29.6
Wimpole Lodge, Phase 3	AD 300–360	R02, R021, R04	-	-	-	30.0
Little Paxton, Phase 7B	LC3–EC4	R02, R021, R04	22.5	19.2	22.5	24.3
Little Barford, all-site	C1–MC4	R02 & R021	27.2	17.0	-	32.0
		R04	5.9	4.7	-	7.0

Key: 0.0% = present at less than 0.05%; - = no data by this method

Table 4.4 The occurrence of Horningsea grey wares in earlier 4th-century groups in the study area

Horningsea wares here seem to have remained at a similar level to those in the later 3rd century.

South of Little Paxton at Little Barford (Lucas 1997) Horningsea wares comprise a considerable 27.2% (Nosh) and 17.0% (Wt) of the 1st- to mid 4th-century assemblage. The forms here included a 'small beaded storage jar with combed wavy line under the rim (fig. 42, no. 46)' not paralleled amongst the production site pottery but equivalent to a form (Going 1987, type G42) dated to the 4th century in Essex (Lucas 1997, 80). This latter may

relate to type SJ1.6 found in the late 4th-century group at Teversham (Digital Chapter 9.I).

The overall distribution of Horningsea wares in this period is again very similar to that in the 2nd and 3rd centuries. Although some sites seem to show a slight loss of market share, others do not, and there is no evidence that the industry was in difficulties. There is no real indication that in the following quarter-century the industry would apparently cease production. The functional analyses of the Horningsea assemblages and their form composition have been discussed in Chapter 3.

Summary of pottery supply in the earlier 4th century

Overall there is little change in the first half of the 4th century in terms of the pottery supply patterns found in the 3rd century, or indeed the later 2nd. Broadly speaking the picture is one of business as usual. As is detailed in Chapter 5.XI, the 'crises' of the 3rd century seem to have left very little mark on the patterns of pottery supply in the region, and there were equally no radical breaks in this period.

The overall distribution of the shell-tempered wares in this period (Digital Fig. 8.1) suggests fairly high levels of these wares on the Nene Valley sites, although levels at Maxey had fallen markedly. Shell-tempered ware quantities rose slightly in the Orton Hall Farm sequence, but fell slightly at Haddon. On the lower Ouse corridor, the figure of 31.5% at Langdale Hale suggests that levels may have been rising there. At Godmanchester levels remained fairly low, but increased in comparison with the 3rd century. At the north of the Cam corridor, at Littleport, shell-tempered wares made back some of the ground they lost in the 3rd century, but further south they appear to have remained at fairly low levels in the Cambridge area. West of Cambridge shell-tempered ware levels rose strongly with proximity to the kilns at Harrold (Brown 1994) and the Little Paxton sequence suggests that levels were starting to rise again here, having fallen in the 3rd century.

The pattern of fine ware supply across the region in the early to mid 4th century is broadly similar to that in the later 3rd century. Nene Valley colour-coated wares were dominant and tended to increase their market share, but at the expense of coarse wares rather than of any other fine wares. The form range of these wares remained much as it was in the late 3rd century. Oxfordshire ware is found, but as a very thin scatter across the area. The only change is with Hadham oxidised wares, which intensified their market in the southern strip of the study area, and extended their distribution north into the Nene Valley.

In contrast to the 3rd century, the earlier 4th saw no dramatic changes in mortarium supply across the region. The lower Nene Valley continued to dominate supply on every site in the study area except Foxton. The only other source of significance was the Oxfordshire industry. This was dominant a little to the south of the study area at Baldock, and to the west at Piddington, but on most study area sites it comprised less than 10% of the mortarium assemblage. The principal exceptions to this are at Cambridge, where Oxfordshire products amounted to 20%, and Bottisham Tunbridge Hall, where they reached 24%. Overall the Oxfordshire industry tended to increase its market share marginally, but did not make any significant gains in the study area. The only site where the lower Nene Valley did not dominate mortarium supply was Foxton, where Hadham mortaria were the most frequent.

The broad characterisation of grey ware supply in the earlier 4th century across the study area might also be 'business as usual'. It was generally much the same as in the 3rd century. The most significant change was the ending of the Nene Valley grey ware industry, perhaps in the second quarter of the century. However, this seems to have been the result of a marketing decision to replace the grey wares with colour-coated wares rather than reflecting any fundamental change in supply patterns. Indeed, the only real change in the north of the study area was that

very small elements of contemporary grey wares from Lincolnshire started to appear. In the Cam corridor, the southern fen edge and west of Cambridge, the Horningsea industry continued much as before. There is no real evidence of any retreat in its markets and it appears to have been quite stable. On the western fen edge sandy grey ware production in the vicinity of Godmanchester also appears to have continued, as it also had since the 2nd century. This would appear to have supplied the Godmanchester area south of Sawtry, and perhaps also parts of the western fens, and much of the south-west of the study area. In the latter area fabric R11 may have become residual in this period, but appears to have been partly replaced by the R12 group.

Hadham grey wares were again important on the southern edge of the study area, where sites were just within the core area of distribution of the fabric. Quantities fall off rapidly to the north, although small quantities reached Cambridge and the southern fen edge, and thence up the Cam corridor. The latter has consistently produced an obvious distortion on fabric distributions, presumably reflecting the influence of water transport. Strangely, however, the Ouse, the Nene and the Old Tillage do not seem to stand out in the same way. Wattisfield grey wares again appeared in small quantities on the southern fen edge, although they may have travelled less far north on the Cam corridor. Equally, in the north of the Cam corridor in particular, small quantities of Nar Valley products occurred.

V. The Later 4th to Early 5th Centuries

Table 4.5

Introduction

A broad spread of sites in the study area was occupied from the early to mid 4th century, but their numbers tailed off substantially from the later 4th into the 5th century. In the second half of the period there are a few significant assemblages based on the small towns and later villas. The sites in the north at Maxey (Gurney 1985), Haddon (Rollo 1994; J. Evans 2003), Sawtry (JE), and in the Nene Valley contain material for the early to mid 4th century but the best assemblages for the later 4th century are from the villa site at Great Casterton (Gillam 1951; Perrin 1981) and Orton Hall Farm (Perrin 1996), Period 5. Sites are fewer in the central fenland with no groups from the later period at Littleport Camel Road (JE) and only all-site groups from Earith, Langdale Hale (Monteil 2013a), Langwood Farm (C. Evans 2003a) and Denny Abbey (Millett 1980). Few good assemblages are present in the south, the best being Teversham (Pullinger and White 1991; JE) Group 2, with reasonable groups to the west at Foxton (Lucas 1997) and Phase IV at Wimpole Lodge (Lucas 1994). These assemblages are discussed in more detail in Digital Chapter 9.

Horningsea wheelmade reduced wares (grey wares) (R02, R021, R04)

The distribution of Horningsea grey wares in the later 4th century shows major changes (Table 4.5), which suggest that it ceased production within the period.

In the north of the study area Horningsea ware still appeared occasionally on Nene Valley sites. At Orton Hall Farm in Period 4, dated AD 300/325–375, a storage jar rim

<i>Site and phase details</i>	<i>Date</i>	<i>Fabric</i>	<i>% Nosh</i>	<i>% Wt</i>	<i>% MNR</i>	<i>% RE</i>
Great Casterton	LC4-EC5	other grey wares	-	-	12.2	-
Orton Longueville, Orton Hall Farm, Period 5	AD 375-400+	other grey wares	5.0	-	-	-
		NVGW	11.0	-	-	-
Chesterton, B. 9B, L4-5	M-LC4	other grey wares	2.0	-	-	-
		NVGW	2.0	-	-	-
Godmanchester, London Road, Phase 4B	MC4	NVGW	1.0	-	-	-
		Horningsea	c.1	-	-	-
		The Parks grey ware	9.0	-	-	-
		other grey wares, slipped and unslipped	46.0	-	-	-
Huntingdon, Watersmeet, Ditch system F.2276 <i>etc</i>	M-LC4	sandy grey ware (R01)	14.8	8.3	10.0	6.4
		Horningsea	1.4	4.7	0	0
		R06, Hadham,	2.1	3.0	3.8	4.0
		R21-23, NVGW,	>1	>1	>1	>1
		other grey wares, including The Parks	13.1	10.0	0	0
Huntingdon, Watersmeet, Cemetery ditches	LC4	sandy grey ware (R01)	35.7	36.5	0	0
		other grey wares(?)	3.4	3.2	0	0
Teversham, Hinton Field, Group 2	LC4	R01	0.7	0.8	1.5	1.8
		R02	12.8	12.2	8.9	5.5
		R021	1.9	8.0	0	0
		R04	0.1	0.6	0.4	0.3
		R06, Hadham	1.5	0.9	1.9	1.3
		R21-23, NVGW	0.4	0.2	0.7	0.5
		R33, Wattisfield	0.3	0.5	0.4	0.5
		R55	0.1	0.0	0	0
		other grey wares	0.1	0.1	0	0
Wimpole Lodge, Phase 4	AD 360+	Horningsea	-	-	-	20.0
		R11, fine grey	-	-	-	9.0
Little Paxton, Phase 8	MC4	R01	20.4	14.4	10.8	16.6
		Horningsea	20.8	20.0	28.5	19.8
		R05	1.3	0.7	2.3	1.1
		R11	2.5	2.8	4.6	4.1
		R12	15.4	11.6	13.1	13.5
		R21-23, NVGW	1.5	2.7	3.1	2.5
		other grey ware	0.5	0.2	0.0	0.0

Key: 0.0% = present at less than 0.05%; - = no data by this method

Table 4.5 The occurrence of Horningsea grey wares in later 4th-century groups in the study area

(SJ1.1) is illustrated (Perrin 1996, no. 481) and Horningsea ware is stated to make up 'less than 1%' of the assemblage. At Chesterton (Perrin 1999) three Horningsea storage jars are illustrated (Perrin 1999, nos 383-5) two from later 4th-century contexts. Two constricted-necked jars from later 3rd- to 4th-century contexts, possible Horningsea products (Perrin 1999, nos 377-8), might also date from late in the period.

On Ermine Street the fabric does occur (barely) at Haddon, but is absent from the mid 4th-century Phase 6 group there (Rollo 1994). Further south the fabric is absent from the Sawtry sites. In the central fens on the Cam crossing of Akeman Street at Littleport (Table 4.4),

in the Phase 7 group, of mid 4th-century date, Horningsea wares make up 64.9% (Nosh) and 56.5% (Wt) of the assemblage, with the handmade fabric R021 providing 17.1% (Nosh) and 30.3% (Wt) and the black burnished copy fabric (R04) contributing 5.7% (Nosh) and 4.3% (Wt). In the final Phase 8 group, perhaps dating to around the third quarter of the 4th century, Horningsea wares comprise 36.1% (Nosh) and 35.4% (Wt) with the handmade fabric R021 contributing 6.3% (Nosh) and 7.2% (Wt) and fabric R04 0.4% (Nosh) and 0.1% (Wt). Digital Fig. 8.6 shows the proportions of Horningsea wares at Littleport throughout the sequence. Although the Nosh figures tend to suggest some decline in quantity in

the 4th-century groups this, is not reflected in the RE figures.

South of Littleport, specifically later 4th-century Horningsea products cannot be separated from the all-site lists for Langdale Hale, Denny Abbey, Cambridge Rowing Lake and Milton East Waste.

On the western fen edge at Godmanchester, London Road (Hancocks 2003) the mid 4th-century Phase 4B group again contained less than 1% of Horningsea wares. Just north of Godmanchester, at Huntingdon, Watersmeet the mid to later 4th-century group from F.2276 *etc.* (Peachey 2004) produced 1.4% (Nosh) and 4.7% (Wt) of Horningsea wares, but they were absent from the later 4th-century group from the cemetery ditches.

In the very late Group 2 from the Teversham villa site, Horningsea wares only amounted to 14.8% (Nosh) and 20.8% (Wt). This group probably dates to after *c.* AD 390 and the Horningsea grey wares levels here are so low for a site close to the kiln site that it is difficult not to see this material as residual. R021 provides 1.9% (Nosh) and 8.0% (Wt) and R04 some 0.1% (Nosh) and 0.6% (Wt).

The early to mid 4th-century villa estate site at Bottisham Tunbridge Hall (Peachey 2012) provides further data (Table 4.4). The Phase 3 and Phase 4 assemblages have been discussed in Section IV above. Here it is important to note that in the final phase (Phase 4) the overall representation of Horningsea wares fell only slightly. The contrast between this group and the nearby one from Group 2 at Teversham Hinton Fields could not be greater. The obvious explanation of the difference seems to be that the Bottisham group closed when Horningsea was still in production, whilst by the time Teversham Group 2 started Horningsea had ceased production. As has been suggested the latter group appears to date after *c.* AD 390, whilst the coin list from the 4th-century Bottisham Tunbridge Hall site provides no evidence dating after AD 378 (Crummy 2012).

Horningsea ware levels at Cambridge, Castle Hill were fairly consistently around 40% in later Roman groups, a level well below those at rural sites on the southern fen edge, or further north in the Cam corridor, as discussed in Section IV above. Examination of Groups 6–9 does not clarify the position with regard to Horningsea supply in the later 4th century. The same is true of assemblages from Kings Hedges, Apollo Way, Foxton and Little Barford.

West of Foxton at Wimpole Lodge (Lucas 1994) the Phase 3 group, dated AD 300–360, contained 30% (RE) of Horningsea wares (Table 4.4). This figure seems to indicate a consistent though moderate decline in Horningsea supply (from 37% (RE) in Phase 1 and 35% (RE) in Phase 2) before a major fall to 20% (RE) in Phase 4 dated AD 360–400+. This presumably reflects the cessation of production of Horningsea grey ware during this phase, perhaps *c.* AD 370/80. North-west of Wimpole Lodge at Little Paxton (Evans 2011) the mid 4th-century Phase 8 group contained 20.8% (Nosh) and 20.0% (Wt). Quantities of Horningsea wares here seem to have remained at a similar level since the later 3rd century, but there is no clear evidence for the later 4th century.

Aspects of later Roman Horningsea distribution and the demise of the industry have been discussed in Chapter 3, alongside functional analyses of the Horningsea assemblages and their form composition.

Summary of pottery supply in the later 4th century

Pottery supply in the later 4th century can be divided into two phases. In the first phase, patterns continued much as they had up until the mid 4th century, with a number of groups which seem to end somewhere in the range of the AD 364–78 coin peak. The second phase saw a radical change and the small number of very late 4th-century groups fall into a pattern seen on sites of this date across the Midlands, Gloucestershire, and from Hampshire to Kent. This was followed by a complete absence of pottery from some time in the early 5th century.

There is little need to repeat the discussion for the early to mid 4th-century supply which characterises the pottery distributions of the first half of the period (Digital Chapter 8.II). In the latter half of this period shell-tempered wares continued to become more common, and seem to be the main coarse ware replacement for Horningsea wares in the south of the study area and the Cam corridor. Fine wares tended to expand their market share, gaining ground less by competition amongst themselves than by displacing coarse wares, with overall fine ware quantities rising in some areas to unprecedented levels, compared to the rest of the Roman period here. Nene Valley wares expanded their market share, with a very limited type range by the end of the Roman period, but one which, notably, includes closed flagons/jugs with steam vented lids which would seem to be designed for some novel hot beverage. Oxfordshire wares modestly expanded their markets in this period, but do not seem to have generally made much progress. The exception is at Teversham, and possibly Cambridge, where Oxfordshire mortaria seem to have replaced lower Nene Valley ones in this period. Hadham oxidised ware also expanded in this period, although in part this may be just because the oxidised wares seem to have replaced the grey wares, production of which either ceased or was seriously scaled back. Hadham wares are found across the study area, but they only appear in significant quantities in the south of the area. Here, Hadham wares seem to have competed successfully with Oxfordshire and Nene Valley products in their core market area which includes sites like Foxton and Wimpole Lodge.

Mortarium supply in the latter part of this period seems to have remained relatively stable. Throughout the vast majority of the study area the lower Nene Valley industry remained dominant, although the minority position of the Oxfordshire industry strengthened slightly. In the south of the study area, the Oxfordshire industry seems to have captured supply at Teversham, and just possibly at Cambridge, whilst Hadham seems to have dominated at Foxton.

After a long period of stability, grey ware supply in the later 4th century went through major changes. The most radical of these seems to have occurred *c.* AD 370/380, when, with few prior indications of any trouble in store, the Horningsea industry ceased production. The evidence from Teversham, in particular, suggests that no grey ware industry replaced Horningsea; instead the latest markets were left to a combination of fine wares and Harrod shell-tempered ware. The reasons for the end of the industry are not clear, but its demise does appear to be sudden. One possible cause might be the old question of flooding. Lucas' (2006c) re-dating of sites in the Willingham Fen area does not bear out the suggestion of major flooding in the early 3rd century, but does leave open the possibility of a major episode at the end of the

Roman period. A further possibility, euphemistically referred to as 'coastal planning blight', is discussed further in Chapter 5.XII. Given the demonstrated role of the Cam as a trading and transport corridor its use for coastal raiding would be a possibility.

The only grey ware industry which survived in the region was in the vicinity of Godmanchester, which seems to have lasted until the end of the century although it may have reduced its scale of production slightly. In the north of the study area Lincolnshire grey wares also served the Nene and Welland valleys to a minor extent. In the south of the study area production of Hadham grey wares had probably ceased or been scaled back by the second half of this period.

Thus in the last decade of the 4th century and perhaps the first decades of the 5th, fine wares became much more common than in any preceding period, and in many areas

local grey wares had ceased to be available, being replaced by Harrold (or other sources of) shell-tempered wares. These developments are consistent with a much wider pattern of the latest pottery use in the Midlands, Gloucestershire and the south. There are many fewer groups of this latest 4th-century phase than earlier. They include Great Casterton, Orton Hall Farm Period 5 (with quantities of residual earlier material), Chesterton, Huntingdon Watersmeet cemetery, Teversham Hinton Field Group 2, and Wimpole Lodge Phase 4. Amongst these this author (JE) would suggest that the groups from Great Casterton and Teversham date from *c.*AD 390 onwards. This latest phase of pottery use was followed by the end of all Roman pottery production, and with it the end of ceramic traditions stretching back for half a millennium in the study area.

Chapter 5. Discussion and Conclusions

I. The Horningsea Industry in Context

The Horningsea pottery industry has been detailed in Chapter 3, while selected aspects of the Roman pottery assemblages of the region and of the development of the industry have been summarised in Chapter 4 above and key characteristics set out in more detail in Chapters 4 to 11 in the digital text: when combined these provide an overview of developing trends in pottery supply. The principal factors which affect the composition of the assemblages discussed are essentially location and site character and status, both modified, sometimes radically, with the passage of time. Proximity to particular production centres, whether these were simply providing coarse wares for day to day domestic use, or fine and specialist wares which were intended to serve very specific functions, or (in some cases) both, was a key factor in determining assemblage composition. The extent of the study area allows the varying influences of particular production centres or ceramic traditions to be detected. This not only provides important information about the market impact of some of the industries that supplied the area, but in some cases can suggest the influence of non-economic factors on distributions, such as the possible impact of long-established social boundaries in relation to pottery distributions to sites on the eastern fen edge.

The distribution of production centres for fine and specialist wares was not uniform across the study area or around its margins, nor was there necessarily a consistent mechanism for distribution of imported material across the region. Nevertheless, these types of pottery were potentially available to the inhabitants of settlements anywhere in the study area. That the uptake of these products was widely variable was dependent in part upon variations in ease of access to markets but, more critically, varied in relation to the character of the potential consumer site and the socio-economic status of its occupants. This point is well established, but the present study has assembled a substantial body of data that puts the characterisation of 'basic level rural sites' in the area on a very firm footing and allows a more nuanced approach to both the study of these assemblages and others which display slightly different characteristics. Characterisation of site type is shown to be based on a combination of factors, not just variations in the incidence of particular ware groups but also variation in the range of vessel types utilised, and also the evidence that can be recovered for the use of individual vessels through examination of aspects such as sooting and burning. One obvious result of the systematic collection of data relating to this last aspect has been the demonstration that the use of mortaria, so often considered a quintessentially 'Roman' vessel type, was probably not in the way that might have been expected in centres closer to the Mediterranean: the evidence from this study suggests their use in the production of, perhaps, a porridge-like food (see Digital Chapter 11.IV).

Of course, neither the geographical/supply nor the functional/status related aspects of the assemblages considered here remained static. There were dynamic developments in relation to the appearance and disappearance of particular production centres, and systematic trends in the evolution of assemblages from a functional point of view so that, at the simplest level, late Roman pottery assemblages in the region were radically different from early Roman ones, regardless of the types of site from which they derived. Sometimes the two major aspects came together. This is seen most clearly in developments in the Nene Valley industry, with the diversification of the colour-coated ware repertoire in the later Roman period to encompass a range of vessel forms hitherto considered as appropriate to be produced in coarse ware fabrics. The development of the 'colour-coated coarse ware' range is a remarkable feature of this late Roman industry because, while there is a general trend for fine (colour-coated) wares to become more common in Roman Britain in the 4th century, the other major late Roman fine ware producers did not expand their range of forms in the way that is seen in the Nene Valley or, if they did (as in the case of the Oxfordshire industry), the scale of production of the forms concerned was quite limited. Why this particular development should apparently have been confined to the Nene Valley industry is an intriguing, but as yet unanswered, question.

The place of the Horningsea industry in the context of these wider trends and developments is of considerable interest. Established in the Flavian period, this had in many respects the character of a local coarse ware producer, but the evidence for the scale of production (even if only based on the number of known kilns) indicates that the industry was of a slightly different character. There seems to have been a significant development in terms of form and fabric repertoire of the industry in the Antonine period, but thereafter it is considered to have been quite conservative, with notably little meaningful development of the range of forms to reflect typological developments seen in other industries. Involvement of the potters of this industry in what would generally be defined as fine and specialist ware production seems to have been minimal, and the emphasis of production was on a range of coarse ware types that was distributed principally to sites along the southern fen edge and down the valley of the Cam from the production sites which, being located on both banks of the river, were well-placed to take advantage of it as a means of distribution: as is discussed below, there is surprisingly little evidence for the distribution of Horningsea wares along the Old Tillage.

The most distinctive aspect of the industry was its production of very large jars. These characteristic vessels may arguably be regarded as a specialist line, but it is unclear if they were associated with a specific commodity (as transport containers) or whether they were simply a particularly successful form of all-purpose storage jar.

The emphasis of the industry on these vessels, albeit amongst a wide variety of other coarse ware forms, is reminiscent of some other coarse ware producers, specifically the Alice Holt and pink grogged ware industries. In both of these cases the same question about the role of the large jars is encountered, but in neither case have the large jars been convincingly associated with a specific commodity or function, although suggestions have been made in relation to the Alice Holt jars. The difference between these industries and Horningsea, however, is that they are both likely to have continued in production up to the end of the 4th century (this is certainly the case for Alice Holt), whereas Horningsea seems to have ceased production in the mid 4th century. Pink grogged ware and Alice Holt distributions were also considerably more extensive than that achieved by the Horningsea potters. The significance of this trend, if any, is uncertain. What is fairly clear, however, is that in the study area there was no widely available substitute for the large Horningsea jars once they had ceased to be manufactured. Its demise in the mid 4th century means that the Horningsea industry does not itself shed light on developments in pottery supply and other aspects of late Roman archaeology in the study area.

Based on the outline sketched above, the following discussion expands on selected aspects of the wider picture, both insofar as they relate to the Horningsea industry itself and in terms of using (particularly) the ceramic material but also other evidence to broaden understanding of developments in the study area and beyond in the Roman period. The topics selected for discussion in the following sections fall into three main groups. First come sections on aspects of pottery supply which provide a chronological summary of pottery supply in the region, a wider review of the distribution of Nene Valley wares and a summary of the 'East Coast Trade'. Next come sections on individual features or locations crucial to the study: the Cambridgeshire Old Tillage and Cambridge itself. The third group of sections deals with closely interrelated aspects of the fenland and their interpretation: the 'imperial estate' hypothesis, the nature of the site at Stonea, the role of *Durobrivae*, the general character of fenland settlement and the 3rd-century 'great flood'. These are followed by a separate discussion of the late Roman period and general conclusions.

II. Patterns of Pottery Supply

A significant proportion of the pottery in use in the region during the pre-Flavian period, c. mid 1st century BC to c.AD 70 (Digital Chapter 4), was still manufactured in household-based handmade traditions of middle Iron Age character, typically using shell as a tempering agent. This material was supplemented to varying degrees across the region by material in the 'Belgic' tradition, characteristic, if not always diagnostic, of the late Iron Age of South-Eastern England. The survival of the former tradition in northern East Anglia and the fens is seen as an aspect of social differentiation between the communities using these vessels and those using a wider range of vessel forms in the typically wheel thrown grog-tempered fabrics of the 'Belgic' tradition. At least some of the latter material was produced in kilns using elements of portable furniture, a technology that may have been in use before the Conquest period as well as later. Fine wares were

generally scarce in this period and consisted principally of Gallo-Belgic wares.

The early Flavian to Trajanic period (c.AD 70 to c.AD 120) saw substantial changes in the Roman pottery in use in the area, with previous differences between north and south largely set aside (Chapter 4.I, Digital Chapter 5). Market mechanisms now seem to have been responsible for at least some of the pottery distributions. These changes may have resulted from the suppression of the client kingdoms in the aftermath of the Boudiccan revolt. The Fen Causeway is likely to have been constructed immediately following the uprising, in the latter half of the 1st century AD. A number of 1st-century settlements are associated with the road, although the limited number of detailed excavations (with the exception of Grandford, March) has meant that understanding the Fen Causeway's role in Horningsea pottery distribution of this period is problematic. Tim Potter, however, identified Horningsea style storage jars at the Norwood, March site in 1961 (Potter 1981, 114).

Shell-tempered wares continued to dominate assemblages in the north and west of the study area, but were less dominant than in the pre-Flavian period and earlier. At Haddon, shell-tempered wares may have been made by the peripatetic potters who also produced Class E fabrics there, but in the Flavian period production seems to have started to crystallise at fewer permanent centres. In north Bedfordshire the foundation of the Harrold industry (Brown 1994) took place in the Flavian period, and this seems likely to have supplied much of the shell-tempered ware in the south-west of the study area, although other production centres provided similar wares to other parts of the region.

Sandy grey wares emerged in this period as very much the dominant fabric type. Their sources in north Cambridgeshire are not known, but in the south the Horningsea industry was founded at this time, with other industries probably located in the vicinity of Godmanchester and at Hadham and Wattisfield. The Horningsea industry clearly developed quite a wide distribution on the southern fen edge and at Cambridge, but it is unclear if the distribution extended much to the west of Cambridge at this early date.

Flavian fine ware supply across the region was fairly uniform and dominated by samian ware on sites of all types, with a widespread if thin distribution, while 'London type' fine wares and mica-dusted fabrics appeared in the Trajanic period. Mortaria also appeared more consistently in this period, whereas they were very scarce in the pre-Flavian period, but they were still absent from most rural sites, as were amphorae, while white wares and other oxidised wares were consistent but low level contributors to many assemblages.

The Hadrianic–Antonine period (c.AD 120 to c.AD 200) saw the rise of several major industries (Digital Chapter 6) which continued to be significant sources for the region throughout the rest of the Roman period, along with the continuation and development of some others with Flavian origins. Of industries supplying the region in the pre-Flavian period, only the *Verulamium* region industry continued in production at this time.

Shell-tempered wares remained dominant in assemblages in the north of the study area in this period, and were fairly common on sites to the west of Cambridge, although they were of minor significance around

Cambridge itself and in the Cam corridor in the fens. Overall, however, they were less common than in the Flavian–Trajanic period, although a variety of production centres continued to be represented. Elsewhere reduced wares continued to dominate assemblages and the Horningsea industry consolidated its distribution in the Cambridge area, to the west and along the Cam corridor to the north. In the north of the county, products of the Nene Valley grey ware industry emerged and by the end of the 2nd century were supplanting the range of sandy grey wares previously encountered on most Nene Valley sites. Such ‘other grey wares’ remained important around Godmanchester, which may have been the source of at least some of them, and to a lesser extent west of Cambridge. Other contributions to grey ware supply in the region came from Hadham and Wattisfield. BB1 first appeared in this period, but was very uncommon, and while BB2 was a little more common it only appeared in any quantity at all on the ‘urban’ sites at Cambridge and Littleport. The role of both fabrics was perhaps taken by the Horningsea industry which produced a range of BB2 copies from the mid 2nd century onwards in some quantity.

Fine wares saw considerable change in this period. In the Hadrianic–early Antonine period non-samian fine wares were rare, as in the Flavian–Trajanic period, and were mainly restricted to ‘London type’ wares and mica-dusted wares. Fine ware traditions then completely changed after the mid 2nd century when the Nene Valley kilns started producing colour-coated ware beakers in considerable quantities. The distribution of samian ware also expanded, reaching rural sites in relative quantity for the first time. In this period amphorae, usually in the form of Dressel 20 oil amphora sherds, were also found on many rural sites, but wine amphorae were generally restricted to urban sites and sites in their vicinity, or to high-status rural sites. Equally, mortaria were adopted on sites across the region. At this time the principal source was probably Mancetter-Hartshill, although in the south of the study area Colchester and *Verulamium* region mortaria were important, while in the north the lower Nene Valley industries were of greater significance.

Most of the major patterns of pottery supply and distribution seen across the study area in the 2nd century were repeated in the 3rd, with few major changes and radical breaks (Digital Chapter 7). One of the changes was in the supply of amphorae, which virtually disappeared, but this is a reflection of a national rather than a purely regional trend. Shell-tempered wares were still a significant element of pottery assemblages in the period in the Nene and Welland Valleys, although in declining quantities on many sites, at least in the earlier part of the century. They were also a significant element in assemblages on sites to the west of Cambridge moving towards the kiln site at Harrold. Grey wares remained the most important fabric class in most assemblages in the region. Supply was largely dominated by Nene Valley grey wares in the north, by ‘other grey wares’ on the western fen edge in the vicinity of Godmanchester and on the southern fringe of the study area, and by Horningsea products in the centre of the study area, where the overall distribution of these wares in this period was very similar to that in the 2nd century, although with some intensification of marketing within its core distribution. Minor grey ware groups included Wattisfield and Hadham

products. BB2 disappeared from the market in the later 3rd century, but the evidence from Cambridge in particular (Digital Chapter 10) suggests that it was largely replaced by a little more BB1, although this was at the limit of its distribution and largely restricted to bowls and dishes.

Fine ware levels in the region tended to rise in the course of the 3rd century. By far the most significant fine ware in this period, as in the later 2nd century, was Nene Valley colour-coated ware, which saw an expansion not only in volume but also in the repertoire of vessel forms. Amongst other fine wares Hadham oxidised ware may have been one of the more significant. Very small quantities of Oxfordshire colour-coated ware and Moselkeramik are occasionally encountered. The 3rd century saw a major change in mortarium supply across the region. Mancetter-Hartshill rapidly lost ground and Colchester also declined in this period, with the industry coming to an end by the mid 3rd century. The resulting gaps in the market were largely filled by the lower Nene Valley industry from the early 3rd century onwards.

Broad supply patterns in the first half of the 4th century (Digital Chapter 8) were relatively little different from those of the 3rd century, or indeed the later 2nd. Shell-tempered wares remained an important component of supply, but with fluctuations in level across the region. Rises may have been largely associated with further development of the Harrold industry. The most significant change in the grey wares was the ending of Nene Valley production, perhaps in the second quarter of the century and probably the result of a decision to replace them with colour-coated ware versions of coarse ware forms. On the Cam corridor, the southern fen edge and west of Cambridge the Horningsea industry continued much as before. There is no real evidence of any retreat in its markets and it appears to have been quite stable. On the western fen edge, sandy grey ware production in the vicinity of Godmanchester also appears to have continued as it had since the 2nd century. This production supplied the Godmanchester area south of Sawtry, and perhaps parts of the western fens, and much of the south-west of the study area. Hadham grey wares were again important on the southern edge of the study area, where they were just within their core distribution zone. Wattisfield grey wares again appeared in small quantities on the southern fen edge and in the north of the Cam corridor: in particular, small quantities of Nar Valley products occurred.

The pattern of fine ware supply across the region in the early to mid 4th century was broadly similar to that in the later 3rd century. Nene Valley colour-coated wares were dominant and tended to increase their market share, but at the expense of coarse wares rather than of other fine wares. Oxfordshire wares are found, but as a very thin scatter across the area, while Hadham oxidised wares intensified their market in the southern strip of the study area, and extended their distribution north into the Nene Valley. There were no dramatic changes in mortarium supply across the region, where the lower Nene Valley industry dominated supply almost without exception. The only other source of significance was the Oxfordshire industry, although Hadham mortaria were locally important.

Pottery supply in the later 4th century (Digital Chapter 9) falls into two phases. In the first, patterns continued much as they had up until the mid 4th century, but there was then a radical change and the few very late

4th-century groups were of a character seen at other sites of this date across the Midlands, Gloucestershire, and from Hampshire to Kent. This is followed by a complete absence of pottery from some time in the early 5th century.

In the first later 4th-century phase, early to mid 4th-century patterns were maintained. In the latter half of this period shell-tempered wares continued to increase in importance. After a long period of stability, grey ware supply underwent major changes. Around AD 370/380 the Horningsea industry ceased production. The evidence from Teversham, in particular, suggests that no grey ware industry replaced Horningsea, but rather the latest markets were left to a combination of fine wares and Harrold shell-tempered ware, the latter the main coarse ware replacement for Horningsea wares in the south of the study area and the Cam corridor. The only grey ware industry which survived in the region, in the vicinity of Godmanchester, seems to have lasted until the end of the 4th century. In the north of the study area Lincolnshire grey wares also served the Nene and Welland valleys to a minor extent, while in the south Hadham grey ware production had probably ceased or been scaled back by the second half of this period.

Fine wares tended to expand their market share, gaining ground principally by displacing coarse wares, with overall fine ware levels rising in some areas to unprecedented heights, compared to the rest of the Roman period here. Nene Valley wares expanded their market share, with a very limited type range by the end of the Roman period. Oxfordshire wares also expanded their markets in this period, but do not seem to have made very much progress except at Teversham, and possibly at Cambridge, where Oxfordshire mortaria seem to have replaced lower Nene Valley ones in this period. The distribution of Hadham oxidised ware also expanded in this period.

Mortarium supply in the latter part of this period seems to have remained relatively stable. Throughout the majority of the study area the lower Nene Valley seems to have remained the dominant source, although the minority position of the Oxfordshire industry probably strengthened slightly. In the south of the study area the Oxfordshire industry captured supply at Teversham, and perhaps at Cambridge, whilst Hadham seems to have dominated at Foxton.

Thus, in the last decade of the 4th century and perhaps the first decades of the 5th, fine wares had become much more common than in any preceding period, and in many areas local grey wares had ceased to be available, being replaced by Harrold (or other sources of) shell-tempered wares. This overall pattern of distribution is consistent with a much wider picture of the latest pottery use in the Midlands, Gloucestershire and the south (see Digital Chapter 9).

III. The National Distribution of Products of the Nene Valley Industry

Figs 5.1–5.7; Tables 5.1–5.2

The ceramic evidence suggests that trade in Nene Valley colour-coated ware to the north seems to have commenced *c.*AD 160/165, given the lack of evidence for Nene Valley colour-coated ware products on the Antonine Wall (V. Swan pers. comm.). Some consideration of the wider distribution of Nene Valley products is of interest in the

context of the present study since it illuminates differences in the nature of distribution patterns at relatively local (in relation to the production centre) and national levels. The trade to the north was clearly organised and did not simply reflect the purchase of general collections of material of fenland origin. Only Nene Valley colour-coated wares were exported to the north, the accompanying grey wares were not. Similarly, other wares from the fenlands were not regularly exported in an organised trade, although occasional pieces of Horningsea ware are found at South Shields, Wallsend and Newcastle-upon-Tyne (Croom 2008), Catterick (Evans 2002b, SS1–2) and in North Humberside (Sitch 1987), just as are occasional shell-tempered channel-rimmed jars (Evans 2002b, 264–80). Equally the reverse of this is seen in the occasional piece of Dales ware from Chesterton (Perrin 1999, fig. 75, no. 517) and the vessel from Littleport (Digital Fig. App. 3.5, C151.1), and Crambeck ware from Orton Hall Farm (Perrin 1996, nos 437, 500 and 614).

The Nene Valley colour-coated wares which were exported to the north were a selected subset of those available in the Nene Valley itself. The vast majority were beakers. Table 5.1 shows a functional breakdown of Nene Valley colour-coated wares amongst the groups of 3rd-century date in Evans' (1985) thesis. Beakers amount to 91% of the vessels in that study, accompanied by occasional other vessel types, most usually the occasional 'Castor box' and lid and an occasional flagon. There are occasional 'dog dishes' such as the one from Catterick in a 3rd-century context and the one from Phase 7 at Binchester of similar date, but they are rare pieces. The range of colour-coated samian copy and BB2 copy dishes and bowls so common in the Nene Valley is virtually absent, as are the jars.

In the largely 3rd-century cemetery at Brougham, Cumbria (Evans 2004), the sample is much the same size as from Evans' (1985) study but from a single site, and potentially of unusual character because it is largely a group of vessels selected for burial, but the basic picture is in fact the same, with between 80% and 90% of the vessels being beakers (Table 5.1).

In comparison the 2nd- to 3rd-century functional analysis of Nene Valley colour-coated wares from Orton Hall Farm in the Nene Valley (after Perrin 1996, 179) shows that beakers are only the dominant functional type in the mid-late 2nd century, being rapidly displaced thereafter by jars and open forms (Table 5.1).

The Nene Valley beaker trade with the north continued in the early 4th century. Again, most of the limited number of vessels in the groups examined by Evans (1985) are beakers. Similarly, the extensive collection of Nene Valley forms from Catterick (Evans 2002b) largely lacks non-beaker forms before the later 4th century.

In the later 4th century the nature of the Nene Valley colour-coated ware trade with the north changed suddenly. Colour-coated coarse ware forms which had been in production in the Nene Valley much earlier were suddenly launched on the northern market. Table 5.1 shows a functional analysis of later 4th-century Nene Valley forms from the fort at Binchester, Co. Durham (Evans and Rátkai 2010), and a similar functional analysis from the late 4th-century groups at Beadlam, North Yorks (Evans 1996a). Both of these assemblages demonstrate the much greater functional diversity of Nene Valley colour-coated

<i>Site</i>	<i>Date</i>	<i>F</i>	<i>CJ</i>	<i>J</i>	<i>Bk</i>	<i>B</i>	<i>D</i>	<i>B/D</i>	<i>L</i>	<i>N</i>
Sites north of the Humber–Mersey line	C3	2	-	2	91	2	-	-	2	43
Brougham cemetery, fabric F02	C3	6	6	-	89	-	-	-	-	18
Brougham cemetery, fabric F03	C3	4	-	4	83	8	-	-	-	24
Binchester Fort	LC4	2.6	-	1.3	28.2	31.3	14.6	-	10.4	78
Beadlam Villa	LC4	-	-	5	36	41	14	-	5	22
Orton Hall Farm, Period 1	c.AD 70–175	-	-	10	69	-	-	21	-	100
Orton Hall Farm, Period 2	c.AD 175–225	-	-	18	45	-	-	23	-	96
Orton Hall Farm, Period 3	AD 225–325	3	-	11	26	-	-	42	-	82
Orton Hall Farm, Period 4	c.AD 300–375	3	-	11	13	-	-	45	-	96
Orton Hall Farm, Period 5	c.AD 375–400+	3	-	15	6	-	-	50	-	74
Littleport	Ant–MC4	5	-	-	53	11	21	11	-	19
Cambridge, Castle Hill, Group 5, MNR	Ant–EC3	18			55	27				11
Cambridge, Castle Hill, Group 5, RE	Ant–EC3	47			38	15				218%

Table 5.1 Functional analysis of Nene Valley colour-coated ware vessels from various sites (%MNR except Castle Hill, MNR and RE)

ware products exported to the north in the later 4th century. The additional forms reaching the north were principally the ‘colour-coated coarse ware’ types: lids, simple rimmed ‘dog’ dishes and developed beaded and flanged bowls, with a few jars, flagons, ‘Castor boxes’ and an occasional Dr 38 copy bowl.

As Evans (1985, 374) observed ‘It is, however, peculiar that Nene Valley products diversify into table wares in the late 4th century when they would seem to have major competition from Crambeck parchment wares but fail to export these forms to the north in quantity earlier when there are no fine ware supplies in these vessel Classes’. One reason for this late diversification may well be the fall in demand for ceramic beakers in the later 4th century. This is seen across the north (Evans 1985; 1993) and seems to be a diocese-wide phenomenon. These beakers may have been replaced in other materials, as Cool (2006, fig. 19.1) has demonstrated an increase in the numbers of glass drinking vessels in the 4th century. Glass is unlikely to have been as common as ceramic vessels, and its value is demonstrated by its efficient recycling. Cool (2006, 149) points out that the glass drinking vessels tend to be at the low end of the capacity range for beakers, but that beakers gradually get smaller with time, 4th-century ones being the smallest (Cool 2006, fig. 15.6). Overall the ceramic beaker decline and the size change noted by Cool seem to suggest a change in ‘foodways’ to the drinking of smaller quantities perhaps of a more high status beverage, with more frequent use of glass vessels.

Table 5.1 shows a comparative functional analysis of Nene Valley colour-coated forms from Orton Hall Farm for 4th-century groups. Beakers were less common here than in the northern groups, but this may be accounted for by the fact that the northern sites were military, a class of site which usually displays urban type functional characteristics (Evans 1993). Table ware levels are similar to those in the northern groups, but jars are more common.

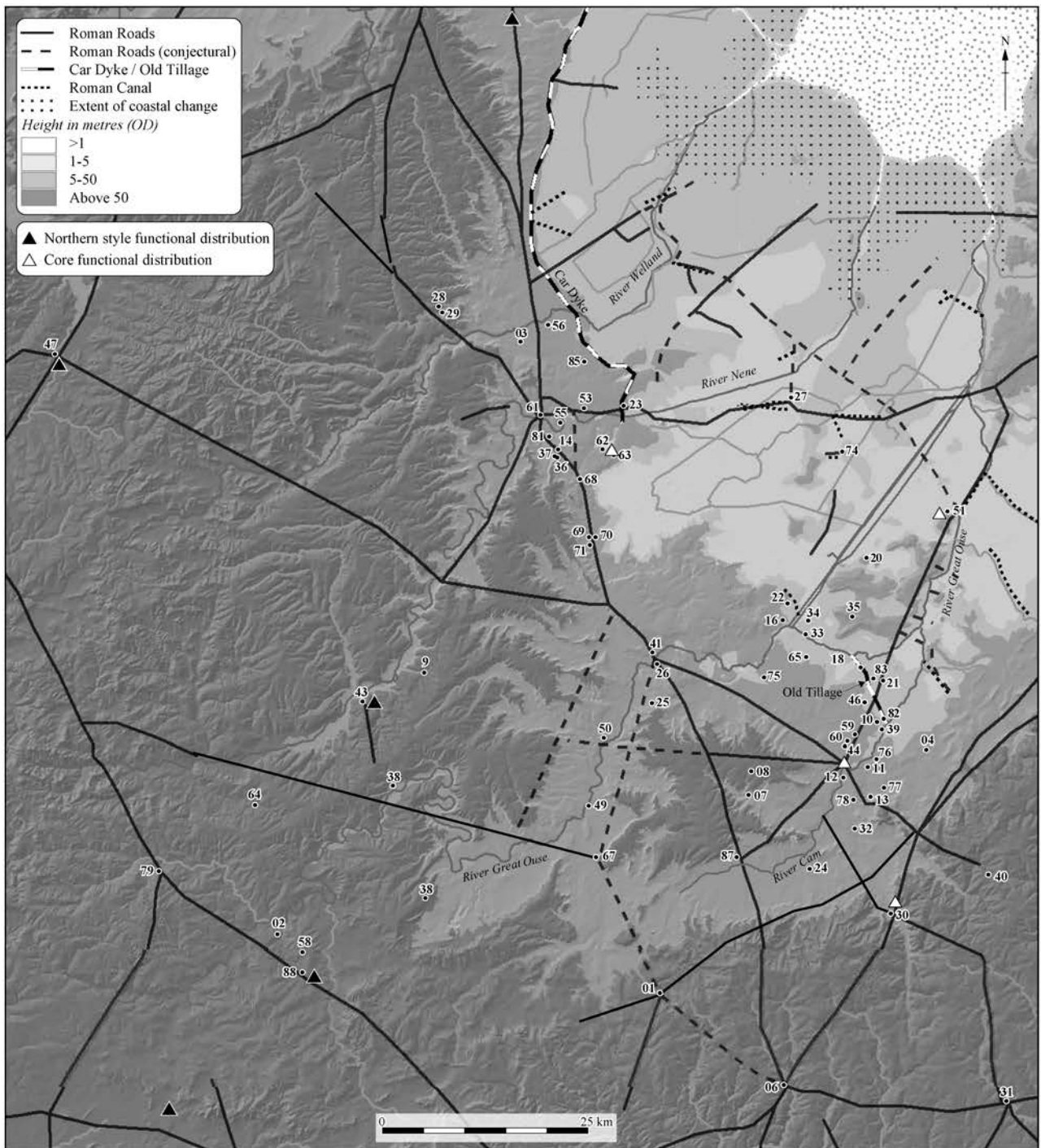
It is thus clear that there was a highly organised trade in Nene Valley colour-coated wares with the north. This drew on a selected range of types from the later 2nd century to the mid 4th, with a full range of types only being put on the northern market in the late 4th century.

Recognition of this two tier Nene Valley colour-coated ware distribution in its home territory and the north offers the opportunity to try to examine how Nene Valley colour-coated wares were distributed elsewhere in their range, *i.e.* to see where the full range of types were distributed and where the range was apparently restricted, as in the north.

Regrettably even today few site reports tabulate the occurrence of form type by phase. In the absence of these essential data the best way to assess the composition of Nene Valley assemblages from sites is generally to examine the types illustrated. Figure 5.1 shows the plotting of an assessment of reports from their illustrated material as to whether their 2nd- to mid 4th-century Nene Valley wares conform to the northern pattern or to that near the kiln sites.

In the central fenland at Littleport, Table 5.1 shows that whilst beakers are more common than at Orton Hall Farm there is a level of functional diversity in the Antonine to mid 4th-century Nene Valley material not seen on the northern sites. A comparable functional analysis of the Nene Valley colour-coated wares can be seen in the admittedly small (eleven rims) group from the Cambridge, Castle Hill, shrine, Group 5, of Antonine to early 3rd-century date. This has a similar beaker level to Littleport and bowls do occur; these are the flanged rimmed bowls (F01/F02.29; Perrin 1999, fig. 63, nos 216–20) to which Perrin gives a later 2nd- to late 3rd-century date range. These forms do not penetrate to more distant Nene Valley colour-coated markets such as the north of England or the west. Jars, however, are absent at both Littleport and Cambridge.

North of the Nene Valley, at Old Sleaford, Leary (1997, table 2) lists forty Nene Valley colour-coated ware beakers of pre-4th-century date: these are accompanied by three Dr 31 copy bowls, three Dr 36 copy bowls and five Dr 37 copy bowls, along with vessels described as bead/flat rim dishes (which might be of the form F01/F02.29; Perrin 1999, fig. 63, nos 216–20). These open forms may be of 3rd- to earlier 4th-century date. There were also four ‘dog dishes’ which could be 3rd- or 4th-century in date. These figures suggest that in the later



Key to sites

- | | | | |
|--------------------------------|---------------------------------|---|---|
| 01 - Baldock | 23 - Fengate, Cats Water | 45 - Lakenheath | 67 - Sandy |
| 02 - Bancroft | 24 - Foxton | 46 - Landbeach, Car Dyke Farm | 68 - Sawtry, Norman Cross |
| 03 - Barnack | 25 - Godmanchester, London Road | 47 - Leicester | 69 - Sawtry, Tort Hill East |
| 04 - Bottisham, Tunbridge Lane | 26 - Godmanchester, The Parks | 48 - Lincoln | 70 - Sawtry, Tort Hill West |
| 05 - Brancaster | 27 - Grandford | 49 - Little Barford | 71 - Sawtry, Vinegar Hill |
| 06 - Braughing | 28 - Great Casterton | 50 - Little Paxton | 72 - Saxon Street |
| 07 - Caldecote | 29 - Great Casterton Villa | 51 - Littleport, Camel Road | 73 - Snettisham |
| 08 - Caldecote, Highfields | 30 - Great Chesterford | 52 - Long Melford | 74 - Stonea |
| 09 - Caldecotte | 31 - Great Dunmow | 53 - Louthorpe | 75 - Swavesey, Blackhorse Lane |
| 10 - Cambridge Rowing Lake | 32 - Great Shelford | 54 - Loughton Valley | 76 - Teversham, Greenhouse Farm |
| 11 - Cambridge, Newmarket Road | 33 - Haddenham Shrine | 55 - Lynch Farm | 77 - Teversham, Hinton Fields |
| 12 - Castle Hill | 34 - Haddenham, Site V | 56 - Maxey, Badyke Field | 78 - The Cambridge Addenbrooke's Kilns |
| 13 - Cherry Hinton | 35 - Haddenham, West End | 57 - Melford Meadows | 79 - Towcester |
| 14 - Chesterton | 36 - Haddon | 58 - Milton Keynes | 80 - Venta |
| 15 - Colchester | 37 - Haddon Lodge | 59 - Milton, East Waste Landfill | 81 - Water Newton, Kiln in Area 5, sites 11- 13 |
| 16 - Colne Fen | 38 - Harrold | 60 - Milton, Kings Hedges Farm | 82 - Waterbeach, Car Dyke/ Old Tillage |
| 17 - Combretovium | 39 - Horningsea, Eye Hall Farm | 61 - Normangate Field | 83 - Waterbeach, High Fen |
| 18 - Cottenham, Car Dyke | 40 - Horseheath | 62 - Orton Longueville, Monument 97 | 84 - Wattisfield |
| 19 - Cotton Valley | 41 - Huntingdon, Watersmeet | 63 - Orton Longueville, Orton Hall Farm | 85 - Werrington |
| 20 - Coveney, Wardy Hill | 42 - Icklingham | 64 - Piddington | 86 - West Stow |
| 21 - Denny Abbey | 43 - Irchester | 65 - Queensholme | 87 - Wimpole Lodge |
| 22 - Earith, Langdale Hale | 44 - Kings Hedges, Apollo Way | 66 - Saham Toney | 88 - Woughton |

Figure 5.1 Distribution of core functional range of Nene Valley colour-coated ware. Scale 1:75,000

<i>Phase</i>	<i>Date</i>	<i>F</i>	<i>J</i>	<i>Bk</i>	<i>'Castor boxes'</i>	<i>B</i>	<i>D</i>	<i>MNR</i>
2	c.AD 170–230	0	0	77	24	0	0	34
3	c.AD 270–330	0	0	80	7	0	13	15
4A	c.AD 330–355	0	4	68	4	14	11	28
4B	c.AD 355–370	3	5	64	14	2	12	95
4B*	c.AD 370–400+	5	9	23	5	17	41	64
All (%)		2.5	5.1	56.4	11.0	7.2	17.8	
All (MNR)		6	12	133	26	17	42	236

Table 5.2 Functional analysis of Nene Valley colour-coated ware vessels from Towcester, Alchester Road (% MNR, after Woodfield 1983, 75, fabrics 12A and 12B)

2nd to 3rd centuries at least 69% of the Nene Valley colour-coated ware forms here were beakers and a maximum of 31% were bowls and dishes. In reality the proportion of beakers was probably higher as some at least of the bowls and dishes will actually date to the 4th century. Thus although more bowl forms may have reached Old Sleaford before the later 4th century than on most northern sites, Old Sleaford does not seem to have fallen within the core distribution of Nene Valley colour-coated types.

To the west of the Nene Valley at Leicester it is fairly clear that the Nene Valley colour-coated ware assemblage did not diversify functionally until the later 4th century. Unfortunately, despite the numbers of fairly recent reports, it has proved impossible to find any published listings of form/fabric combinations from stratified groups. The best available data seem to be from Jewry Wall (Kenyon 1948). There Level IX, dated to the early 4th century though with much residual material, contained fifteen beakers (88%) out of a total of seventeen vessels, accompanied by a flagon and a 'Castor box'. Overall Jewry Wall seems to fit the northern pattern, albeit that there were intrusive beaded and flanged bowls from Level VIII. At Causeway Lane (Clark 1999), there are no data in the report, but all of the twelve illustrated Nene Valley colour-coated ware vessels are later 2nd- to 3rd-century beakers or jar/beakers apart from two Dr 38 copy bowls (nos 211 and 246) from early to mid 4th-century deposits and a late 4th-century beaker (no. 265). Thus, Leicester seems to fall into the northern pattern of Nene Valley colour-coated ware distribution.

To the south of Leicester, at Towcester, Woodfield provides data on the composition of the Nene Valley ware assemblage (Woodfield 1983, 75) reproduced as Table 5.2. This very clearly shows the northern pattern of a Nene Valley colour-coated ware assemblage dominated by beakers until the later 4th century. However, it does add some detail to the picture, with a gradual decline in the number of beakers starting in the second quarter of the 4th century and not becoming really marked until the last quarter of the 4th century. It also indicates that dishes (particularly 'dog' dishes) are regularly present in small quantities from the later 3rd century. The same northern pattern is seen at Alchester, Oxon (Evans 2001a, table 7.13), and at Milton Keynes in Buckinghamshire (Marney 1989, 116–7). There non-beaker forms are not mentioned before the appearance of two 'dog dishes' in the early 4th century, whilst late 4th-century groups are stated to

contain flanged bowls, flagons/bottles, jars, dog-dishes and heavy Castor boxes.

South of Cambridge at Great Chesterford, in Trench VI Pit 1 there is 'secure evidence for the import of Nene Valley colour-coat open forms into north-west Essex in the Antonine and early 3rd century' (Martin 2011, CD). However, Martin also notes that 'Great Chesterford probably marks their southernmost limit of distribution in this period. Otherwise, Nene Valley colour-coat open forms are mostly 4th century in Essex'. Martin lists twelve beakers, six dishes and three other forms in Nene Valley colour-coated ware from the 2nd- to 3rd-century groups he examined.

Sites with the core range of Nene Valley types are essentially restricted to Cambridgeshire, with the exception of Great Chesterford, and beyond that the 'northern' distribution pattern predominates. It is likely that the core range of forms occurs at sites within an area that was supplied directly from the kiln sites and their agents, with the remainder of the distribution having passed through the hands of *negotiatores* and pottery retailers. This core area also matches the one in which Nene Valley mortaria were generally dominant in the local market.

Figures 5.2–5.7 attempt contour plots for Nene Valley colour-coated wares in assemblages, showing the data from urban and military sites outside the production area and the data from rural sites alone outside the production area in separate figures. The data are presented in this way in order to map comparable sites, without any confusion caused by inter-regional variations in fine ware levels on different site types (*cf.* Evans 2005) as, for example, is the case with Allen and Fulford's (1996) study of BB1 distributions. The full dataset of sites within Cambridgeshire is used so that the sharply declining contours away from the kiln sites can be accurately plotted.

Figure 5.2 shows the strong concentration of material in Cambridgeshire, extending into Northamptonshire and southern Lincolnshire. There is a distinct distortion to the south-west to accommodate Towcester. The high levels of Nene Valley colour-coated ware at Towcester suggest that the ware was travelling south across Northamptonshire, presumably via Irchester, and perhaps partly along the upper course of the Nene. Except in this vicinity the ware did not penetrate in quantity as far south as the Thames and it is generally absent from Essex and East Anglia. For example the later 2nd-century group from the Rivenhall villa (Going 1993, table 13) contained no Nene Valley

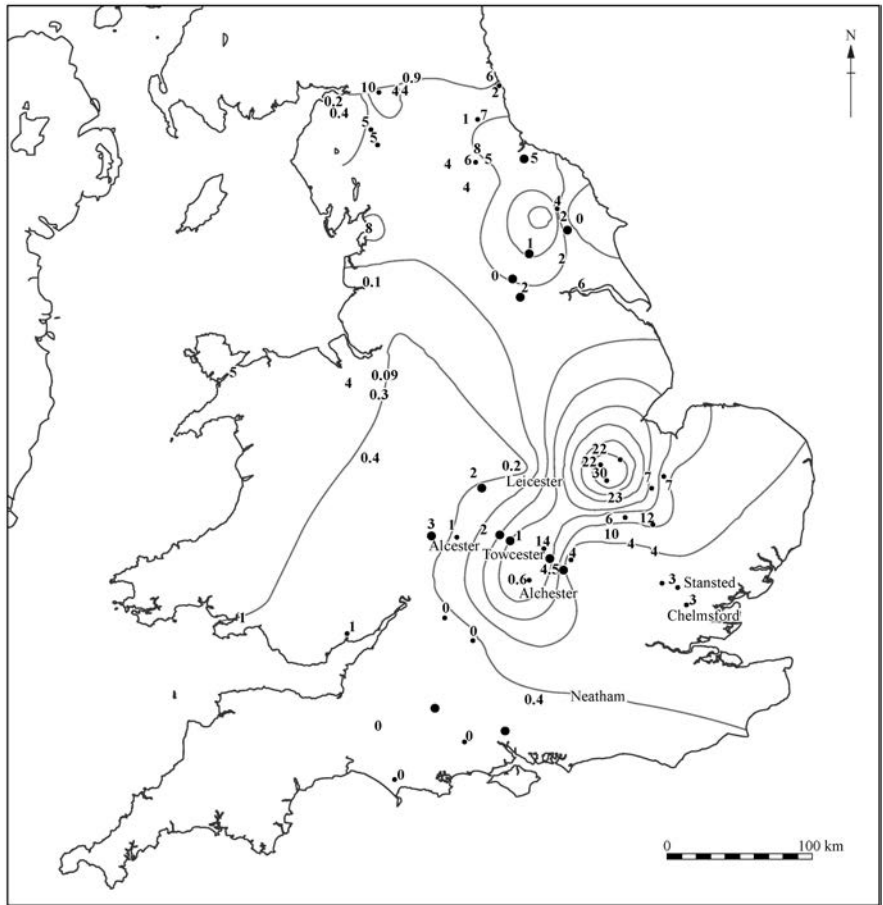


Figure 5.2 Contour plot of late 2nd- to 3rd-century distribution of Nene Valley colour-coated ware for urban sites

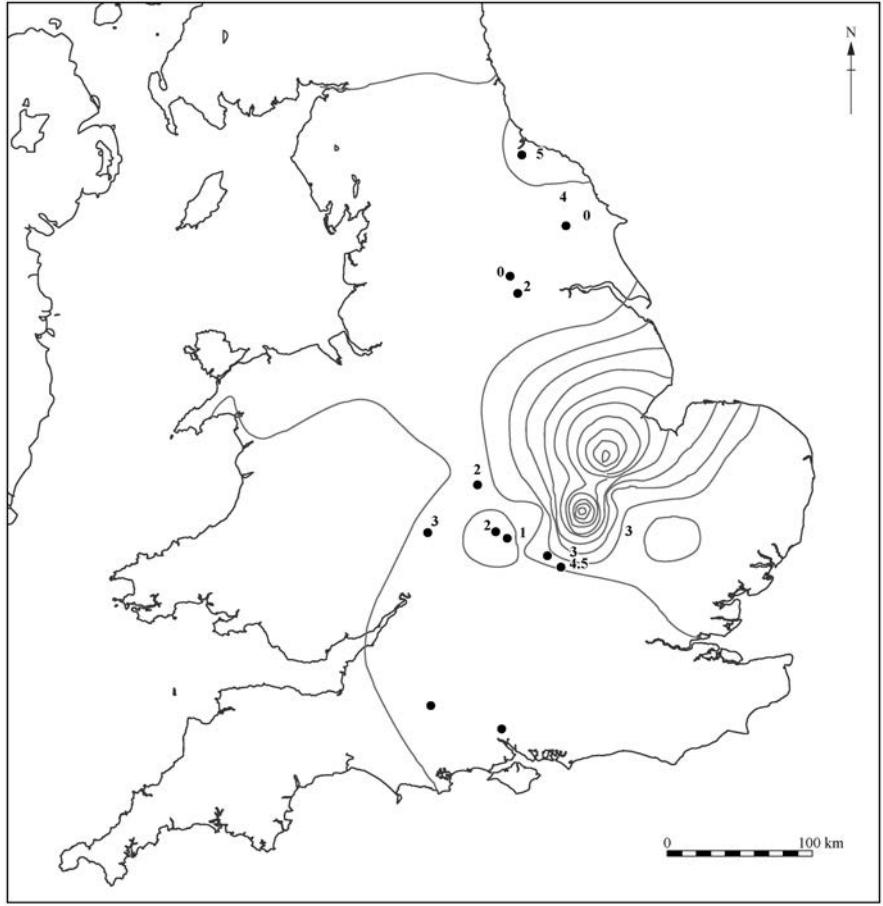


Figure 5.3 Contour plot of late 2nd- to 3rd-century distribution of Nene Valley colour-coated ware for rural sites

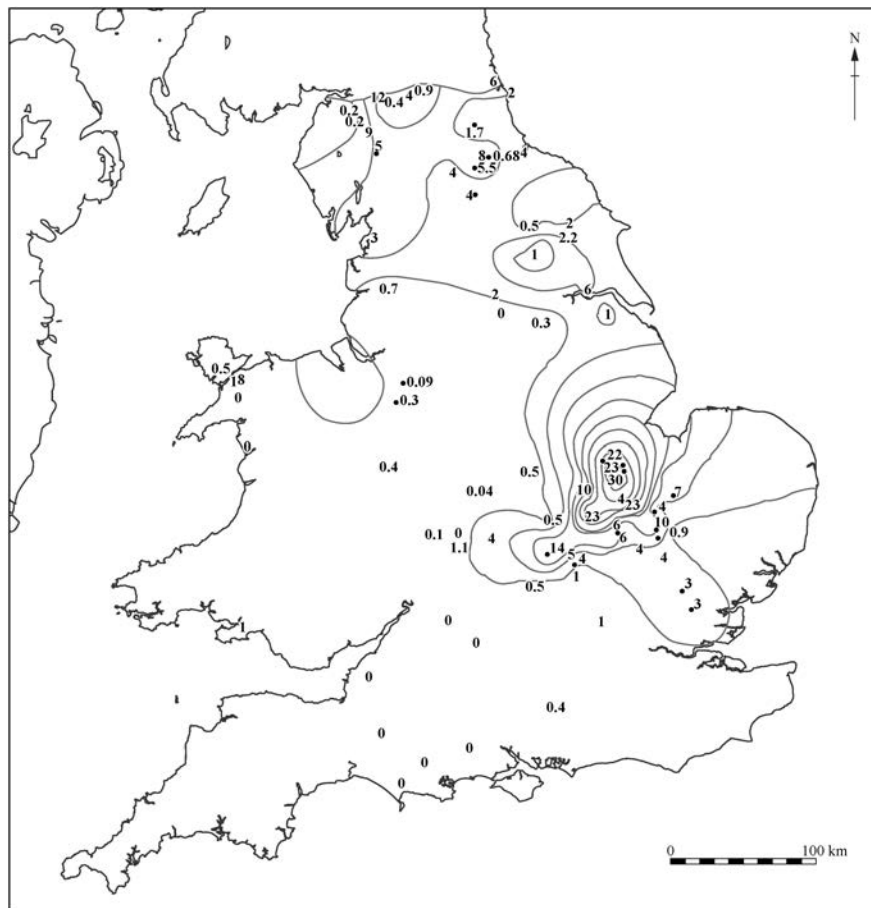


Figure 5.4 Contour plot of late 2nd- to early 3rd-century distribution of Nene Valley colour-coated ware for urban and rural sites

material at all, with Colchester providing the colour-coated ware.

It is very clear that Nene Valley wares are not found in quantity in northern Lincolnshire, west of Leicester, south of Cambridge or Towcester. Whilst the distribution in the Cambridgeshire–Northamptonshire area was no doubt predominantly by land transport, Fig. 5.2 makes it clear that the distribution in Northern England was a result of water transport along the east coast. There is a clear concentration in the York–Malton area which undoubtedly reflects the importation of material through the port at York. The continuation of this in the Catterick/Piercebridge area might suggest that there was further importation up the Tees, apart from possible transshipment up the Swale from York towards Catterick. Material for the supply of Hadrian’s Wall, or at least the eastern two-thirds of it, was fairly certainly imported through South Shields and some evidence of a fall-off can be seen between the east and west coasts. The plot shows that although Cumbrian military sites seem relatively well supplied with Nene Valley products, sites in Lancashire were much more poorly supplied and it is quite possible that some of the material described as Nene Valley is actually from other sources (Evans and Rátkai forthcoming). These sites are not military establishments, but neither are they towns as such (Evans 2005; forthcoming a), rather being perhaps largely servile production centres founded to supply the military market.

Figure 5.2 provides an interesting contrast to Fig. 5.3, which shows the data from rural sites (they are combined in Fig. 5.4). The shapes of the core distribution on these maps are comfortably similar, both covering Cambridgeshire, Northamptonshire and southern Lincolnshire and both showing a spur to the south-west, towards Towcester, running along the upper Nene Valley. The rural sites show much less evidence of the East Coast trade in the north. The fabric is present on many sites in the north-east, whereas it is absent from many sites in the north-west or south of the Thames (Tyers 2003), but, generally, it is present only in minute quantities and the contours offer little clarification of the existence of a seaborne trade, with, ironically, the best evidence coming from the Tees.

In the later 3rd to mid 4th centuries (Fig. 5.5), the core distribution remained in Cambridgeshire, Northamptonshire and southern Lincolnshire. The south-western extension towards Towcester along the upper Nene Valley remained, although perhaps to a lesser degree than earlier in the 3rd century. In the north the fabric is fairly common north of the Humber–Mersey line, although rather more common in the north-east, and a contour runs neatly along the Pennines. Levels again seem to peak at York, and, no doubt, this remained the principal port apart from South Shields. It is apparent that the material must have arrived as part of the East Coast trade, and the distribution clearly precludes the use of land transport from the Nene Valley. There is again something of a concentration in the Catterick–Piercebridge–Binchester area, though whether

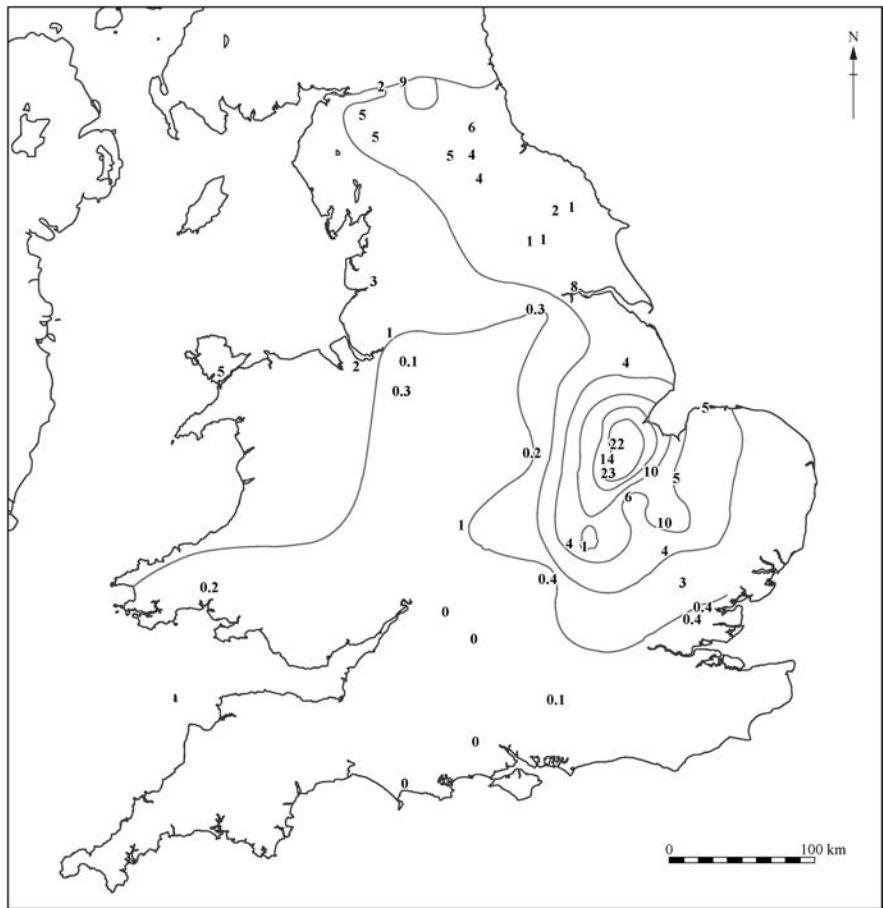


Figure 5.5 Contour plot of 3rd- to 4th-century distribution of Nene Valley colour-coated ware for urban sites

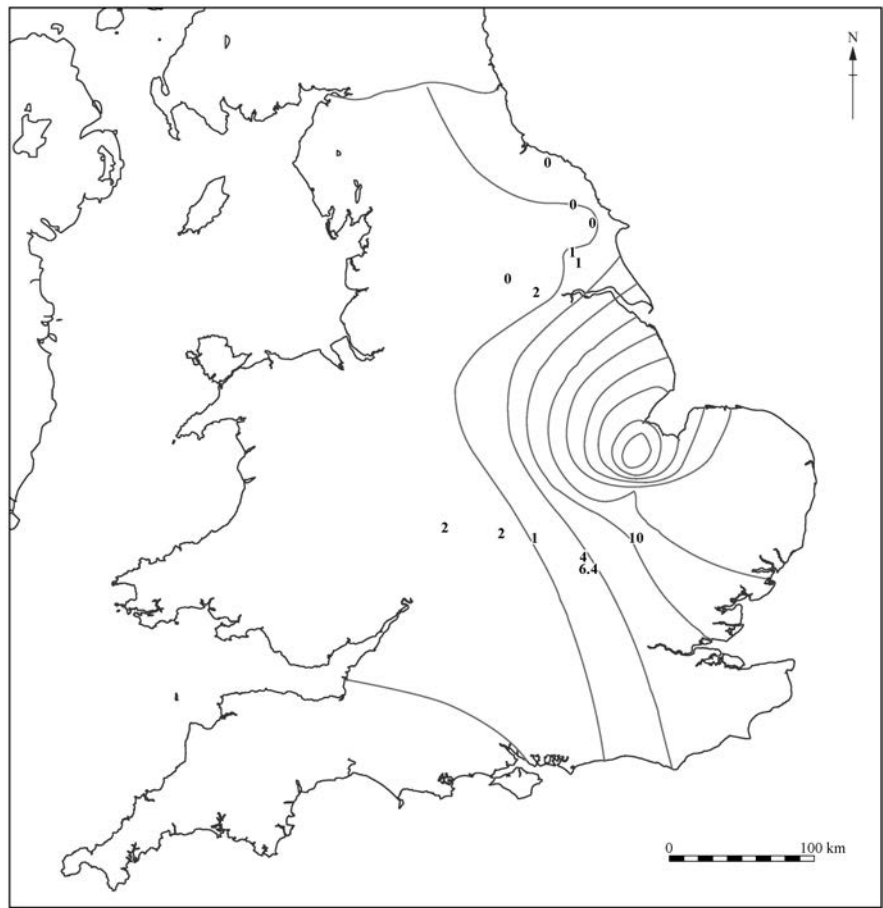


Figure 5.6 Contour plot of 3rd- to 4th-century distribution of Nene Valley colour-coated ware for rural sites

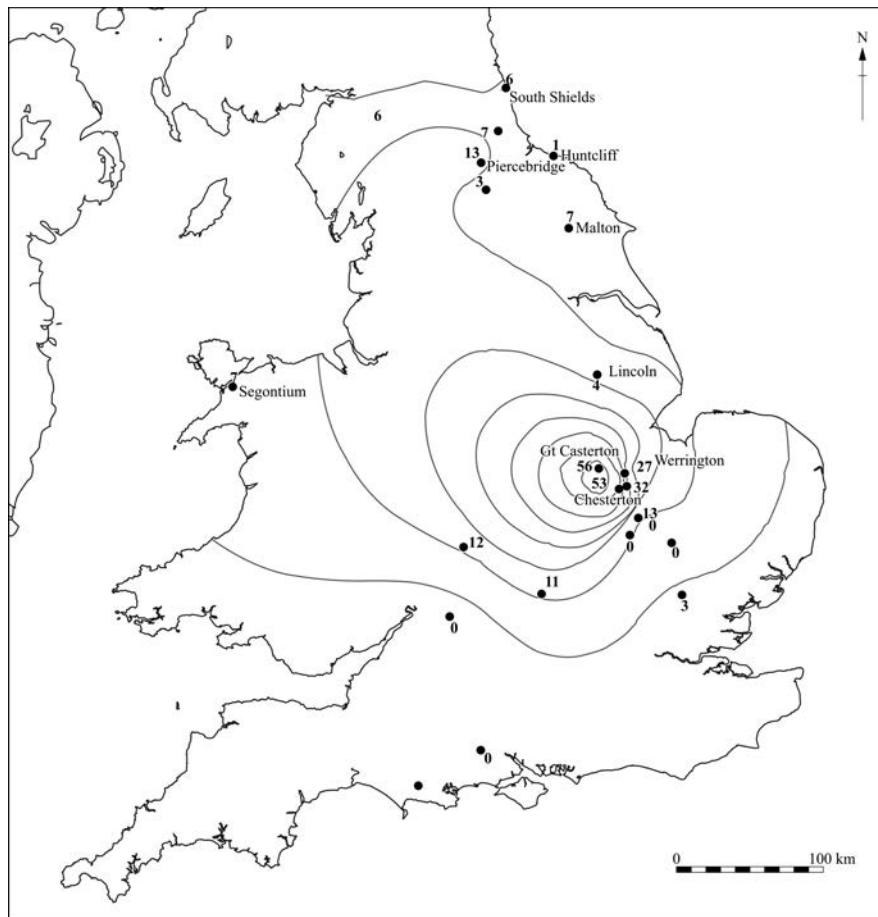


Figure 5.7 Contour plot of late 4th-century distribution of Nene Valley colour-coated ware for urban sites

this relates to distribution via the Swale, the Tees or the Wear, or some or all of them, is unclear (*cf.* Evans 2002b). Along the line of Hadrian's Wall, Nene Valley colour-coated ware must have been distributed from South Shields westwards, although there is not a great fall-off from east to west in the data available. One surprising aspect is the presence of reasonable quantities of Nene Valley colour-coated ware on west coast sites in North Wales, such as *Segontium*. These vessels must have travelled overland from coast to coast at some point, and then perhaps moved south on the west coast trade.

Figure 5.6 shows the contour plot of the same period for rural sites alone. Again this is rather simpler than the urban and military sites' map (Fig. 5.5). The extension of the distribution to the south-west seen on both rural and urban sites in the later 2nd- to mid 3rd-century plots, and still seen to some extent on later 3rd- to mid 4th-century urban sites, is not seen amongst the rural sites, but rather the distribution has swung to the north, covering much of Lincolnshire before continuing on in an extension up the east coast to encompass north-east England. In contrast to the previous period the East Coast trade shows up clearly on this distribution map and it is again clear that this trade must have been waterborne.

Figure 5.7 shows Nene Valley colour-coated ware distribution to urban and military sites in the later 4th century. The traditional core markets in Cambridgeshire, Northamptonshire and southern Lincolnshire remain, but these seem to have expanded into the West Midlands and the southern counties of Northern England. This plot is

completely different from any of the preceding ones with the core distribution extending well to the north-west. It is very difficult, on the evidence currently available, to avoid the conclusion that in this period the main mechanism for distributing this fabric in Northern England was overland by road, rather than on the east coast trade. This change coincides with the radical change in the composition of forms exported to the north; for the first time the same range of Nene Valley forms was available across the whole of the fabric's distribution.

The other feature worth noting is that on many sites in the north Nene Valley colour-coated wares tend to be more common in this period than in earlier ones. This is despite the availability of more local fine ware table ware types in the form of Crambeck painted parchment ware. The distribution of Nene Valley colour-coated ware overland in the later 4th-early 5th centuries fits with the pattern seen amongst the other very late major industries (Digital Chapter 9), in that most of them were distributed overland, and the only evidence of the utilisation of water transport related to inland rivers, such as the Thames, although even in this case the evidence is not particularly strong.

New data will undoubtedly lead to refinement of these maps and could yet require a re-reading of the later 4th- to 5th-century pattern, but they seem to offer a fairly clear picture with a core distribution in Cambridgeshire, Northamptonshire and southern Lincolnshire centred round the kiln sites for most of the life of the industry. The east coast trade is clearly evidenced on military and urban sites in the north of England from the Antonine period

<i>Port</i>	<i>Local products exported</i>	<i>Regional products transhipped</i>	<i>International products transhipped</i>
London		<i>Verulamium</i> region wares	Olive oil French wine in Gauloise amphorae Rhenish wine in barrels Campanian grand crus Fish sauce South, Central and East Gaulish samian ware Noyon mortaria Soller and Rhineland mortaria Spices Dried fruit Gallic and Rhineland finewares
Essex	BB2 Salt?		
Fenland	Nene Valley colour-coated ware Salt lamb Wool Salt?	Northants iron Grain (or flour) from Northants Salt beef?	
Flamborough Head	Calcite gritted ware	Crambeck grey ware? Wool? Cheese?	

Table 5.3 Products exported and transhipped on the east coast trade

onwards. This study shows the importance of the port at York as well as that at South Shields for the importation of supplies for military sites in the region. These sites may have been the centres of long-standing supply zones for the military in the north, which their amphora supplies help to delineate (Bidwell and Speak 1994; Evans 2005; Evans forthcoming a).

Nene Valley colour-coated wares tend to be more common in the north-east than in the north-west, as might be expected, but the Pennines seem to have had relatively little influence in restricting their access to Cumbria. However, in the later 4th to early 5th centuries the Nene Valley colour-coated ware evidence seems to suggest that the east coast trade had either come to an end or at least was of lesser significance than overland trade routes. The only positive evidence for the continuation of the east coast trade seems to come in the form of a few pieces of Hadham ware from the north-east. The end (or at least marked decline) of the east coast trade in this period corresponds with the long-known end of the west coast trade, as illustrated by the northern distribution of BB1, at the same time. All the major pottery industries of the period – Nene Valley, Oxford, Hadham, New Forest, BB1, Alice Holt and Harrold – were subsequently reliant on land transport, or, at best, inland water transport. It is tempting to link this development with ‘coastal planning blight’ (see below).

IV. The East Coast Trade

Table 5.3

At this point, it is worthwhile to summarise what evidence we have for the east coast trade and what we know was originating where (Table 5.3). London was clearly the major international port at which imported products were transhipped. In ceramic terms, this only seems to include samian ware, other Gallic and Rhenish fine wares and Noyon and Rhenish mortaria, and it seems noteworthy that no coarse wares from London joined the east coast

trade. The one possible exception is small quantities of *Verulamium* region wares including mortaria, and it is possible that some of these were in fact products of the London ‘clone’ of the *Verulamium* industry (Seeley and Drummond-Murray 2005). BB1 seems to have been shipped into London along the south coast but not to have been transhipped further. Foodstuffs clearly include spices, olive oil, fish sauce and dried fruit. Drink included Gallic wine in amphorae, probably some more in barrels, Rhenish wine in barrels and Italian *grand crus* in amphorae.

By the mid 3rd century, however, the vast bulk of inter-provincial imports had ceased. Whether wine was still imported in barrels, and in what quantity, is unknown, but oil imports were down to a minute fraction of what they had been in the 2nd century and it would appear that before the mid 3rd century (although Funari (1996, 5) suggests a date of *c.*AD 260) the army had ceased to be supplied with olive oil. Rhenish samian, mortaria and fine wares also ceased to be imported by the later 3rd century, as did Italian *grand crus* in quantity.

Essex and/or Kent seems to have made the next contribution with BB2 and mortaria from the mid 2nd to the mid 3rd centuries. It is difficult to imagine that BB2 was transhipped here without some much more valuable, but invisible cargo, of which perhaps the most obvious might be salt, especially as salterns do not seem to occur in the Roman north-east. The BB2 almost certainly came from Essex rather than being transhipped in London, because the northern material includes a good number of examples of the possibly related Gillam (1970) type 151 which Bidwell (1985, 176) has pointed out appears to originate from the kiln at Mucking (Jones and Rodwell 1973). The contribution of Thameside (Kent) pottery to assemblages in the north should not be forgotten. A rapid review by Monaghan (1987, 211–3) suggested that perhaps as much as 50% of BB2 in his sample of northern sites was of Thameside origin. As in the case of Essex, export of salt alongside (or inside) such vessels can be regarded as a distinct possibility.

The next stop on the east coast trade attested by cargos would appear to be at the mouth of The Wash. Finds in the north from Catterick and from the mouth of the Humber, suggest that a little ceramic material from this area was reaching the north from the Flavian period, but an organised pottery trade did not emerge until AD 160/70 when Nene Valley colour-coated ware beakers and ‘Castor boxes’ started to be exported. Other products from the fenland are likely to have included salt lamb, salt and wool, and possibly ewes’ cheese, although this was probably also being produced in the north. Material exported through the fenland from Northamptonshire would almost certainly have included quantities of raw iron from the upper Nene Valley, grain and perhaps salt beef.

North of the fenland there is no clear evidence of any other sources of supply to the trade. The next port north attested by material evidence was probably York, accessed through the Humber river system. Here was a secondary node in the distribution of BB2 in the north (Evans 1985) and, as this chapter shows, another for the importation of Nene Valley colour-coated ware. A large proportion of the Rhenish mortaria also seems to have been offloaded in the Yorkshire area, perhaps more than reached the Wall. As elsewhere, nearly all the wine and oil amphorae from York reached the site by the mid 3rd century. There are but a few sherds of Biv amphora from the East Mediterranean and a few more from North Africa indicating minimal oil importation in the 4th century at York (Williams 1997). BB2 also ceased to be exported to York and the north around the middle of the 3rd century. In contrast the fine ware trade in Nene Valley wares continued unabated. However, the evidence of its distribution (Digital Chapter 9) suggests that it may not have reached the area by sea in the latter part of the 4th century.

Another node in the importation network seems to be located at the town of Catterick (Bell and Evans 2002; Evans 2002b). This cannot be regarded as an east coast port, but it does look as if material was transhipped thence from York and that it acted as a major distribution centre, as can be seen in the 3rd- and 4th-century quantified distribution maps of Nene Valley material in the north (Figs 5.4–5.6). A further claim can be made for a port somewhere in the region of Flamborough Head. From the end of the 3rd century a mechanism was needed to transport calcite gritted ware and Crambeck grey ware to the military sites on Hadrian’s Wall. Collection from an East Yorkshire port would seem the most obvious route for redistribution through South Shields, although because of the ‘military contract’ type supply arrangement there is no fall-off in the quantity of these products on military sites in the northern region with increasing distance from the production centres.

The trail of occasional pieces of Hadham ware and Oxfordshire colour-coated ware up the Tees to Piercebridge (Evans and Mills 2009) and the relatively large collection of Hadham ware from Binchester on the Wear (Evans and Rátkai 2010) suggest that some transhipment may have taken place up these rivers in the later 4th century. Given the lack of evidence for Nene Valley colour-coated wares travelling on an East Coast trade at this time these are the only, rather fragile evidence for the continuation of that trade in this period.

The primary destination of the east coast trade from the Hadrianic era to the end of the Roman period was presumably the port at South Shields. This seems to have been the main depot for supplying Hadrian’s Wall, although the hinterland forts were clearly supplied by a different mechanism, perhaps through York. In the Antonine period there was also a further stop at the east end of the Antonine Wall. It is of note that Gallic wine amphorae which were supplied in quantity to the Antonine Wall were equally supplied to York and the hinterland forts, but never along the line of Hadrian’s Wall, where the only wine amphorae were occasional Campanian *grand cru* imports (Bidwell and Speak 1994). This is examined in detail elsewhere by Evans (Evans forthcoming a) but appears, with other evidence, to suggest that the north, north of the Humber–Mersey line, was divided into a series of four Roman military supply zones, which endured from at least the Flavian period until the early 3rd century.

V. Fenland Communications and the Old Tillage

Communication routes

Some of the best communication routes across the fenland were clearly the major waterways (see also Section VII, below). The Cam provided one such route and there is abundant evidence for its use throughout the Roman period (Chapter 4; Digital Chapters 4–9). The Ouse was also evidently employed for a similar purpose, although this use is far from clear on the ceramic evidence. However, the existence of the probable port complex at Camp Ground, Earith (and perhaps others), would seem to attest to transhipment here. The ceramic evidence does not suggest that this could be regarded as an urban site: preliminary figures (Anderson 2008) give the functional analysis from the site as a whole as 51% jars and 34% table wares (the presentation in the published report (Anderson 2013, e.g. fig. 4.3) does not include quantities that would allow further analysis). Samian ware accounts for 3.1% of the fully analysed sherds (15,392, a subset of the Roman total of 60,621 excluding fieldwalking material; Anderson 2013, 299–300). Amphorae appear to be almost entirely absent. A lack of ‘urban’ characteristics is also true of the analogous, but smaller site at Waterbeach on the Old Tillage which, as is discussed below, suggests transhipment of grain and other goods along the River Cam and/or the Old Tillage to the Ouse at Earith.

The large quantities of Nene Valley colour-coated wares exported on the East Coast trade to the north of England (see Sections III and IV above) attest to the use of the Nene as another major trade route, perhaps transhipped at *Durobrivae*. The ceramic evidence tends to emphasise particularly the role of the Cam in supplying the western fens and the central fen islands. The evidence is not sufficiently detailed to assess well the role of the Old Tillage in this supply, but it does not stand out in the ceramic distribution patterns as the Cam very much does.

The earliest military sites in the region all seem to be along Ermine Street, at Godmanchester and Longthorpe, covering strategic river crossings but not overlying earlier settlements, as might be expected since they were in the territories of client kingdoms. Neronian military foundations, perhaps in the aftermath of the Boudiccan revolt, appear more widely at Great Chesterford,

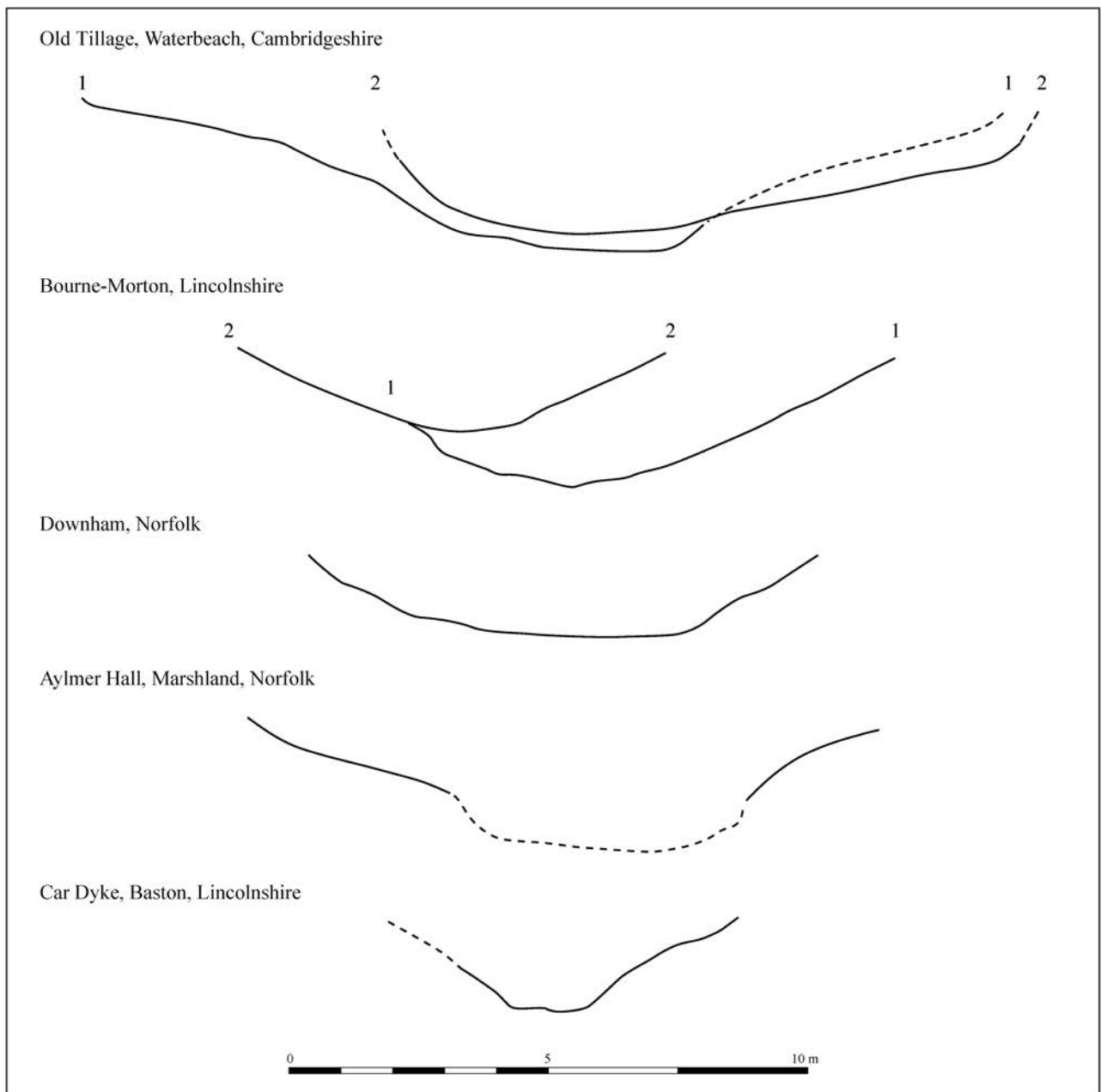


Figure 5.8 Comparison of profiles across the Lincolnshire Car Dyke and the Old Tillage. Scale 1:125

Godmanchester and perhaps *Durobrivae*, along with the fenland site at Grandford on the newly constructed Fen Causeway (see Section VII, 'Public Works'). At no point is there evidence of an early Roman fort at Cambridge.

The function of the Old Tillage

Fig. 5.8

There are two principal suggestions as to the function of the Old Tillage in Cambridgeshire and the Car Dyke in Lincolnshire: as supply canals or as catch-waters (or both). As is detailed in Chapter 1.II, the Old Tillage, running from the River Cam to the Old West River and thereby on to the postulated local port (perhaps that recently identified at Earith or one closer to the coast), has previously been interpreted as a logistical route for the Roman army, linking up two of the major rivers of the region and effectively creating an access to the north (Fox 1923; Fowler 1932). The Lincolnshire Car Dyke has most

commonly been interpreted as a catch-water, diverting the seasonal increase in run-off into the nearest watercourses and preventing flooding in the fenland – a necessary part of the maintenance of the saltern industry which developed on the silt fen edge in the early Roman period, especially in Lincolnshire (e.g. Simmons 1975; Lane and Morris 2001, 386). Both interpretations have also been applied to other Roman waterways in the fenland region (Jackson and Potter 1996).

The function of the Lincolnshire Car Dyke has been most recently reviewed by Simmons and Cope-Faulkner (2004). They suggest three primary functions: transportation, drainage and as a land boundary. They also indicate numerous additional or secondary interpretations/functions (see Chapter 1.II) and conclude that the Lincolnshire Car Dyke continues to defy simple and quick interpretation. Indeed, there is still no certain date for its construction, although the consensus is that the monument

is Roman. A multiple function is almost certain, but it appears likely that transportation would only have been for short journeys, rather than for long distance supply of the legions at Lincoln or York. Sections excavated across the Lincolnshire Car Dyke emphasise its catch-water nature, based partially on the presence of causeways blocking the route (although see caveats in Chapter 1.II). Assuming a transport function, the main previous suggestions for the type of goods carried were corn (Darby 1983; Fox 1923) and building stone (Wilkes and Elrington 1978), as well as pottery, salted meat and animal hides. These suggestions were, however, largely based on the assumption that the Lincolnshire and Cambridgeshire features formed a single canal which, as this volume demonstrates, was clearly not the case. Of particular note in this regard is the fact that the Lincolnshire Car Dyke appears to form a monument parallel to, rather than connecting with, the sea: it would therefore seem to have been intended to prevent flooding or to mark a boundary, rather than to facilitate transportation.

In contrast, the location of the Old Tillage, which connected the River Cam and Old West Rivers to the Great Ouse and the fens (Fig. 3.22), facilitated water-borne transportation from the start of the canal at Waterbeach into the fens and then out into the North Sea via port facilities, such as those postulated at Earith. Cropmarks and archaeological investigations along the western bank of the River Cam, stretching southwards from the Old Tillage towards Milton (Fig. 3.1), indicate complex arrangements of other features in the vicinity of the subject site – including the numerous kilns of the Horningsea pottery industry – reflecting the presence of an industrial enclave along the river banks. The area can effectively be seen as a transport hub, facilitating the movement of goods upriver to Cambridge and downriver towards Littleport, or along the Old Tillage to the Old West River and the fens beyond. This activity was predominantly 2nd century in date and not military in connection or function. At the point that the Old Tillage connected with the River Cam, there may have been a lock (or a causeway) close to the junction of the two, associated with a possible turning point for vessels. The dimensions of the Old Tillage and the Lincolnshire Car Dyke differ significantly (Fig. 5.8). The Old Tillage has a width of c.22–24m, compared to c.15–17m for the Car Dyke in Lincolnshire. The Cambridgeshire profiles are broad and shallow, c.4m deep, whilst the Lincolnshire sections have steeper sides and are c.4–6m deep (Macaulay and Reynolds 1994, 14; Simmons and Cope-Faulkner 2004, 60). The dimensions of the Cambridgeshire watercourse are compatible with a transport function, assuming that boats and barges such as those known from the Thames were being used (Marsden 1994). It would appear from the findings laid out in this volume that the main function of the Old Tillage may have been grain transportation, returning us to some degree to the suggestions of Morton and Stukeley (*i.e.* without the military connotations). This conclusion, however, is unsurprising in the sense that the driving factor behind the construction of Old Tillage must have been an essential commodity worthy of investment – *i.e.* economically high value food.

In Cambridgeshire, excavations at Bullock's Haste (Clark 1949) and Earith (White 1967) and dredging of the channel have produced rich collections of pottery lacking in Lincolnshire (Phillips 1970; Simmons 1975; Simmons 1979; Thorpe and Zeffert 1989; Simmons and

Cope-Faulkner 2004). As we have seen, there is a notable association of pottery kilns with the Old Tillage. Taken at face value, this might suggest pottery transshipment along the route (Walker 1912; Swan 1984; Robinson and Guttman 1996; Macaulay 1999; Lyons in prep. b; Simmons and Cope-Faulkner 2004), although as is demonstrated in earlier chapters, this was not at any notable scale.

Another interesting association is suggested by the fact that the deposits from the canal, as well as the fills sampled from the nearby warehouse, produced evidence of the grain weevil *Oryzaephilus surinamensis*, a serious pest found at large grain stores in towns, military or high status sites but rarely present at rural sites (Chapter 2.II). The presence of this beetle indicates large scale activity related to the movement and storage of grain. The low lying nature of the site makes large scale long term grain storage implausible, suggesting that grain transshipment is the most likely explanation. In addition, a large number of querns have been found in fields along the route of the Old Tillage. When combined, the evidence clearly supports an interpretation of the Old Tillage as a canal for the transport of grain and possibly flour, with definition of its role in the distribution of Horningsea ware pottery remaining elusive. The grain would no doubt have derived from the various relevant counties of Southern and Eastern England. At the apparent port site found at Camp Ground, Earith, excavations revealed a complex arrangement of timber buildings interpreted as warehouses and/or granaries very similar to the timber building found at Waterbeach, again suggesting the transshipment of grain, iron and other commodities (C. Evans *et al.* 2013).

The activity defined at Waterbeach appears to span the main period of Roman activity in Cambridgeshire, from the mid 2nd century AD through to its height in the 3rd century, before tailing away at the beginning of the 4th century. The site appears to have been totally abandoned by the late 4th century, prior to the final decline of Roman influence. Perhaps the maintenance of engineering works of this type was amongst the first resources to be lost with the onset of the decline in imperial authority, although the 'crises' of the 3rd century (see Section XI below) did not appear to have a significant effect on pottery supply at this time.

VI. 'Urban' Pottery Supply and the Character of Roman Cambridge

The 'urban' nature of Cambridge

One of the purposes of selecting the Cambridge City sites for examination in the course of the project was to provide a series of urban groups which could be compared with the rural assemblages from the other sites. The place of these groups in the developing sequence of regional pottery supply has been set out in Digital Chapters 4–9 and particularly in Digital Chapter 10, but the more the Cambridge site is re-examined the less typically 'urban' it appears. Evidence relating specifically to its important religious aspects is discussed at the end of this section. As noted in the site summary (Digital Chapter 10.I), although there is evidence of domestic occupation on the site from the 2nd century onwards there seems to be a notable absence of strip buildings which might be regarded as shops. In the later 2nd or early 3rd century there was a pottery kiln well within the 'town', something that was

probably illegal in an urban context and which is very rarely seen elsewhere in central locations on such sites.

Digital Table 10.48 shows the overall functional analyses of all the pottery groups examined. Digital Fig. 10.63 shows the Castle Hill groups plotted against a background of Midlands and southern urban and rural sites (after Evans 2001b, fig. 5). This is very revealing; a few of the groups fall clearly into the urban range, while the others are borderline or fall clearly into the rural range. In contrast, the level of amphora sherds in the groups examined is comparable with those recorded amongst the scarce data from other small towns. A level of 1% by count is comparable to levels at Gas House Lane, Alcester and Asthall, Oxfordshire (Evans 2001a, fig. 11). However, the overall level of amphorae on the Castle Hill site, as opposed to the Ridgeons Gardens South groups examined in this study, is probably around 0.3%, which falls well within the rural range. Nonetheless the composition of the amphora assemblage, with its strong representation of Gallic material, certainly follows an urban pattern and not a rural one. This pattern is similar to that shown by the samian ware in that the site's status seems to fall somewhere between a small town and a rural settlement. The total range of fabrics represented at Castle Hill shows wider variety than on the rural sites and it seems likely that some pottery was produced at Cambridge in addition to the products of the kiln(s) found in the excavations. Overall the site has some urban characteristics and some rural ones and perhaps ought to be regarded as something between a village and a small town.

Defences

The late Roman defences at Cambridge consisted of an integrated bank and wall 1–3m thick built of limestone from Barnack, a source c.65km away. Alexander and Pullinger (1999, 82) comment that 'The transporting of some 10,000 cubic metres of material alone must have called for organisation and resources way beyond the local community'. That certainly seems likely, especially as occupation on the site seems to have been in decline by the later 3rd century. The defences are dated to the early 4th century, but evidence supporting this is not presented in full. The lowest bank layers contained 3rd- to 4th-century pottery including 'forty-three sherds of red polished ware and 283 sherds of late 3rd- to 4th-century colour-coated ware' (Alexander and Pullinger 1999, 62). The 'red polished ware' is presumably a mix of Hadham products and perhaps Oxfordshire colour-coated ware, and the 'colour-coated ware' will have been predominantly Nene Valley products. That gives a proportion in the fine ware assemblage of approximately 13% Hadham and/or Oxfordshire to 87% Nene Valley. This is a much lower proportion of Hadham and/or Oxfordshire wares than that at the Hinton Fields, Teversham villa in a group from F12 which probably dates from the last decade of the 4th century or later (see Digital Chapter 9).

The evidence from Essex (Martin 2011) and the date distribution of the Oxfordshire colour-coated ware from the Cambridge groups examined (Digital Fig. 10.35) shows that the latter are unlikely to date before the last quarter of the 4th century. Hadham ware becomes increasingly common at Great Chesterford from the late 3rd century (Martin 2011). Thus the earliest post-wall deposits at Cambridge probably date to some period in the 4th century, but exactly when is not clear.

Hull and Pullinger (1999) published eight vessels (nos 1011–1018) from CH86 B F8 'Town Gateway footings'. These ought to precede the wall's construction. The material consists of a 'red polished' constricted-necked jar with slightly undercut rim (no. 1011), a constricted-necked jar with bifid rim with finger-tipped decoration also in 'red polished ware' (no. 1012), a 'red polished' body sherd with stamped boss (no. 1014), and a 'red polished' body sherd rouletted and stamped (no. 1015), all of which would appear to be Hadham oxidised ware. Other material included a Nene Valley mortarium (no. 1017) of 3rd- to 4th-century date, a rilled grey ware bowl (no. 1016) and a handled Nene Valley colour-coated ware carinated bowl with white painted decoration (no. 1013). The latter piece is probably of later 4th-century date and the stamped Hadham ware sherds are 4th century. The excavation account makes clear that these were actually from the foundations of the external gate-tower. It also clarifies that 'three rims of polished redware and three rims and two sherds of Nene Valley ware mortarium were found under and amongst the stones (plate CXXXV; 978; CXXXVIII; 1011–1017)' (Alexander and Pullinger 1999, 66). Given the equal numbers of Hadham and Nene Valley rim sherds and the stamped Hadham ware body sherds it is difficult to see this material dating before about the mid 4th century at the very earliest. Vessel no. 1018 was described as coming from KY (5) 'Under 4th century town wall'. This was a 'red polished' Dr 38 copy bowl, almost certainly an Oxfordshire (Young 1977) type C51 bowl dated AD 240–400+. It seems unlikely that much Oxfordshire colour-coated ware reached the site before the last quarter of the 4th century. On balance, therefore, the pottery evidence strongly suggests a *terminus post quem* of at least AD 350 for the construction of the walled circuit at Cambridge and wider discussion of aspects of the region in the late Roman period suggests a possible broad context for this. The very strong late coin list from Cambridge dating to a time when there is scant evidence for domestic occupation within the walled area, but when there is evidence of extensive pottery deposition and some suggestion of the formation of 'dark earth' deposits, suggests a very particular pattern of activity possibly related to the presence of military personnel within the walls (see Digital Chapter 10.IV). Aspects such as the procurement of the building material from near *Durobrivae* also suggest a possible military role in the walls' construction. It is tempting to speculate that the 'barbarian conspiracy' of AD 367 recorded by Ammianus Marcellinus was actually largely played out in East Anglia, as opposed to the northern frontier, if it took place at all (Bartholomew 1984), but that is both beyond the scope of this study and the evidence.

One other point of note in relation to the date of the defences of Castle Hill is the transport implications. It is difficult to conceive how 10,000 cubic metres of stone could be brought to the site from the Barnack quarries except by water. This in turn seems to require that the Old Tillage was still functioning as a canal. Hartley (1970) reviewing Clark's (1949) section of the canal at Cottenham concluded 'it is certain that the upper filling contains some forms as late as any current in the Fenland', and suggested AD 325 as the earliest possible date for the filling.

The evidence from the Old Tillage suggests that the site was most active in the Antonine–3rd-century period

<i>Date</i>	<i>Alexander and Pullinger 1999</i>	<i>Type of ritual activity</i>
C1 BC/AD	p.23, fig. 2.6	A complete bowl with 3 perforations drilled in the base – perhaps a vessel ritually ‘killed’ as a votive offering
‘Claudian’	p. 143, fig. VII.6	A complete lamp with a crocodile and bear from a ‘Claudian’ ditch. Complete vessels are usually ritual deposits and lamps are often used in such contexts, especially in burials. RGS/CP Ditch IX
‘Claudian’	p.23	Silver coin SF306 in the bottom of gully. High value to be a casual loss. RGS/CP Ditch IX
‘Claudian’	p.23	Three Iron Age coins SF 100, 103, 104 in butt end of ditch. Ritual deposits often found in gullies at this location
C1	p.31	Hearth 30b ‘The hearth was full of ash and charcoal on which had been placed late 1st to early 2nd century pots... One cooking bowl with lid still contained hare bones, another, a casserole with lid, still contained freshwater mussels. Several other vessels stood in the ash... [the group comprised] 11 cooking pots, 2 jugs 1 pitcher, 1 bowl and lid, and 1 casserole (base and lid), all complete or nearly complete vessels. (Plate LXXVII–LXXIX; 454–460).’ The complete vessels are unlikely not to be ritual; and hare was a taboo animal not often eaten.
C1	p.32	RG Latrine/Well A1.20 ‘At the lowest excavated level were found two brooches, an impression thought to be from an iron bowl or helmet, articulated fragments of an ox skeleton, and much 1st century pottery’.
C1?	p.32	RGS VII Grave 17b ‘A single grave containing a woman of about 40, no grave goods, cut pit 18 and was in turn cut by a 3rd century ritual shaft, 17a.’ Not exactly ritual but graves should not be present within the settlement.
C2	p.43	House 3b. ‘An area of marl suggested a possible structure between the street and yard. On the marl surface were found 2nd-century sherds and articulated cow vertebrae. A layer of charcoal and burnt material lay over the marl and, with two stakeholes, one 10cm square and one 25cm in diameter, might have been a gate to yard 3.’ The articulated cow vertebrae may be a ritual deposit under this ?gate.
C2	p.44	RGS VI Pit 21 An almost circular pit 1.5 x 1.2m an approx 1.5m deep. ‘There were also six bones from at least five human infants, a dog skull and cattle and sheep bones.’ Given the association of infants and dogs in other pits on Castle Hill this would appear ritual.
C2	p.44; p.43, fig. 4.10	SH pit F.75 A pit with layers of burnt material with fruit seeds, peas, beans, celery, coriander and the oriental plane tree. This is far from clear but the repeated layers of burnt material are a little suspicious.
C2	p.44	RGS VI Well 16 ‘In a pocket of ash 2m down the articulated skeleton of a human baby under 10 days old was found, together with 10 other human infant bones.’ Taylor (1999) notes sherds included three from a head pot.
C2	p.45–7	Shrine RGS IV and CP VIII Located in the centre of the earlier ‘fort’. Large amounts of votive material including the Bacchus gem, a complete horse, many complete pots including over 250 flagons and many amphora lids, a triangular arrangement of three articulated dogs, a bone flute, a further complete dog, a cow skull, hare bones, glass vessels <i>etc.</i> NB a lack of typical votive small bronzes, figurines <i>etc.</i>
C3	p.80	SH 83 IV pit F.1 Large oval pit, 3rd century. ‘Many oyster and mussel shells, bronze pins fragments, 74 iron nails, 42+ shoe studs, plaster fragments, perforated bronze disc, neck of a glass vessel, early 2nd-century stamped samian, bone needle, iron bridle and antler cheek bits (Plate XIX; 166, 167), fragments of iron with wood adhering (Plate XX; 169).’ Finds possibly ritual.
C3–EC4	p.51	Shaft RGS VI (19c–j) ‘Near-rectangular, vertical sided, flat bottomed, 1.9m x 1.2m x 3.35m deep. A layer of wattling or brushwood lay on a thin layer of hard-packed chalk at the bottom. On this was a horse, one leg bone and the skull in an advanced state of decay being all that remained; the rest of the animal being traced by staining. A layer of grey wood ash surrounded the horse and three colour-coated beakers (Plate CXXIV; 885–887) lay in this fill. Above this was an ashy greenish-grey deposit, and a layer of sandy loam. Decayed planks lay part way along the south side and another along the west side of this level, with a circular wooden object – perhaps a small wheel – and an iron hilt-shaped object (Plate XXVII; 201, 202). A layer of clay then covered part of the shaft which was afterwards filled up with brown loam sealed by gravel.’ The horse and the triple beaker votive offerings are clearly ritual.
C3–EC4	p.52	RGS Well VI (25) ‘Lowest fill was weathered chalk silt. An articulated skeleton of a horse, aged 4-5 years, was in this fill, together with three almost complete vessels (Plate CXXVII; 896–898). Above were ash and chalk marl lumps, fragments of iron, thin strips of wood and much daub with timber laths attached. Uppermost fill of loam containing chalk marl lump containing a few bones, one human femur amongst them.’ It is improbable this is anything but a ritual deposit.
C3–EC4	p.52–3	SH 84 F32 circular well ‘Fill of black wet loam/clay mix contained animal bones and sherds with two nearly complete vessels – a samian bowl and a shell-tempered cooking pot of early 3rd-century date [also a complete indented grey ware beaker] (Plate CXVI; 807–808).’ The complete vessels are most unlikely to be anything but ritual.
C3–EC4	p.53–4	‘At least thirteen ritual shafts of 3rd and early 4th century. Each one fully excavated was a deep pit containing a mature dog, aged 5–7 years of fox terrier size in the south corner, and a rush mat and a wicker basket containing the stain of an infant burial laid on large sherds... In most shafts two burials occurred one above the other, and in five shafts there was a pair of shoes, of which only the studs remained, but which would have fitted an older 5–6 year old child. These shafts were filled up immediately after the infant burials.’ Shaft 6 includes an articulated falcon skeleton.
C3–EC4	p.57	Pentagonal Shrine? If this is a shrine the only material associated with it cited is a Lezoux black samian sherd with a Pan mask.
C3–EC4	p.72	RGS VI 18a and b. ‘a shallow pit 55cms deep, overlying pit 18c-e/22. The fill contained 14 ox skulls and an adult human long bone and jaw, sherds of late 3rd and early 4th century date, fragments of roof and floor tile and burnt limestone blocks.’

Date	Alexander and Pullinger 1999	Type of ritual activity
C3–EC4	p.73–4, fig. 6.30	CH 86 Burial Inhumation ‘Skeleton on a young man lying on his side and almost prone. Head thrown back and right arm round a large shell-tempered jar (Plate CXXIX; 1019).’
C4	p.62	In the section of the bank behind the town wall ‘The lowest tips were rich in 3rd to 4th-century pottery including 43 sherds of red polished ware and 283 sherds of late 3rd to 4th colour-coated ware, animal bones included two dogs (articulated skeletons) and woodash.’ Layers of woodash are common separators of ritual deposits, the dog skeletons, especially given their frequent use at an earlier date in ritual deposits, are much more likely to be ritual than the disposal of family pets.

Table 5.4 Ritual deposits and burials in the Cambridge Castle Hill report (Alexander and Pullinger 1999)

and that its use came to an end in the mid 4th century (see Chapter 3.VI). One possibility which must be considered is whether the whole length of the Cambridgeshire canal went out of use at this date. At present the lack of evidence does not allow this question to be considered in detail.

Roman Cambridge and its ‘hinterland’

It is increasingly clear that interpreting the Romano-British landscape along the southern fenland and fen edge in terms of a relationship between a Roman ‘small town’ at Cambridge and its hinterland is probably a misleading and incorrect approach. It has long been clear from the results of developer funded archaeological work since the 1990s, coupled with more detailed study into the nature of the evidence from Roman Cambridge (including the ceramic re-assessment above), that Cambridge does not exert a traditional Roman urban influence on what would be considered its ‘hinterland’, and does not itself possess the classic characteristics of a ‘small town’.

This view of understanding the Roman landscape is at odds with Fincham’s (2002) interpretation of the fenland. He sees the development of the fen edge sites as related to activities of their local centre, comparing the correlation of ‘the fortunes of the southern fen edge settlements with the town of Cambridge’ with a similar relationship between *Durobrivae* and its fen settlements (Fincham 2002, 68). He interprets *Durobrivae*, not Stonea, as the centre towards which the (central) fens were orientated (Fincham 2002, 67), but even if this is correct, the southern fen settlements (and fen edge) do not look towards Cambridge in the same way. In discussing the early Roman landscape Christopher Evans (C. Evans *et al.* 2008, 191) notes that the Roman settlements at Addenbrookes and Longstanton (Site 15/18) were both larger than the main upper walled extent of Roman Cambridge (*Duroliponte*) and both exceed the 20ha threshold that Taylor (2007, 50) applies to urban and proto-urban sites. Whilst not suggesting that either should be considered towns, this demonstrates the complexity of the Romano-British landscape and they argue that, for the early Roman period at least, there should be a reappraisal of Cambridge’s town status. A shift in focus away from sites such as Addenbrooke’s, and a consolidation of a settlement centre that might be expected on the basis of characteristic models of small town development, are not clearly seen at Cambridge. Evans *et al.* (2008, 197) conclude that the study of the local Romano-British landscape has now moved away from the Cambridge dominated focus and that the ‘town’ was no longer the thing to explain, nor should the landscape be interpreted in terms of the land behind the town.

Further work is clearly required fully to understand the place of Cambridge in its ‘hinterland’. It looks rather as if in the Roman period the Cambridge area continued to operate as if it were part of an ‘*oppidum*’ with a series of focal points dispersed across a wider landscape. The centre at Cambridge itself seems to have had a primarily religious focus, and its status as a ‘town’ seems to be primarily based on the fact that the site was walled in the 4th century. Broadening this ‘urban’ model, the lack of understanding, and data, for all the potential Roman towns and ‘urban’ centres in and bordering Cambridgeshire (Godmanchester, Littleport and Great Chesterford, as well as Sandy and Royston) is a significant problem. This is an area where research is necessary and there is a need for reinterpretation in the light of the past twenty years of fieldwork in particular. These issues are beyond the scope of this ceramic-based study, but the results of the study will contribute to this future work. It is notable, however, that the later 4th-century date proposed for the defences of Cambridge may be matched by a comparable date for the walls of Great Chesterford.

Ritual activity at Cambridge

Table 5.4

As discussed above, the consolidation of Cambridge on a single urban centre does not seem to have taken place. The Castle Hill site appears to have been a centre of ritual activity, possibly of a memorial nature, like Folly Lane, *Verulamium* (Niblett 1999; Taylor 1999), and to lack typical ‘urban’ attributes. It is possible that the overall concentration of settlement activity in the Cambridge area remains diffused in the countryside here, at sites such as Arbury villa, Cherry Hinton and Addenbrookes.

Alexander and Pullinger (1999) recorded a considerable amount of ritual activity at Castle Hill which they acknowledged in their interpretation. Their report suggests, however, that there are many other instances of what appears to be ritual activity which are not cited as such. These are partly listed by Taylor (1999) but a more wide ranging list is given here to provide some support to the assertions about the special character of Roman Cambridge made above.

Table 5.4 shows a number of features which may be best interpreted as ritual in character or containing ritual elements, and shows that there is some chronological patterning to these. There are few deposits of Iron Age date and only a few more of 1st-century date which can be firmly attributed to ritual. Numbers of features and the quantity of material from them rise considerably in the 2nd century with the construction of the shrine. This trend continues in the 3rd century and, perhaps, into the early

4th with the ritual shafts, but some caution is necessary because of the uncertain differentiation between the contents of the shafts and later slumping over them in terms of the dating. The evidence re-examined here suggests that most of the shafts may have been filled by the early to mid 3rd century, with later material from them deriving from deposits accumulating as their original fills compacted. Few if any ritual deposits date to the later 4th century.

The shrine was prominently located, on the hill top, near a crossroads and directly connected by road to the bathhouse/*mansio* building. These characteristics suggest that it had relevance for a population beyond that of the 'town', while the fact that the area remained clear of houses suggests that it had long-lived significance (Taylor 1999, 80). It is also worth noting that the shrine developed in a central location in the so-called 'fort'. As shown above, this enclosure was nothing of the sort, and despite the lack of ritual deposits from it, it would appear to be the focus upon which the shrine developed. Taylor (1999) has pointed to the parallels with Folly Lane, St Albans (Niblett 1999) and these become even stronger now that the 'fort' is seen as an enclosure. Folly Lane had a ritual shaft and a pit with pyre debris with a memorial Romano-British temple subsequently erected over it. Esmonde Cleary (2000, 133-4) also points out that Folly Lane fits with a regional tradition of association of temples and burials, something taboo in the Classical world, 'appropriating the form of the Romano-Celtic temple for mausolea or other funerary purposes', with examples at Bancroft, Harpenden, Welwyn, probably Wood Lane End, and Lullingstone. These temple mausolea occupy prominent topographical positions, suggesting the importance of the associated individuals or family, reinforcing 'their dominance over the landscape within which the mausoleum was set and augmenting the legitimacy ... of living descendants' (*ibid.*).

Although there is no evidence for a founding burial at Cambridge, the model is attractive and evidence of a cremation may well not have been recovered. If the shrine related to a dead 'hero' rather than the gods, this might explain the lack of typical metal votive finds, something also seen at Folly Lane and Bancroft (excepting the spearheads), as they would not be appropriate to a dead 'hero' as opposed to a divinity. By contrast, such material was common at 'the many shrines around the fen edge' (Taylor 1999, 80).

A recurring theme in the ritual deposits from Cambridge is the use of the dog. The common occurrence of the dog in 'Celtic' religious iconography has been widely noted, for example by Ross (1974, 423-4) and Green (1992). Esmonde-Cleary (2000, 138) discusses a number of associations of ritual deposits of dogs and human burials, including the probable cenotaph Grave 400 at Lankhills which included one complete dog and parts of a second (Clarke 1979, 82-3), and the burial of a horse and two dogs (*recte* a horse, a dog and a juvenile red deer; Barber and Bowsher 2000, 19-20) in a pit perhaps focal in the development of the East London cemetery. The burial evidence seems to suggest that dogs may be used as a surrogate for humans. At Cambridge many of the shafts show an association of dogs and infant burials. The frequent exception of infants from the norms concerning separation of the living and the dead is well known (*e.g.*

Esmonde Cleary 2000, 136) and association with animals may have been a part of this.

In the way that dogs and infants are associated in the Cambridge shafts it is tempting to see the intent as a symbolic human offering. Merrifield (1987, 50-51) cites a number of probable Iron Age examples of human sacrifice. Green (2001) has more recently summarised the evidence for this in Britain and Northern Europe in the Iron Age and Roman periods (although her interpretations may veer towards the maximal). At the Iron Age shrines at Gournay and Ribemont in Northern France, animal remains associated with repeated cult activity were particularly of horses, dogs and cattle. Thus 'the repeated association of human, horse and dog remains in Iron Age deposits may have significance in terms of sacrifice' (Green 2001, 44). Human sacrifice was officially condemned in the Roman period, but dog and infant burials seem to be made in foundation contexts such as those that Merrifield cites for human sacrifice, and might have acted as acceptable surrogates. There is an interesting parallel series of dog and infant burials in late Roman pits at Silchester, three having dog remains and infants associated together and two of these having votive complete vessels (Eckardt 2006, 228). These seem to date to the 4th century. Merrifield (1987, 42-52) also cites a number of examples of dog burials in wells and pits, and as 'foundation' deposits. Examples have multiplied in recent work, but the occurrence of large numbers of dogs from a series of shafts at Springhead, Kent, is particularly notable (*e.g.* Andrews *et al.* 2011, 71-4).

VII. The Fenland 'Imperial Estate'

Overview

The existence of a fenland 'Imperial Estate' in the Roman period has become what Millett (1990, xvi) would describe as a 'factoid' – a received opinion, oft repeated, which has remarkably little basis of evidence. The question is of importance, however, as it has underpinned a majority of interpretations and assumptions about the archaeology of the fenland over the last 40 years or so. Salway (1970; 1981, 603-4) argued for the existence of an imperial estate on the silt fens based on the lack of villas and Romanised buildings. In origin this argument goes back to William Stukeley (1776) who saw the Car Dyke as a single integral canal system designed to ship grain to the northern frontier from the fenlands (see Chapter 1.III and Section V above), a view that Frere clearly shared as is made clear by his comment that 'grain cultivation was undoubtedly an important activity in the fens' (Frere 1974, 315).

Frere saw the Car Dyke as a single structure demonstrating government agency in 'a single programme of surveying and levelling over the whole wide region at one time' (Frere 1974, 313) within the context of reclaiming virgin territory as part of an imperial estate. He dated the Car Dyke to the Hadrianic period, following Phillips (1970), and linked its construction and the wider development of the fenland area to Hadrian's visit to Britain (Frere 1974, 314).

The Stukeley/Salway/Frere vision has encountered fundamental difficulties in more recent years (see also Chapter 1.III). First there are serious doubts (detailed above) over the possibility that the Lincolnshire Car Dyke functioned as a canal at all (Simmons 1979; Simmons and

Cope-Faulkner 2004). In addition, it has become clear that animal husbandry rather than grain production was of prime importance to the Roman fenland economy (e.g. Malim 2005, 169). At the Old Tillage site, as at the port at Earith, however, grain – originating from the surrounding areas of Southern and Eastern England – clearly formed a major part of the local economy and (as already noted) grain transportation may have been a primary function of the Old Tillage. Neither of these suggestions (i.e. the transport of animal products and grain) require the presence of an imperial estate in the fens.

If *Icenian* lands were seized and put into an imperial estate this must have happened in the aftermath of the *Icenian* revolt. At most, however, it can only have been the crown lands that were involved, for if all lands had been seized then Norfolk and much of Suffolk would also have been in the estate, and the *Iceni* would not have been a self-governing *civitas*. That they did enjoy this status is clear from the existence of their centre, *Venta Icenorum*, which is named in the Antonine itinerary. It is very difficult to conceive that *Icenian* royal lands consisted of all the fens in *Icenian* territory, and that to punish the *Iceni* the Roman state seized these marginal marshes, and left the *Iceni* with the much better land in Norfolk and Suffolk. Clearly the fens are unlikely to have been a single tract of royal owned land, or one of great interest to the Roman state.

Other aspects of the imperial estate hypothesis raise further questions; what had the *Corieltavi* done to have the western fen edge and the Lincolnshire fens seized from them? Interpretations such as Mackreth's (1996a, 233–4) which see the Lincolnshire Car Dyke as a *Vallum* marking the edge of the imperial estate, require this to have taken place (see also Simmons and Cope-Faulkner 2004, 26).

Malim likewise sees the Boudican revolt as resulting in impoverishment of the region and sees the seizing of *Icenian* aristocratic estates as involving the relevant part of the fens (Malim 2005, 129). The logical flaw with this argument is that in the 1st century the fens were fairly sparsely inhabited and fairly marginal lands. It is difficult to see, therefore, why these should have been aristocratic hereditary estates. In the aftermath of the revolt the Emperor may have legally taken ownership of the whole *Icenian* kingdom. This should have applied equally to the territory of the *Trinovantes*, who also revolted, but although this may have been the case, there is no evidence that the Emperor retained ownership. Indeed it is most improbable that under the new procurator Classicianus and the new Governor Turpilianus the mistakes which had triggered the Boudiccan revolt were repeated and that *Icenian* (or *Trinovantian*) lands were permanently held by the Emperor.

A second pillar of Salway's and Frere's hypothesis is that the lack of villas in the fenland demonstrates imperial ownership. While an absence of villas is undisputed, and makes the area unusual in the context of lowland Roman Britain (although there are comparable areas, such as parts of Shropshire and the Cheshire plain), the lack of villas may say something both about a lack of prosperity in the area, and about the social structure and landholding practices. In respect of the latter, Hingley's (1989, 100) analysis of elements of the silt fen landscape led him to identify 'girdle patterns' of settlement within cropmark evidence from the area (Hingley 1989, fig. 54). Hingley

suggested that the majority of Roman fenland settlements were of this form. Each 'girdle' comprised a roughly circular arrangement of sites, linked by trackways, surrounding a central block of land held in common, and usually consisting of the best (arable) land. The centre of this area would typically contain a 'parent' site from which the girdle sites developed as offshoots, reflecting an increasing population. Hingley saw such settlements as indicating common descent and control of areas of land by the community; land-holding was therefore based on the kinship group.

Fincham develops Hingley's interpretation of these settlement plans further, suggesting that their probably kin-based character was reflected in the girdle pattern as a partial survival of late pre-Roman Iron Age social structure. Iron Age settlement was clearly present in the silt fen. 'The existence of community structures as the basis for the silt fen landscape, and the fact that that structure is explicitly a colonising format, suggests that this population had an identity *as a population*: we are not dealing with disparate groups whom the Roman authorities saw fit to 'dump' in the region' (Fincham 2002, 30). In addition the girdle form accords with an unstable settlement pattern, which could have seen each generation of farmers setting up new sites, either within the 'girdle' or elsewhere, rather than individual holdings being passed on. Common ownership and kin based groupings were seen as characteristics which would encourage the existence of such a system (Fincham 2002, 30–31). The arguments Hingley and Fincham deploy seem very reasonable and could easily account for the lack of a villa landscape both because of the potentially shifting and temporary nature of the settlement (for which Section X below shows further evidence published by Lucas (2006c)) and because landholding was communal.

Millett has also attacked the concept of a fenland imperial estate on several grounds, rightly pointing out that 'although such estates were lands held by the emperor, there is no reason to suppose that they are archaeologically distinguishable from land owned by others. Crawford's discussion (1976) of the literary and epigraphic evidence for imperial estates shows a variety of methods of administration with nothing to lend support to the hypothesis that they were devoid of villas' (Millett 1990, 120–2). Indeed much further evidence of this can be gleaned from Jones (1964, 411–22) who makes it clear that imperial land was often leased out as individual farms/estates on perpetual (and therefore heritable) leases and, therefore, that such land might easily be expected to contain villa style buildings. Millett also argued that 'if virgin land was reclaimed for the emperor, we might expect it to have been evenly divided up by centuriation' (1990, 120–1). He dismissed a number of potential objections to this view, but on the subject of centuriation Potter responded that 'centuriation is nowhere properly attested as late as the 2nd century AD and in any case would hardly have been appropriate in a region with a myriad watercourses and largely devoted to stock rearing' (Potter 1996a, 688).

Fincham (2002) is fairly sceptical on the imperial estate argument and points out that Frere's (1974) 'new land' argument, is invalid, as increasing evidence of late pre-Roman Iron Age occupation on the fen islands, especially, shows the territory to be far from virgin (it also potentially invalidates part of Millett's argument about

centuriation, mentioned above). Neither does the chronology work well for Frere's argument about imperial appropriation of the fenland. The horizon of a variety of waterways (see 'Public Works' below) does not fit in the 1st century, nor do the better dated examples fit closely with Hadrian's visit to Britain, but belong to the late Hadrianic/early Antonine period, some 70–80 years after the Boudiccan revolt and the suppression of the client kingdoms, when the *Res Privata* might have acquired these lands.

Further variants on the imperial estate model suggest that lands were in imperial ownership because they were virgin territory, freshly raised from the sea, or because they were used for salt production and salt was an imperial monopoly. On this basis Potter proposed the fenland industry as a state-owned salt-works (Potter 1996a, 688). Millett's view is that the scale and geographical spread of evidence for salt working makes an imperial monopoly in Britain inconceivable (Millett 1990, 121). This may be so, but some state involvement in salt production in Britain is possible and its exact nature remains to be clarified.

The argument about the existence of an imperial estate in the fenlands has also become tied up with discussion of Stonea Grange, since Potter (1996a) saw it as an administrative centre of this putative estate. The function of Stonea Grange is discussed further below but it is not entirely consistent with the administrative centre thesis, although the evidence would not preclude the presence of a very small number of officials. However, whatever the function of Stonea Grange this does not resolve the issue of the existence or otherwise of an imperial estate. Similarly, pre-suppositions about the existence of an imperial estate have generated arguments about the role of *Durobrivae* relative to Stonea Grange (see Section VIII below).

Potential direct evidence for the existence of imperial estates, in the form of two inscriptions, is discussed by Malim (2005, 128). One is from Tort Hill, Sawtry (RIB 230); a limestone block reading 'PVBLIC', the other a boundary stone from Titchmarsh, Northamptonshire (RIB 3134), with the letters 'PP' which have been read as '(terminus) p(ublicae) p(ositus)'. The former is a fairly probable indication, but the reading of the Titchmarsh stone might be open to other interpretations. Taken at face value these stones could as easily suggest the existence of an imperial estate in the Nene Valley in Northamptonshire, rather than indicating anything about the fenland. Such an estate might have been associated with the very extensive ironworking found in this area (but see Schrüfer-Kolb 2004, 104–8).

To summarise, there is little real evidence for an imperial estate in the fenland and the existence of one should not be assumed, as it so often has been (Taylor 2000). It is in any case doubtful if such estates can be identified on archaeological evidence alone. At the risk of starting another hare running, however, it might be noted that what (little) epigraphic evidence there is suggests that an imperial estate (which is not necessarily a contiguous parcel of land; Jones 1964) might have existed to the west of the fenland in Northamptonshire. One could, mischievously perhaps, point to the strange 'villa estate' at Stanwick with its water mills and mechanical mills but no villa before the 4th century, the port at Earith, and even the evidence for the transport of grain and flour at Waterbeach as relating to this. However, more soberly, it is likely that

surplus grain from sites on the western and southern skirts of the fenland was being shipped and transhipped through the fenland, along with iron from the Nene Valley, prior to being exported on the East Coast trade route to the northern frontiers, whatever the organisational basis of these movements.

Public works

There is some evidence for major public works in the fenland area. Essentially these seem to come in two phases. The date of the fort at Grandford suggests that the Fen Causeway might be dated to the 1st century AD (c.AD 60), although Fincham (2002) suggests that part of it was constructed earlier. It is quite likely that the road was constructed or completed in the aftermath of the Boudiccan revolt of AD 61 to enable troop movements east into the fens and Norfolk from the west. Its role in the subjugation of the fens may have been even earlier, following the *Icenian* revolt of AD 47, when Stonea Camp may have been garrisoned (Malim 2005). There are significantly higher numbers of 1st-century sites along the route of the Fen Causeway than in the rest of the fenland. The pattern of the 'Romanisation' of the fens develops in the 2nd century AD and thus may also relate to the putative administrative centre at Stonea Camp (Malim 2005). The Fen Causeway connects islands running east from Peterborough through Whittlesey, March and west to Denver in Norfolk. Several canals were built to replace/replicate the road route, and the roads and canals superseded one another during subsequent years. The Fen Causeway forms the east to west top side of a triangle of Roman roads which formed the basis of land communications around the perimeter of the fens, with Ermine Street running north to south in the west and the later 2nd-century Akeman Street running south-west to north-east, also going to Denver (Fig. 1.2).

There appear to be a number of further broadly synchronous major civil engineering projects in the late Hadrianic–early Antonine period. In this period the Old Tillage and a series of other extensive cuts (Salway 1970, 11–12) seem to have been made and Akeman Street was constructed (see Digital Chapter 6). Malim (2005, 151) suggests that the Aylmer Hall canal was probably of 2nd-century date, but its chronology is not very clear. The samian lists from the Waterbeach Old Tillage site and from Littleport have very similar chronological profiles and these match the dating evidence for the major settlement phase of the fenlands in the Hadrianic–early Antonine period provided by Hartley (Phillips 1970).

The construction of the 'tower' building at Stonea Grange also falls into this chronological horizon. However, the samian ware does not suggest a direct connection of these works with Hadrian's visit to Britain (in the early part of his reign). The earliest material appears to date about twenty years later, at the very end of Hadrian's reign or at the beginning of that of Antoninus Pius.

There is some question as to whether these works were all undertaken with the resources of the *civitas* of the *Iceni*. Certainly they were organised at least at this level and not by the local residents of the fenland, as the completely intrusive architectural style at Stonea Grange amply demonstrates. A wider government interest could have been to enable the passage of goods and supplies bound for the northern frontier from territories abutting the

fenland to gain better passage through the fens. The scale of this second phase of works seems to suggest planning at more than a local *civitas* level, but this does not require direct imperial involvement, let alone imperial ownership.

Using Reynolds' (1995, 128) model of Roman Mediterranean trade (where the greater the frequency of trade in agricultural goods, the greater the range and quantities of pottery exported), it is interesting to note that the East Coast trade route had developed to such a level that it was economic to transport pottery to the north from the fenland within a decade or so of the major engineering works in the fenland. On Reynolds' model this would require the trade route to be in reasonably frequent use. There are indications of contact with the north via the East Coast route from the fenland area much earlier in the 2nd century (*cf.* Catterick (Evans 2002b, 264, SS3); a possible Godmanchester piece (*ibid.*, SS8) which might be in fabric W02 also appears at Catterick, but its date is uncertain) but not for an organised trade in pottery, presumably because it was not economic in that period. East Coast trade from its starting point in the Thames estuary, of course, had reached a level where it was economic to transport coarse wares to the northern frontier from *c.*AD 150, as the volume of BB2 in the north-east discussed above testifies.

VIII. Stonea Grange

The chronology of the Stonea Grange site has been discussed in Chapter 2, and some aspects of it in relation to the 'imperial estate' debate have also been noted in the preceding section. Potter suggested that Stonea was a 'forum', incorporating a temple, a market and administrative centre under military supervision and 'producing goods, especially salt meat, perhaps for the army and other state personnel' (Potter 1996a, 689).

The evidence from the Stonea pottery assemblage is interestingly inconclusive as to the nature of the site. The low level of decorated samian ware strongly indicates the lack of a military supply for this material, and the consequent absence of any substantial body of persons who could be described as military. The samian evidence is therefore not really consistent with Jackson and Potter's (1996) number of 'supervising' military staff, neither is it really consistent with a market, if that is meant to imply a fully urban type of function to the site. It may be consistent, however, with the site of a periodic market where supplies which were used on rural sites in the area were obtained, for the samian assemblage from Stonea is essentially a very large version of the sort of assemblage found on basic level rural sites. Another feature which might be expected at an official administrative site, but is apparently absent, are samian inkwells (Willis 2005). Equally rather lacking in the small finds assemblage are styli, with but a single iron example, although there is also a single seal box lid and, perhaps more importantly, parts of four wooden writing tablets (Jackson and Potter 1996, 544–7).

The amphora assemblage is rather different. Amphorae amount to around 1.5% of the total assemblage by count, and 7.3% by weight. These levels are below those of military sites (Evans 2001b, fig. 11) but fall within the small town range, and are well above levels found on basic level rural sites. Similarly the composition

of the amphora assemblage is more like that from urban centres than rural assemblages in which Dressel 20 is usually the only type represented (whether from actual use of olive oil or from reuse of the durable container). However, the amphora evidence again fails to suggest the presence of numbers of military personnel. Interpretation of the functional analyses of the larger groups is a little difficult because of the uncertainties over the evidence. However, in general they seem similar to those from rural rather than urban sites, but several groups appear to indicate ritual deposition. Potter (1996a, 689) suggests that the deposition of about 40 'whole but slightly damaged or worn pots', mainly in a boundary ditch on the east side of the principal block at the time of the demolition of the major stone building, reflected military practice. Alternatively, however, this can be interpreted as a ritual 'closure' deposit of the type now known in many places and is in fact characterised as such by Jackson and Potter (1996, 219).

This small settlement certainly had a temple (R15) on its outskirts, and the surface (metal-detector) collection produced several busts of Minerva, although Potter (1996a, 682) notes that none of these was precisely located, meaning that close association with the temple could not be demonstrated.

This brings us to the 'tower/basilica' building: structure R1. It does not seem inconceivable that the primary purpose of this structure was religious and indeed Potter (1996a, 681) cites a number of temple parallels for it. It also has an associated ritual closure deposit (above) like the other temple. Potter (1996a, 688) himself suggests parallels with another site, Baldock, perhaps with a religious focus. Close parallels between the construction of building R1 at Stonea and the temple at Autun have been indicated by Malim, who suggests an alternative reconstruction of the structure as a temple (Malim 2005, 107–8, fig. 50). It is also striking that the building at Stonea already accepted as a temple appears to have exactly the same chronology as structure R1.

Michael Green (2005, 130–32) suggests a reinterpretation of the site primarily as a sacred centre with one major Romano-Celtic temple (the 'tower') and at least one other temple building (R15). The related structures would then be seen to be associated with market/fair functions centred on a sacred complex. The abandonment of the main temple and its subsequent demolition by the early 3rd century is seen as reflecting economic developments, the closure of the market/fair in turn bringing the use of the temples to an end.

Other material evidence from the site tends to bear out the ceramic evidence. Stallibrass (1996, 591–4) argues for a relatively un-Romanised diet based on a high proportion of sheep bones compared to the consumption pattern suggested for different types of site by King (1988). At the same time the bones were seen as indicating production of 'a highly marketable commodity; prime meat from lambs and sheep and, possibly, from pigs too' (Stallibrass 1996, 605), thus associating a large part of the economy of the site with agricultural production and sale. A pastoral economy principally based on rearing sheep seems to have been dominant across the fenland (Malim 2005, 169).

The site has a strong coin list with 900 coins and small finds include a number of steelyard weights associated with measurement that suggest a commercial use. However, as Malim (2005, 124) indicates, the

preponderance of low denominations in the coinage again suggests an absence of military personnel in the area, like the samian list (see Digital Chapter 6). The brooch assemblage is also of note. The majority of the 95 brooches date to the 1st century, but the buildings on the site are Antonine or later. Brooches, of course, were much more common in the 1st century than in the 2nd and later centuries, but the scale of pre-Antonine activity on the site is very slight. The relatively large numbers of early brooches does bring to mind their use as votive objects, particularly when the site is in such close proximity to Stonea Camp. It may be worth noting that the brooches include a horse and rider brooch (Mackreth 1996b, no. 83). This 2nd- to 3rd-century type is often associated with temples and it has been suggested that it possibly comprised part of priestly regalia. The other feature of note is the seven crossbow brooches. In the late Roman period these formed part of military and civil service uniform. This number does tend to suggest some official connection at the site in this later period. Cool notes of the metalwork that 'there are a few 3rd-century finger rings, the bracelets are 2nd-century forms that can go into the 3rd, but there are no 4th-century examples, which are normally very prolific on 4th-century sites, and the same applies to the hairpins. There are the bits and pieces of late crossbows, and odds and ends of the belt equipment that would go with them – but they seem to stand in splendid isolation' (H. Cool, pers. comm.). Thus the small finds evidence tends to confirm the ceramic evidence in suggesting a dearth of 4th-century activity, the one exception being the group of crossbow brooches and militaria, although, as with the coins, these late pieces come primarily from the surface collections from the area 'around the excavations', and not necessarily from the excavation location itself.

Price (1996) notes that the glass from Stonea dates from the early 2nd to the early 3rd centuries and Cool (pers. comm.) confirms this restricted date range. This is quite consistent with the dating of the pottery assemblage used here, but is inconsistent with the excavator's proposed chronology for the site. As Price observes, glass bottles were relatively rare in the assemblage, only accounting for 17.3% of fragments or around 19.7% of vessels, whereas they usually form around 40% of assemblages. The commonest types at Stonea were drinking vessels, representing around 41% of the vessels in the assemblage. Cool and Baxter (1999) have demonstrated that assemblages of this date tend to be of two different types, a high status one found on urban sites and high-status sites in military establishments, based on drinking vessels, and a low status one found on rural sites and in military barracks based on bottles. Thus the Stonea glass usage pattern appears to be more of an urban or high status one. However, as we have noted there is much evidence here of the site having a primarily 'ritual' emphasis and it may be that this pattern is appropriate for a temple site. More data are clearly needed to establish patterns of use by site type in detail.

The Iron Age material from Stonea may also be significant in considering the purpose of the settlement. The Roman temple (R15) seems to have had an Iron Age predecessor (Jackson and Potter 1996, 70). There is also a site list of fifty-nine Iron Age coins, and the 'Field Baulk' hoard containing 872 Iron Age coins (Potter 1996b). Some 84.5% of the Iron Age coins in the Stonea Grange

site list were *Icenian* and 12% from other sources. The Iron Age coins from Stonea Grange include 15% contemporary 'forgeries', a high proportion also seen on temple sites such as Hayling Island. Chadburn comments on the Grange list that 'other large assemblages of Iron Age coins are known from Romano-British temple sites such as Hayling Island, Harlow and Wanborough, and from high status sites such as *oppida*' (Chadburn 1996, 274). It is very doubtful that Stonea Camp could be described as an *oppidum*, but its claims as a pre-Conquest temple site would seem quite strong. The coinage therefore suggests a religious focus on the site before the foundation of the Roman settlement. Fincham (2002, 52–3) makes similar points and draws attention to the presence of human bone scattered between contexts here.

Overall the material evidence for the Roman period, particularly when seen in the context of the Iron Age material from the site, shows a site which was of more than basic rural level, but does not have fully urban characteristics. Thus amongst the pottery there are very low levels of decorated samian ware and the functional analysis of groups which do not appear ritual tend to fall into a rural range. However, a surprisingly wide range of amphora types is found, a feature which is not generally paralleled except on urban sites. The quantity of coinage suggests a considerable volume of low value exchange on the site, whilst, like the pottery, offering no support to the supposed military role here in the 2nd century. Green's (2005) suggestion that Structure R1 is a temple and that the site is a shrine complex, like others in Gaul and Britain, seems to this author to make the best fit with the Roman material evidence. It is also most consistent with the evidence of the Iron Age material from the site.

IX. *Durobrivae* and the Administration of the Fenlands

It has been argued that 'only *Durobrivae* stands out as the natural centre for the fens and it is here that the major administrator should have carried out his business' (Mackreth 1996a, 234). As the second part of the sentence indicates, there is a fundamental presupposition here that the fenland was a single 'imperial estate', an assumption subject to much question (see above). This assumption has led to a debate over whether Stonea Grange or *Durobrivae* could have been the centre of this supposed 'imperial estate'. Fincham claims 'it is clear from later ceramic preference in this area (Mackreth 1996[a], 235), and from the development of the regional communication network, that by the 2nd century the central fens was orientated towards the western fen edge and *Durobrivae*, rather than the civitas of the Icenii' (Fincham 2002, 72). Mackreth in fact says little more than that Nene Valley colour-coated wares were found in profusion in the fens. They are undoubtedly common across the study area, but Nene Valley products are much more common in the sites around the Nene than in the central fen islands. Also, if pottery supply reflects administrative control in the region, and Fincham (2002) offers no evidence as to why it should, here or elsewhere, then the supply of Horningsea wares along the Cam would suggest the eastern fen edge was administered from Cambridge, a novel, but improbable suggestion. As to the Fen Causeway, it does indeed connect the central fen islands with *Durobrivae*, but it also connects them with Norfolk and the *Icenian*

heartlands. The route seems to date to around the time of the *Icenian* revolt and is closely connected with the fort at Grandford (see Section VII above). It is likely to be a post-revolt instrument of military control, improving communications across the fens, presumably for military (rather than administrative) purposes.

Fincham also observes 'It is possible that this area was detached from the *Iceni* in AD 47, following a relatively minor uprising (Jackson and Potter 1996, 677) however, the Grandford fort, and the Fen Causeway linking the area directly with Longthorpe, only emerged after the later Boudiccan revolt... This makes sense; the opportunity to detach the central fens from the *Iceni*, and re-organise the area would have been greatest in the years following the failure of the widespread uprising. One motivation might have been to remove the potentially valuable salt production of the area from the control of a hostile tribe, and place it under the same authority as the South Lincolnshire saltern sites' (Fincham 2002, 73).

The dating of the fort at Grandford is discussed above (Section VII). It seems to have been occupied through the Flavian–Trajanic period, and occupation may have extended into the Hadrianic period. In this period the central fen islands may well have been under direct military administration or supervision, but whether or not they could have been administered from *Durobrivae* is unclear as so little is known about the earliest phases of the town. As to salt production, the case for an imperial monopoly has been questioned (Millett 1990, 120–1; Taylor 2000, 655) and the south Lincolnshire saltern sites seem more probably to have been under the control of their adjacent coastal communities and landowners, as Fincham has already implied in discussing the functioning of the Lincolnshire Car Dyke.

To go back to the origin of this potentially false debate, it is only relevant if there was an 'imperial estate' covering the fenlands. As has been discussed above, there is still no clear explanation of why the imperial authorities should want this rather marginal land, or why they should have seized the western side of the fenlands held by the *Corieltauvi*. That the central fen islands were in the territory of the *Iceni* is probably demonstrated by the Stonea field baulk hoard (Potter 1996b), and the absence of 'Belgic' wares in any quantity from the southern fenlands probably suggests these areas were under *Icenian* influence. This division of the fenlands is largely preserved in later pottery distributions, with Nene Valley products dominant on the western fen edge and fens, but Horningsea dominant in most of the central fen islands and the Cam corridor. It may be that in the post-Boudiccan period there was direct military control, from the fort at Grandford for example, but no-one has provided any logical explanation as to why the imperial authorities should retain marginal land in the fenlands in the Hadrianic period (when Boudicca was long forgotten), but not in Norfolk.

It seems likely that the central fen islands and the eastern fens remained part of the *Icenian* polity, although the apparent 'hard-boundary' to pottery distributions on the eastern fen edge would suggest some separation of the fenland population from that of the group in Norfolk. These patterns, however, shed little light on a possible fenland administrative function for *Durobrivae*.

X. The Fenland Landscape and Settlement Patterns

Fig. 5.9

The fenland landscape has been a focus of scholarly attention over a long period, modern study commencing with the work published as *The Fenland in Roman Times* (Phillips 1970). The most recent major review has been that of Fincham (2002), which examines the evidence for settlement in the fenland and its skirt from a post-colonial perspective. This work was also summarised in a wider context (Fincham 2004), while Malim (2005) covered much of the same ground from a more traditional viewpoint. Upex (2008) has added further discussion with a geographical focus on the lower Nene Valley. Fincham's doctoral survey is the most detailed of these pieces of work and is considered at some length here. There are, however, major problems with his dating of many of the sites because he derives dates from the Fenland Survey and *The Fenland in Roman Times* (Phillips 1970), although Lucas (Lucas 2006c) has now shown the latter to be quite unreliable. In the absence of reliable dating evidence Fincham has assigned sites to his Period 2 (AD 101–250) and Period 3 (AD 251–350), 'where no more detail than the presence of samian or Nene Valley colour-coated ware was available' by categorising 'samian as belonging to Period 2, and Nene Valley colour-coated ware to Period 3' (Fincham 2002, 18)! Nene Valley colour-coated ware was, of course commonly available in the area from AD 150/60 to AD 400+, so that using it as an index of Period 3 will artificially enhance numbers of settlements assigned to that period and depress numbers assigned either to Period 2 or to the later 4th century. Samian ware was commonly available between AD 70–200 and frequently occurs on 3rd-century sites, thus confining it all to Period 2 potentially distorts the picture in relation to sites of later 1st-century date. These issues significantly compromise the value of Fincham's work. It comes as no surprise that Fincham's Periods 2 and 3 are apparently the most frequently represented in all his study areas. It must be questioned, therefore, if the apparent trends are remotely valid, and Fig. 5.9, from the small sample of sites in Bromwich's survey (Phillips 1970) redated by Lucas (Lucas 2006c), shows a very different pattern.

Fincham takes a useful, novel approach to the examination of site status (2002, 19–20), incorporating attempts to measure the presence and deposition of portable wealth, based on the Iron Age tradition of depositing portable wealth in 'watery places', as well as architectural elaboration, for which his choice of the presence of roof tile might prove to be quite a useful indicator (*cf.* Mills 2006c; Mattingly 2006, 385). Fincham's examination of site chronology has interest, although serious weight ought not to be attached to his conclusions. He undoubtedly makes a good point in seeking to shift emphasis onto the number of sites starting and being abandoned in any period rather than just emphasising the aggregate totals in each period. This emphasises the apparently fairly short-lived occupations on very many sites in the area, and the much better dated small samples from Willingham Fen (Lucas 2006c) bear out his conclusions in this regard.

In terms of site status, Fincham comes to the unsurprising conclusion that higher status sites, whether defined on the basis of portable wealth or building

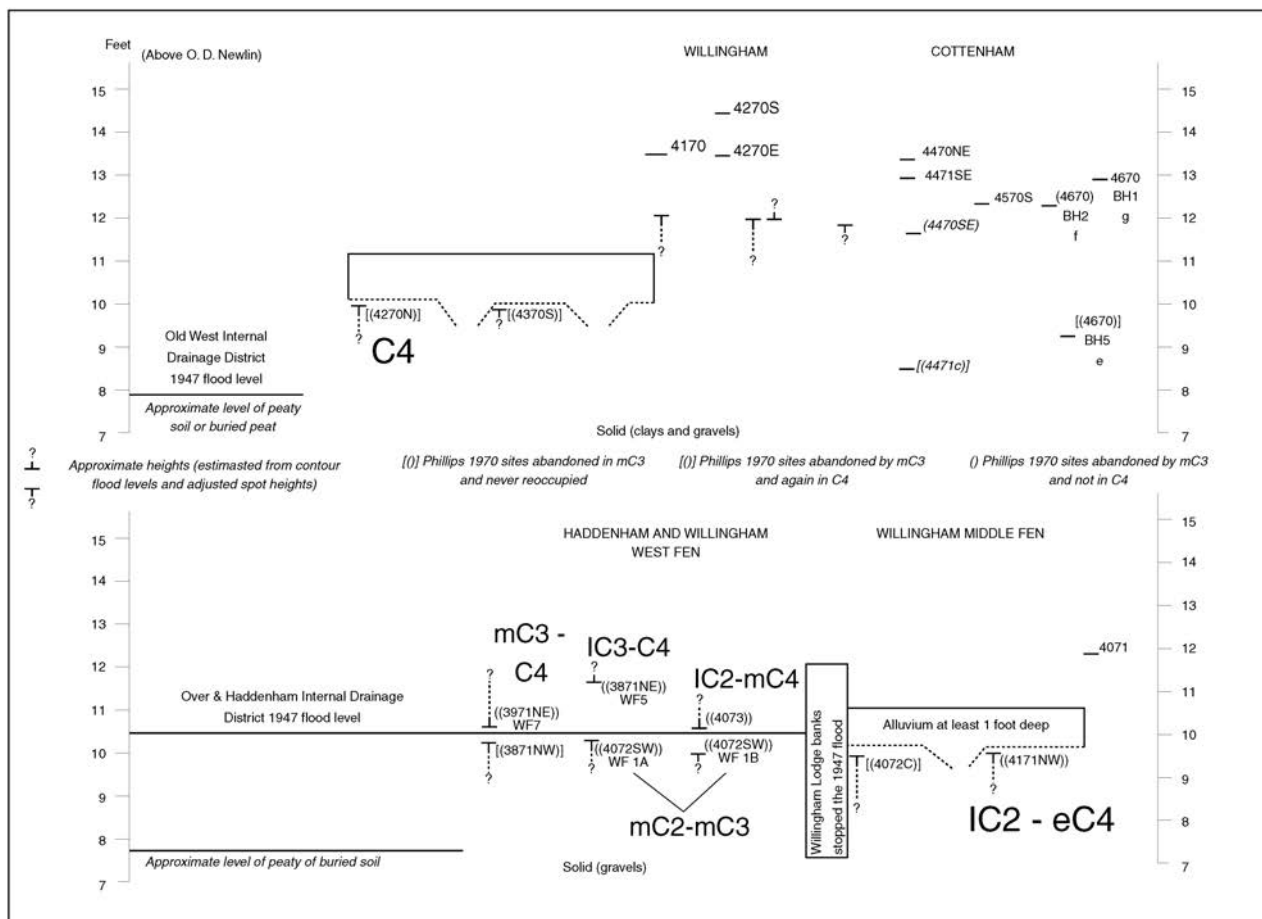


Figure 5.9 Levels of sites in the fens, after Phillips 1970 fig. 5a and b, with revised dates

material, concentrated at the fen edge rather than elsewhere (Fincham 2002, 25). The majority of these sites were of the ‘architectural elaboration trend’, with some identified on the basis of portable wealth and a few combining elements of both, but rather than being evenly distributed they clustered in three major zones. The first of these is in the area where the River Nene enters the fens, with portable wealth finds ‘concentrated roughly along the line of the Fen Causeway between the Longthorpe fortress and the fen edge’. The second is south of the fens around Cambridge and a third associated with villas on the Norfolk fen edge to the east. Within the central fens is a concentration of portable wealth, while on the fen islands architectural elaboration was the principal criterion for defining ‘status sites’ (Fincham 2002, 25). Away from the fen edge sites where architectural debris has been recovered are predominantly on the silt fen, while sites with a high level of portable wealth cluster on and around the central fen islands. This is interesting in the context of the religious complex at Stonea and the habit of making votive deposits in ‘watery places’ (Fincham 2002, 33).

Settlement morphology in the fenland has been reviewed by Fincham, who divides the area into a series of ‘communities’, explicitly rejecting the use of geographically determined environmental blocks (Fincham 2002, 30). ‘Communities’ are, however, discussed in terms of the environmental block, largely at the level of each block as a whole. He notes the frequency of saltern sites in the silt fens, and provides a useful discussion of the complementary nature of an economy based on salt

making and sheep rearing, with a farming year which would see lambing in March–April followed by salt making in May–September, followed by the autumn slaughter. An hierarchical relationship between the Lincolnshire sites and *Durobrivae* is posited, but could only have been valid from the middle of the 2nd century and it is much more likely that these sites were dependent on villa sites to the west. Fincham also has conflicting opinions about the imperial estate model. While generally dismissing it, he interprets a series of ‘status cores’ in many of the silt fen communities as estate centres with an administrative function in relation to the generation of surpluses of salt and salted meat (Fincham 2002, 50). This is a variant of the directly administered imperial estate model, although these sites could have been controlled by communities on the fen edge, and potentially by large landowners there.

In his discussion of the central fens, Fincham includes a section titled ‘A landscape of control’ in which he discusses the Fen Causeway and the fort at Grandford, ultimately in terms of ‘a military road secured by forts, perhaps occupied by units responsible to Longthorpe’ (2002, 58–9). Direct military occupation was the initial means by which the central fens were brought into the sphere of Roman administration. Digital Fig. App. 1.4 shows the date distribution of the decorated samian ware from Potter’s excavations at Grandford (Potter and Potter 1982). The quantities of this material are comparable to those from military associated sites and for the Neronian–Trajanic period strongly suggest that there was

a nearby fort (see Digital Appendix 1). The level of decorated ware in the Hadrianic period is also higher than might be expected. The evidence suggests that the fort was occupied in the Flavian–Trajanic period, and that occupation possibly continued into the Hadrianic period. Thus the units here are post-Boudiccan, but too late to be controlled by the now evacuated fort at Longthorpe (Frere and St Joseph 1974, 38) as Fincham suggests.

The creation of the Stonea Grange settlement is viewed by Fincham as the ‘next important development in the ‘official’ landscape’ (Fincham 2002, 60). He briefly discusses the nature of Stonea, quoting Mackreth’s (1996a, 234) view that *Durobrivae* was the administrative centre of the area (in fact Mackreth’s preference was to place this activity in the building complex at Castor, not in *Durobrivae* itself; see Upex 2011), and goes on to paraphrase Jeremy Taylor’s (2000) view of Stonea building R1 as ‘an administrative response for the area, but one generated by those that have most to gain – the elite at *Durobrivae*’, while suggesting that if the regional elite was the principal driver their centre would have been better located at Grandford or Flaggrass (Fincham 2002, 60). Fincham’s latter suggestion might have validity if the primary purpose of Stonea had been administrative, but given the evidence that it may have been religious, the relationship to Stonea Camp and the existing landscape seems most important, a point also made by Taylor (2000, 658). However, Fincham and Taylor are surely right that the local regional elite was involved in the construction of Stonea building R1, so out of tune with the fenland vernacular architecture, although which elite (and from where) are more open to question.

Fincham (2002, 61) observes that ‘superficially the ‘fen edge’ seems to be a self-explanatory category’, noting that Salway (1970, 2) placed the boundary at the 25ft contour. Fincham divides the fen edge into three communities. Settlement around *Durobrivae* is ascribed to Community 7. As noted earlier Fincham here makes a persuasive case that the saltern sites were closely linked to communities on what Salway termed the ‘skirtlands’. It seems very likely that property owners here owned the salterns. That these were administered from *Durobrivae*, as Fincham suggests, is another question. His Community 8 is identified as being focused upon Cambridge, which he defines as a ‘local centre’ (Fincham 2002, 62), while Community 9, on the eastern fen edge (assigned by him to the territory of the *Iceni*), is seen as being of a different character from the other fen edge communities in comprising diffuse settlement not focused on an urban centre, except perhaps insofar as Hockwold-cum-Wilton (Gurney 1995, 61–66) may perhaps be considered in these terms. What is perhaps of particular interest here is the association of both Cambridge and Hockwold with foci of religious activity, which might suggest connections of a specialised type rather than in terms of administrative relationships.

XI. The Great 3rd-century Fenland Flood

Figs 5.10–5.14; Table 5.5

In *The Fenland in Roman Times* a case was made for a major retreat in settlement in the 3rd century owing to freshwater flooding: a catastrophic flood on the model of those which occurred in 1947 was envisioned, largely on the basis of the distribution of dated sites in the Cottenham

area (Phillips 1970, figs 4a–4e, reproduced here with additional information from Hall 1996, fig. 67 as Figs 5.10–5.14) and on the basis of freshwater silting evidence from many sites. This event has continued to be considered in discussions of the Roman fenland (e.g. Potter 1981 and Lucas 2006c).

On the Cottenham maps, settlements develop from the Flavian period until c.AD 160, but apparently largely disappear c.AD 240, reappearing in numbers again c.AD 320 and continuing in reasonable, if slightly lower, numbers to AD 400. It was argued that the flood (or floods) was coincident with the political and economic difficulties of the 3rd-century crisis, and that ‘successful reoccupation’ of the late 3rd and early 4th centuries was consequent upon the restoration of military and political stability and the capacity for government to reassert control of the landscape (Phillips 1970, 122–4).

In discussing fenland settlement in general, Fincham (2002) argues that in all periods there is a high rate of site failure and a high rate of site foundation, rather than stable continuous occupation on many sites, and does not discuss a catastrophic environmental model. However, the dating evidence employed in his study is so broad that it would not necessarily pick up the sort of event proposed in *The Fenland in Roman Times*. The period advanced by Hartley (1970) for the chronological gap (AD 230 to AD 270) is not one that is easily defined by the ceramics even today, and the supposed missing type fossils described (Phillips 1970, 116) do not appear to be common types: their absence in relatively small collections is therefore not necessarily significant. A very important study by Lucas (2006c) has reviewed much of the core evidence on which Figs 5.10–5.14 were based. It is clear from his work that the dating of these sites in the 1960s often requires revision in the light of subsequent scholarship. Lucas identified two problem areas in Hartley’s dating; the dating of the earlier pottery and the isolation of an early to mid 3rd-century gap in the pottery sequence. With regard to the first of these, it is clear that the dating of 2nd-century groups is dependent largely on the presence of samian ware, which could have continued in use rather later (Lucas 2006c, 449). Lucas goes on to note the lack of any 2nd-century coarse wares accompanying the samian in many cases and points out that taking the samian in isolation from the coarse pottery has led several collections to be dated too early. Turning to the ‘gap’, Lucas correctly observes that ‘the ‘missing’ half-century was always there, it just looked very similar to the preceding one’ and that ‘seen in this light there is no strong evidence for a major, catastrophic hiatus of fen-edge sites at this time’ (Lucas 2006c, 450).

The Fenland in Roman Times was written at a time when the Roman engineering works in the fens, linked to the expansion of settlement of the area as sea levels fell, particularly on the silt fens, possibly combined with some limited freshwater management through the Old Tillage (formerly Car Dyke), other canals and the Lincolnshire Car Dyke catch-water drain, were perhaps seen as more closely analogous to the modern drainage works there than they are today. Thus a modern example of systemic collapse, as seen in 1947, seemed an appropriate analogy, rather than seasonal floods of greater or lesser intensity. Views of the ‘3rd-century crisis’ have also changed since the 1970s, although consensus is lacking. In economic terms this might have had a relatively limited effect on an

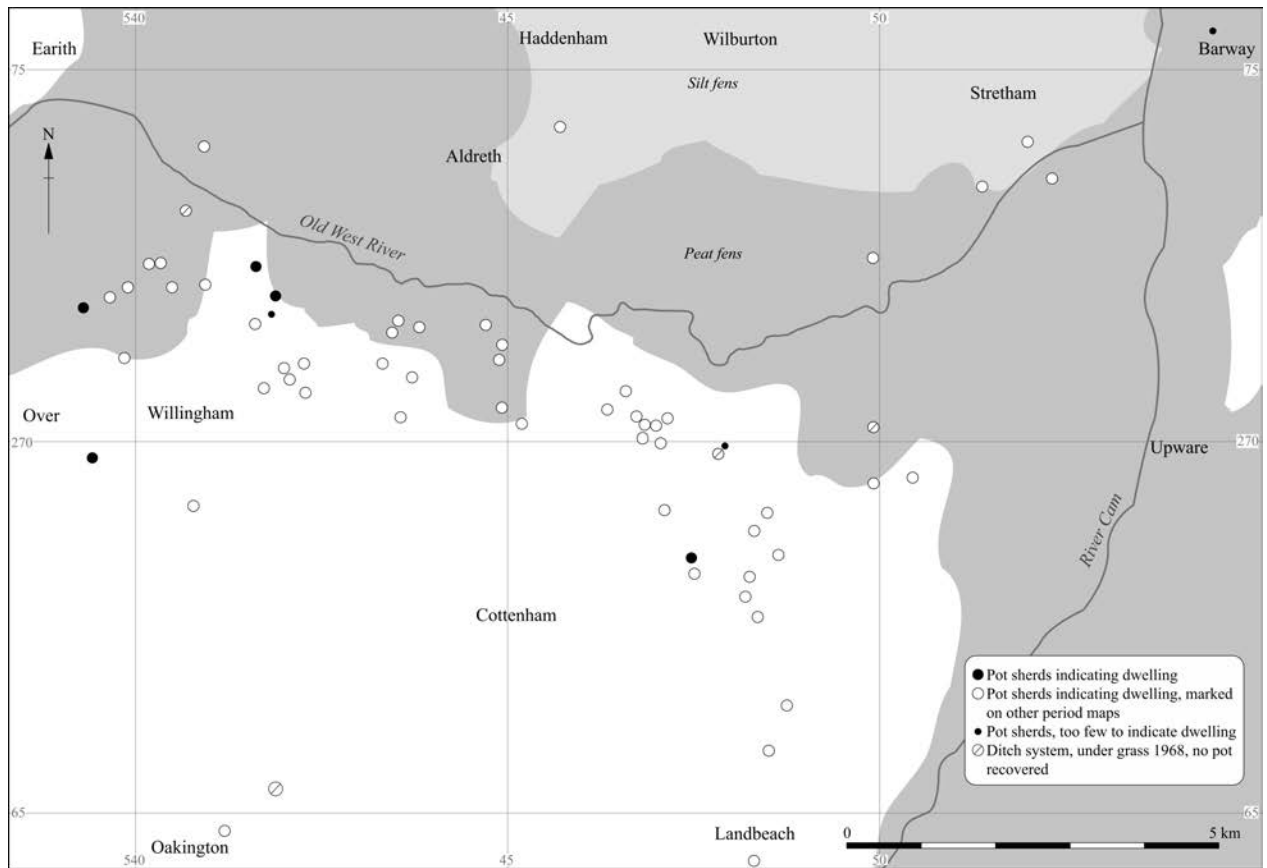


Figure 5.10 Dated sites in the Cottenham area, AD 80 (after Phillips 1970, fig. 4a and Hall 1996, fig. 67).
Scale 1:100,000

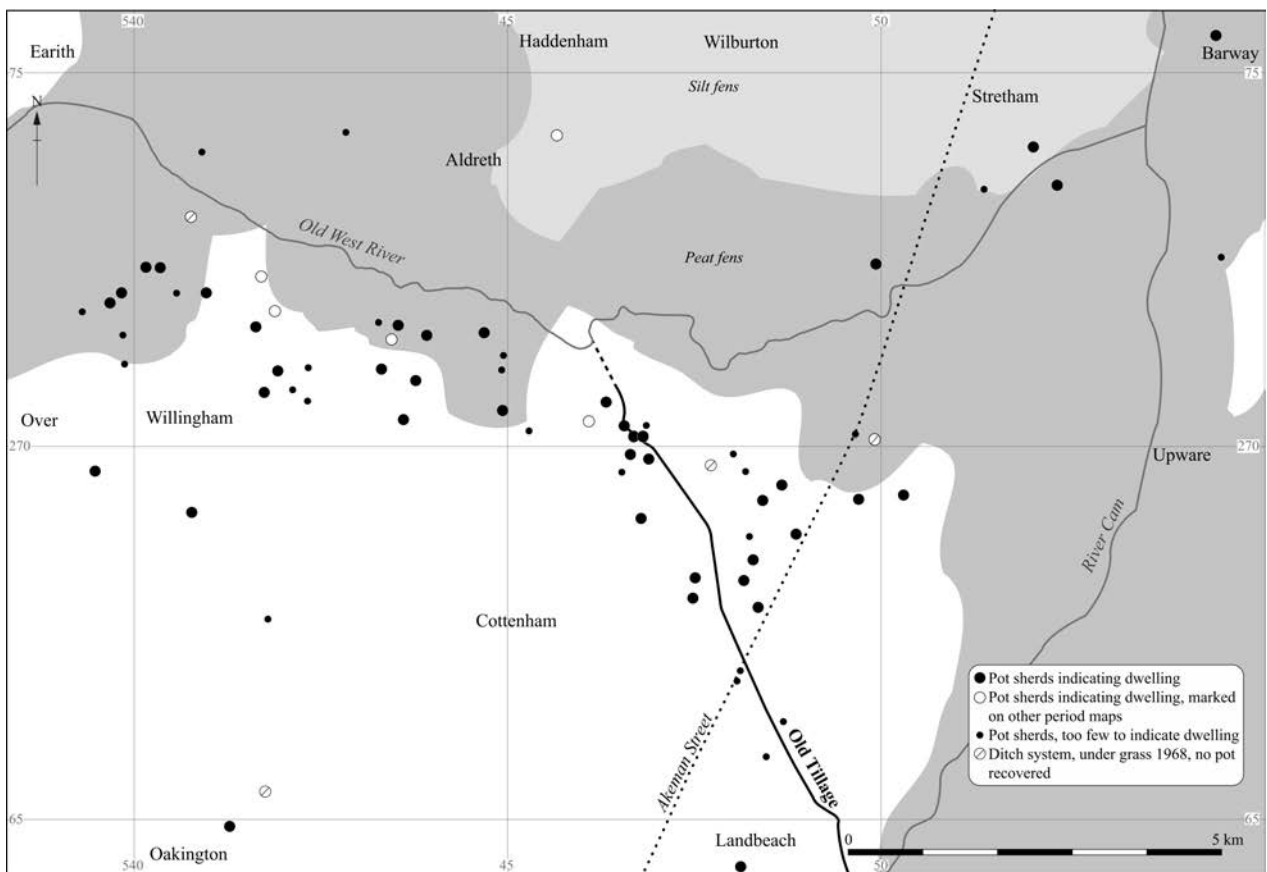


Figure 5.11 Dated sites in the Cottenham area, AD 160 (after Phillips 1970, fig. 4b and Hall 1996, fig. 67).
Scale 1:100,000

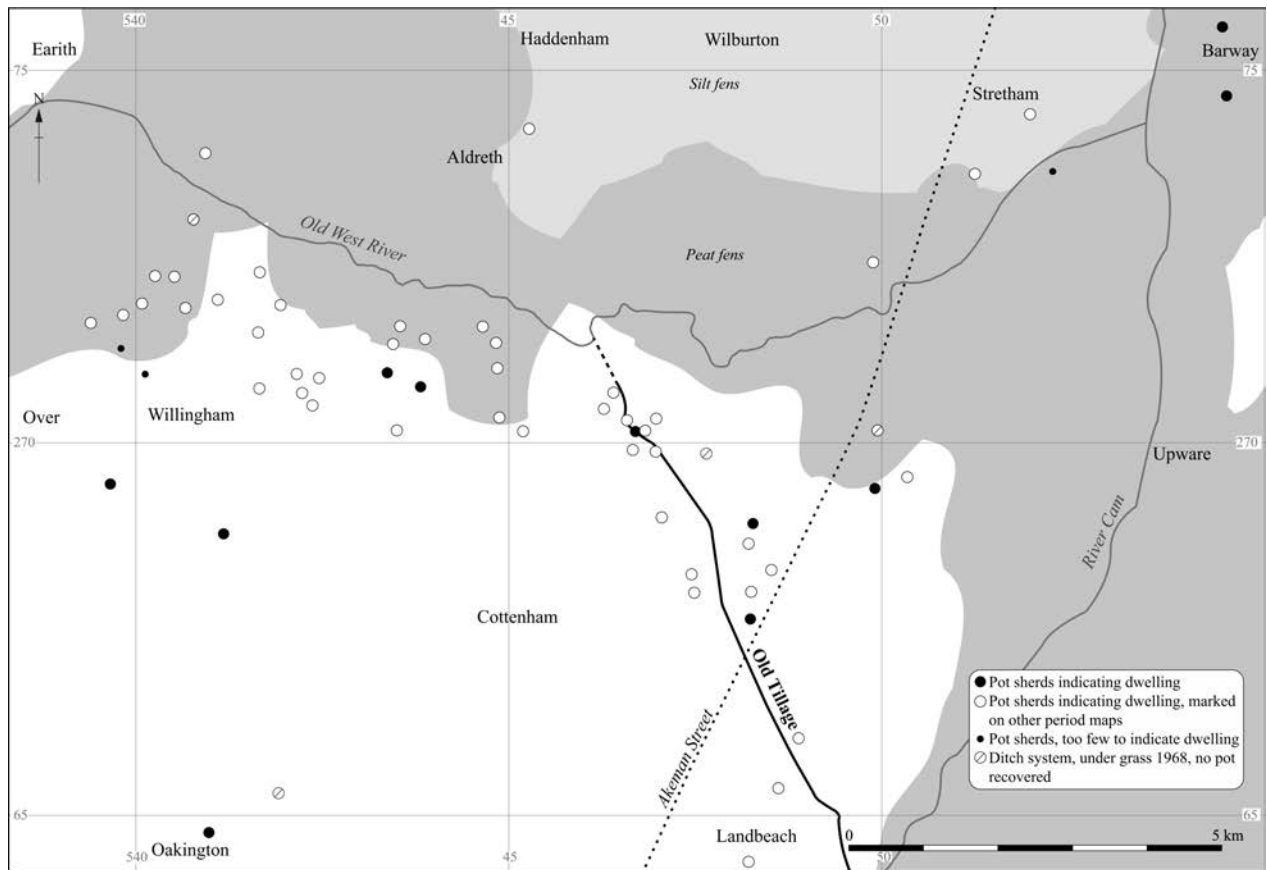


Figure 5.12 Dated sites in the Cottenham area, AD 240 (after Phillips 1970, fig. 4c and Hall 1996, fig. 67).
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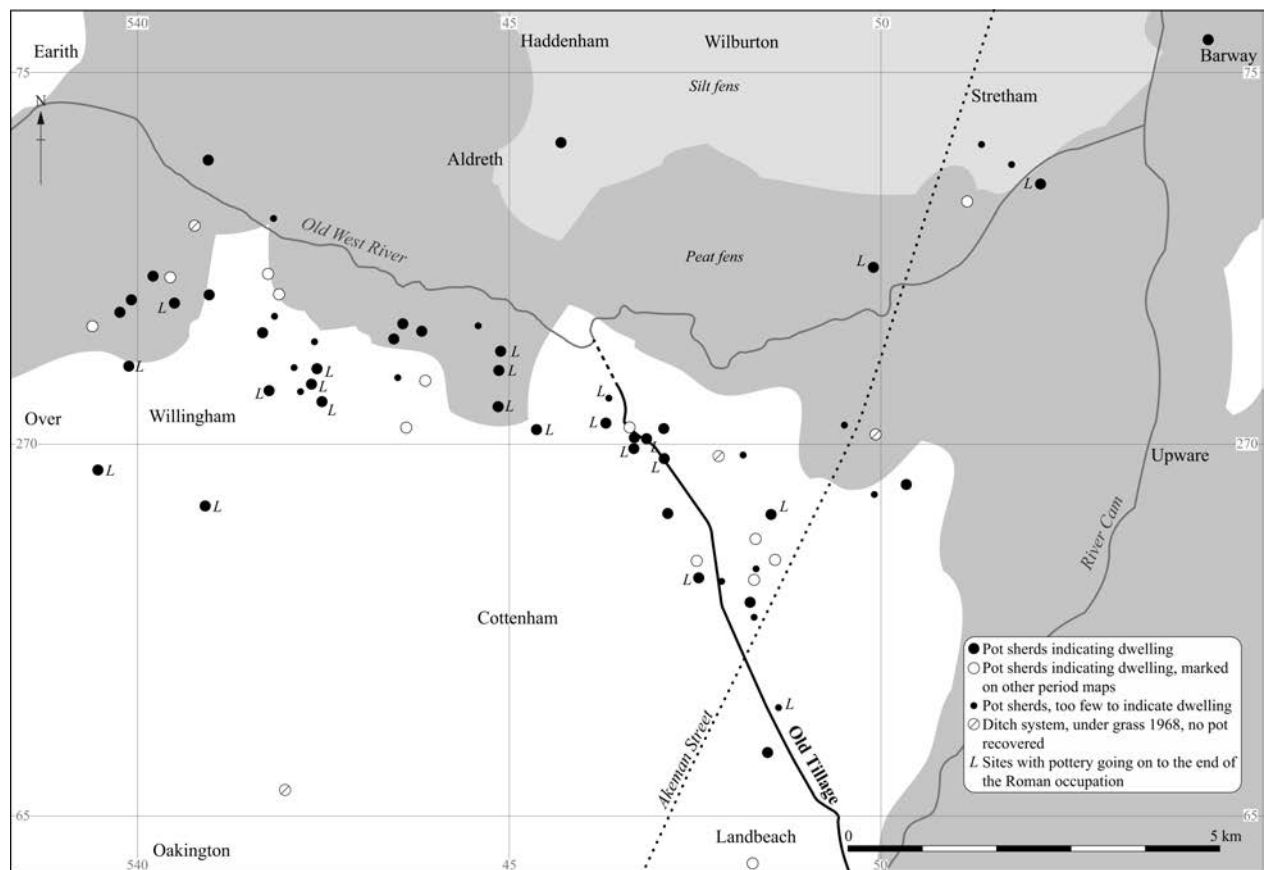


Figure 5.13 Dated sites in the Cottenham area, AD 320 (after Phillips 1970, fig. 4d and Hall 1996, fig. 67).
Scale 1:100,000

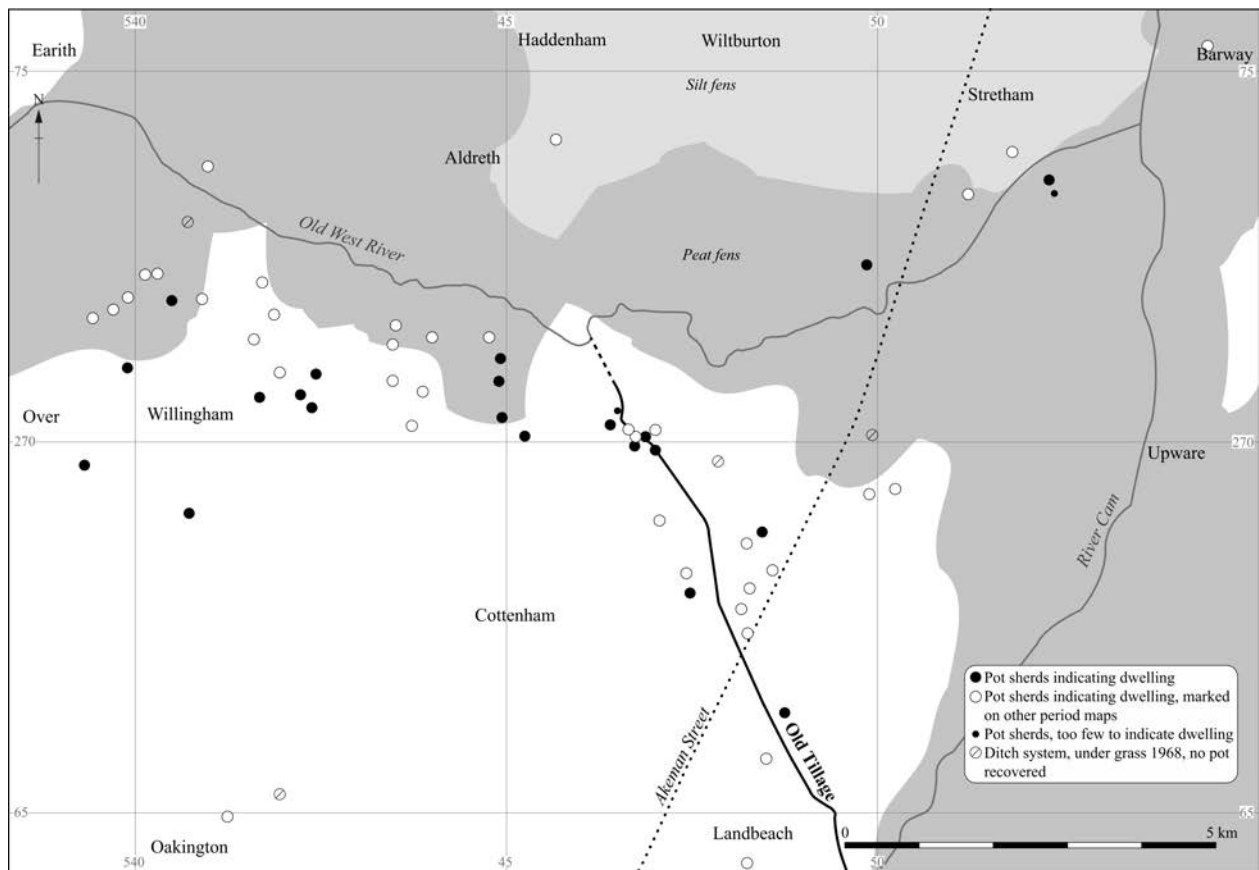


Figure 5.14 Dated sites in the Cottenham area, AD 400 (after Phillips 1970, fig. 4e and Hall 1996, fig. 67).
Scale 1:100,000

agricultural society which could easily revert to barter and the valuation of precious metals.

On the basis of Lucas' re-dating of assemblages collected by John Bromwich in the 1950s he identifies 'a tendency for the earlier ones to be at a lower elevation with a successive shift upslope' and concludes that there was a process of 'gradual encroachment of the fen upslope throughout the Roman period' (Lucas 2006c, 450).

Table 5.5 takes the data from the twenty-three sites dated by Lucas in his fig. 8.20 and plots their extent in date order. There is but a single site dated to the later 1st century (Queensholme), while there are five sites assigned to the earlier 2nd century. Site numbers peak at twelve in the later 2nd century, falling to nine in the earlier 3rd and six in the later 3rd, before peaking again at ten each in the earlier and later 4th century. Numbers then fall to four in Lucas' early 5th-century group, but pottery types which may be put in this class are few and it is probably a much less reliable figure than the others. The bimodal distribution is very clear and an interesting contrast with Fincham's (2002) data where a massive fall-off in site numbers is claimed by the 4th century. Table 5.5 does show how most of the sites were relatively short-lived, with not one extending throughout the Roman period. In this respect the data are consistent with the pattern indicated across the wider fen area by Fincham (2002). The highest numbers of sites coming to an end do, nonetheless, fall in the mid 3rd and the later 4th centuries. However, in the former case this is a reduction from the overall settlement peak in the Antonine period and may

well represent the abandonment of more marginal sites following the major expansion in the Antonine period.

As we have seen, the settlement dating evidence reconsidered by Lucas removes the chronological basis of an argument for a catastrophic flooding episode in the early 3rd century as proposed in *The Fenland in Roman Times*. However, that does not necessarily apply to the post-Roman period. Phillips' (1970) figs 5a and 5b both show deposits of 'alluvium at least one foot deep' sealing sites 4270(N) and 4370(S) and similarly sites 4072C and 4171(NW). Site 4270(N) is now dated to the 4th century and Site 4171(NW) to the later 2nd to mid 4th century (Lucas 2006c, 449 and 447 respectively). Thus, both of these deep alluvial deposits would seem to date to the post-Roman period.

XII. The late Roman period

The end of the 4th century

In discussing later Roman pottery supply to Towcester, Woodfield (1983, 79) first observed an interesting phenomenon, an absence of locally produced pottery and its replacement by material from large non-local industries. A fairly similar picture emerges in Essex, with small production sites in decline. At Chelmsford these late contexts were characterised by significant changes in fabrics, but not in typology, which could be interpreted as indicating 'either a healthy economy, or increasing competition for a shrinking market' (Going 1987, 118).

Site*	AD 50–100	AD 100–150	AD 150–200	AD 200–250	AD 250–300	AD 300–350	AD 350–400	AD 400–450
4								
3								
1								
6								
5								
11								
14								
12								
9								
8								
2								
10								
15								
16								
17								
18								
21								
20								
22								
19								
23								
25								
24								
No. in occupation	1	5	12	9	6	10	10	4
No. of starts	-	4	7	2	2	5	2	0
No. of ends	-	0	5	5	1	2	6	-
No. in continuing occupation	-	1	5	7	4	5	8	4

* Gazetteer numbers from Phillips 1970

Table 5.5 Willingham fen edge settlement chronology after Lucas (2006c, fig. 8.20)

Similar evidence comes from Alcester, Warwickshire (Evans 1996b) where by the late 4th century nearly all the local industries seem to have collapsed, especially the Severn Valley ware industry, and the major coarse ware supplier to the town seems to have been located in Bedfordshire (*i.e.* Harrold). This evidence can be indexed by calculating the average distance that sourced vessels travelled to sites (*cf.* Green 1977, figs 43–5; Going 1987, figs 52–9; Evans 1996a, figs 50–1). The evidence as it stands, although showing the survival of apparently prosperous large scale industries in the late 4th century, seems to indicate not a little stress in ceramic supply, and presumably in the larger economic system, in the last decade of the 4th century in Southern England, at the same time as market forces seem to have ceased to be used to supply military sites in parts of the north (Evans 1985; 1989).

Groups across the Midlands are characterised by high levels of fine wares, their source varying, depending upon the proximity of the Nene Valley, Oxfordshire, Hadham and South-West Brown slipped ware kiln sites, and high levels of shell-tempered wares from Harrold (or other sources) in areas north of the Thames, or Alice Holt ware

in much of the area south of the Thames. Examples can be found at Gloucester, New Market Hall (Hassall and Rhodes 1974), Alcester (Evans 1996b), Irchester (Knight 1967), Great Casterton (Corder 1951), Teversham, Cirencester (Keely 1986), *Segontium* (Casey *et al.* 1993), Wycombe (Rawes 1980), Portchester (Fulford 1975), Bishopstone (Green 1977), Towcester (Woodfield 1983), Pevensey (Lyne 2009), Ickham (Lyne 2010) and London Angel Court (Orton 1977). This pattern indicates that the distribution of these vessels was based on a network of markets and, given the areas over which they were distributed, requires that most of them must have travelled by land transport.

A tale of two provinces

Figs 5.15–5.16

Figures 5.15 and 5.16 show the proportions of fine wares from assemblages from various sites of late 3rd- to late 4th-century date from Northern and Southern England. The figures in fact are not quite comparable as the northern ones (Evans 1985) include painted parchment wares, one of the principal late 4th-century fine wares in the region, whilst the southern ones are restricted to colour-coated

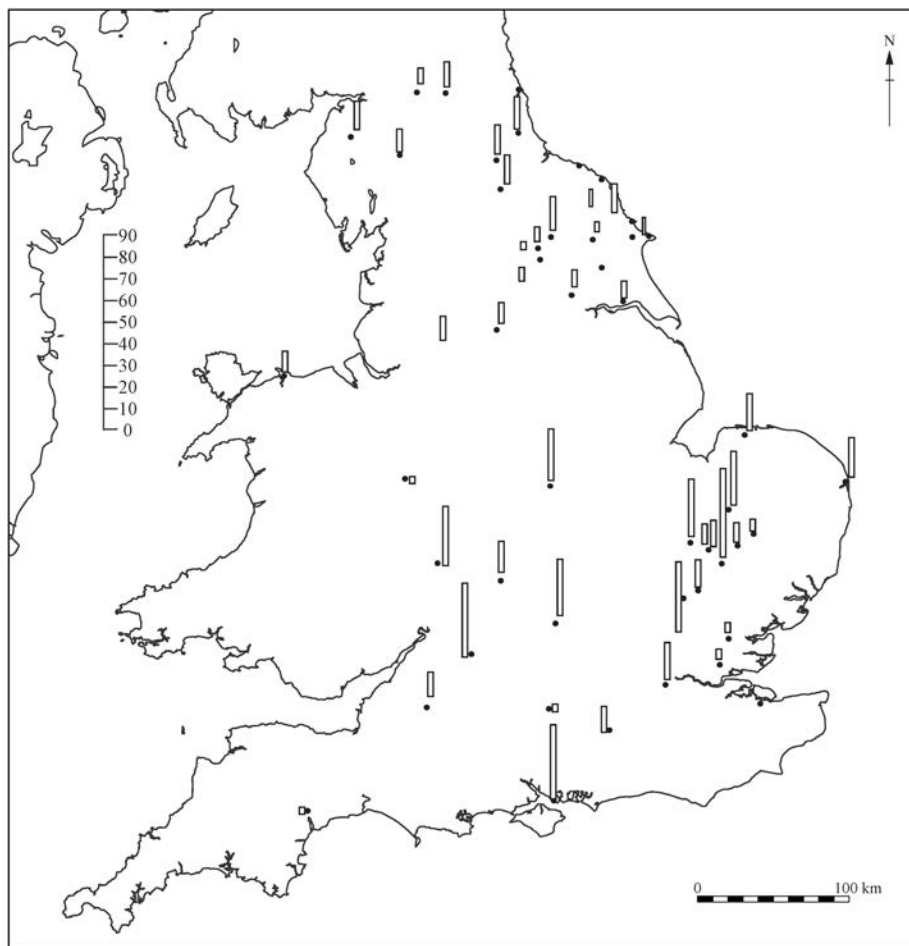


Figure 5.15 Proportions of fine wares from late 3rd- to mid 4th-century sites in Northern and Southern England. Scale 1:5,000,000

wares; thus, the figures for the north are slightly higher than they might be. It is, however, clear that whilst there is a slight rise in the proportion of fine wares in the north in the later 4th century, this does not generally amount to a level greater than 15% and the maximum value is below 25%.

In the south in the early 4th century, the fine ware level seems to be on average more like 10–20% and on many, but not all, sites the fine ware level rises markedly in the late 4th century. The average level is probably in the order of 25%, but quite a number of sites produce levels over 40%. A similar effect may be observed by comparing Hodder's map of the proportions of samian ware (Millett 1990, fig. 54) from assemblages in the south-west with his maps of the proportions of 3rd- and 4th-century fine wares from the same area (Hodder 1974, fig. 8). As Fulford (pers. comm.) has rightly commented there are some sub-regional trends within the broad brush approach being taken here, and these may prove of interest when regional studies of fine wares and site status are made.

A similar dichotomy can be seen developing between north and south in the functional use of pottery. In the 3rd century the proportion of jars on sites in the north (Evans 1985, table 5.2) seems to be similar to that in the south (Going 1987; Millett 1979; Millett 1983; Evans forthcoming b), but in the early 4th century this rose slightly in the north to a general range of 40–50% and in the late 4th century there was a further rise in levels to

generally, and often markedly, above 50%. Meanwhile in the south the proportion of jars often fell to its lowest level in the late 4th century as the proportion of table wares increased with the increased frequency of fine wares. Again some sub-regional trends may also be present, such as the high levels of drinking vessels observed on some Severn Valley region sites (Evans 1999).

Undoubtedly the two phenomena sketched out above (Evans forthcoming b) deserve further study, but it seems that generally two different 'material cultures' of ceramic use were developing in 'Roman' Britain in the late 4th century. These could have led to very interesting patterns in the 5th century, but instead, pottery production simply ceased in both areas at this time.

'Coastal planning blight'

Plouviez (1995) has conclusively demonstrated that the distribution of 4th-century coinage in Suffolk varies on a geographical basis after the middle of the 4th century. She has plotted the date-distribution of coin finds from the county in eight geographical blocks from the east coast running west (Plouviez 1995, fig. 7.4). From AD 364–78 onwards the east and much of the south of the county have very weak coin lists. Given that these lists are composed of casual finds from geographical blocks they should clearly reflect overall coin use in these, and perhaps, levels of occupation.

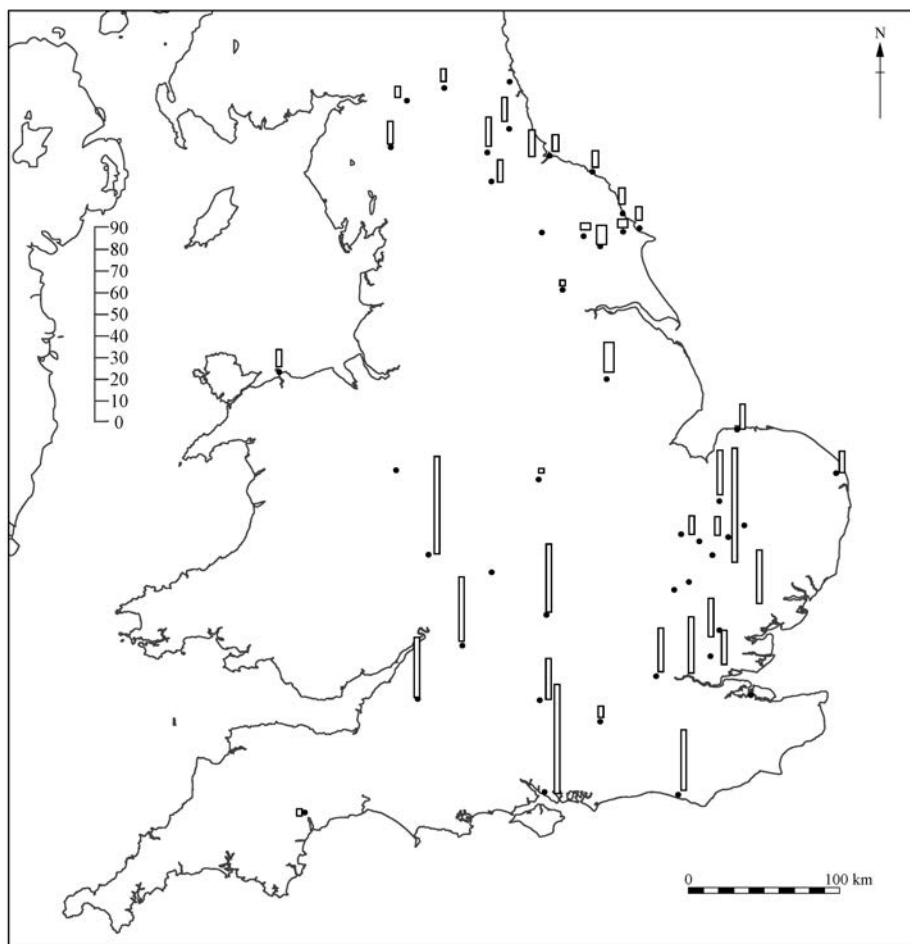


Figure 5.16 Proportions of fine wares from late 4th-century sites in Northern and Southern England. Scale 1:5,000,000

Davies and Gregory have also provided maps of coinage in Norfolk. Coinage in the county is noted to show ‘very light loss after AD 378’ (Davies and Gregory 1991, 78), with the distribution of casual coin losses in this period biased towards the southern half of the county (Davies and Gregory 1991, 84). Fourth-century coin hoards are also almost all located in the southern half of the county (Davies and Gregory 1991, 86 and fig. 24). These patterns of Norfolk and Suffolk coin data receive some support from more recent analysis (*e.g.* Walton 2012, 97–105).

To this curious avoidance of coastal areas by the population, or its occupation almost solely by communities not using coinage, must be added the Thames-side landscape at Mucking. There the heavily exploited Romano-British landscape excavated by M.U. Jones contains no occupation of this date (C. Going, pers. comm.). There are no coin data from Essex comparable to those quoted above, but it might be noted that the lists of late coins from Chelmsford and Kelvedon (Reece 1991) show these to be poorly represented.

It is difficult to avoid the conclusion that ‘coastal planning blight’ results from a flight away from coastal raiding. This is not to invoke the ‘barbarian conspiracy’ as such (although, as has been noted in Section VI above, a location of these events in East Anglia might make more sense of Ammianus Marcellinus’s account) but rather a consistent enough fear of raiding to clear populations

from the area, or at least reduce them. If this phenomenon applied to the East Anglian coast and the Thames estuary, the existence of similar problems on the Cam cannot be ruled out.

Late Roman defences and post-Roman consequences Fig. 5.17

In a stimulating paper, principally on the late defences of Great Chesterford, Going (n.d.) has argued that in the late 4th-century Great Chesterford, Cambridge, Godmanchester and *Durobrivae* formed a chain of sites used as field army bases facing East Anglia, which seems to have been subject to regular incursions (at the least) from Saxon raiding. Were this the case it might be expected that the coin lists from these sites would be noticeably strong in the latter part of the 4th century.

At Great Chesterford, while peaks of coin loss are present at AD 330–48 and AD 364–78 the latest period (AD 388–402) is poorly represented, though Hobbs (2011, 261) discusses the discovery at the Rectory Grounds by Braybrooke in 1853–4 of ‘numerous coins’ of Theodosius, Arcadius, Honorius and ‘the latest empire’. No further details of these are known. The AD 364–78 peak for the recorded coins is at 158.8 per thousand, which is well above the usual 92.0 per thousand for sites in the east of England. Therefore, whilst the Great Chesterford evidence does not fully validate Going’s view it is not of

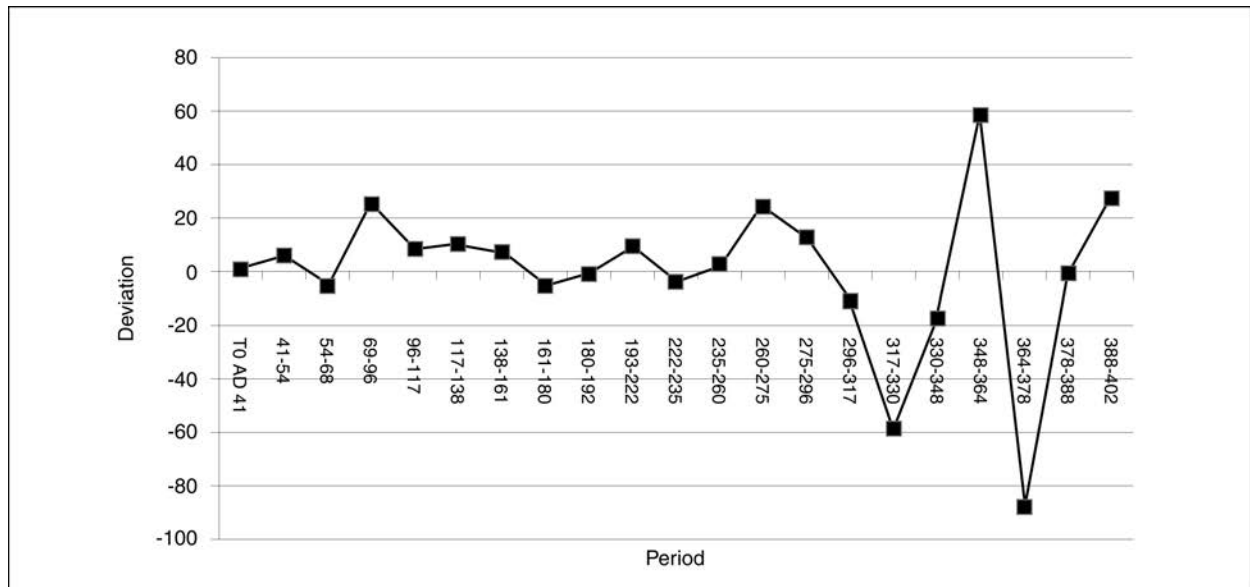


Figure 5.17 Chesterton. Metal detected coins, deviation from Reece's British mean (after Connolly 2007)

sufficient quality, or sufficiently contradictory to it, to falsify it.

The very strong late coin list from Cambridge has been mentioned above and may result from military associations both with regard to construction of the walls and to activity within them thereafter. There is no adequate coin list from Godmanchester and the coins from Green's excavations do not provide this. However, the later 3rd-century defences of Godmanchester bear evidence to the installation of at least one secondary fan-shaped bastion dated to the mid to late 4th century (Burnham and Wachter 1990, 128).

There is no published coin list for *Durobrivae*, but there is some information from Chesterton. Regrettably no coins were published from the 1956–58 excavations (Perrin 1999) but analysis of 166 coins from a metal detecting rally held there in 2007 shows these coins in terms of their deviation from the Reece eastern site norm (Connolly 2007; Fig. 5.17). Early coin loss is generally at a fairly low level, as might be expected given the lack of substantial pre-Antonine activity at Water Newton. There is the usual later 3rd-century peak in Periods 13 and 14, although here it is somewhat below the average of Reece's eastern sites. In the 4th century Moorhead (2007) notes that the Rally assemblage shows higher proportions in Periods 15–17 (296–348) and in Period 19 (364–78), although Reece's average figures are well ahead in Period 18 (348–64) and Periods 20–21 (378–402). However, the actual number of 4th-century coins is probably higher, given that further coins were not assigned a date. The high Valentinianic peak is consistent with various sites in West Suffolk, Norfolk and Lincolnshire (e.g. Sapperton and Winterton). At *Durobrivae*, the fact that these late coins were found outside the centre of the site strongly suggests that major activity in the later 4th century spread out from the town, probably commensurate with increasing official activity in the region. It can therefore be suggested that Water Newton was a key centre in Valentinianic and Theodosian times (c. AD 364–390s), making it a crucial site in the discussion of this phenomenon. Thus, the evidence for unusual levels of very late Roman coin loss at

Durobrivae is uncertain but may provide some backing for Going's hypothesis. The potential survival of elements of such a defensive system, particularly in relation to Great Chesterford, has been suggested by Going to be relevant to the question of survival of a 'post-Roman' focus of British power broadly within a triangle formed by London, Colchester and *Verulamium*, as discussed at various times, for example by Wheeler (1935), Rutherford-Davis (1982) and Baker (2006).

The end of Romano-British pottery use

Fig. 5.17; Table 5.6

This author (JE) argued some time ago that the end of pottery production early in the 5th century is linked to the end of the production of (small denomination) Roman coinage, and that the end of cash taxation and expenditure on the army which accompanied this saw the end of money transactions and most non-subsistence production (Evans 1990b). There is no doubt that there is no significant quantity of 5th-century small (or large) denomination coinage struck or used in Britain (outside Richborough). In previous periods of coinage shortage the army had always struck copies for its use. Their absence suggests a lack of military garrisons which expected cash payment.

Although strained arguments have been made to the contrary, it is fairly clear that pottery production did not outlast the use of coinage in Britain. Not only are there no deposits with different form types emerging after the presence of the latest coinage, but there is also no evidence for changes in the distribution of fabrics in groups dated after deposits with the latest coinage. The Roman pottery available at the end of the 4th century in the south could not have been distributed easily in a barter economy in this region. It involved a series of highly centralised specialist industries, distributing over wide areas overland, with a small number of specialist producers having the craft skills for production. If the potters were still available in the 5th century, their markets were not. When, therefore, did Roman pottery cease to be produced? This is really a question for the numismatists, but Reece (1979) suggested a date in the AD 420s which would seem reasonable.

	<i>Barker date</i>	<i>Re-evaluated date</i>	<i>% LC4 Finewares</i>	<i>Samian and early finewares</i>	<i>% shell- tempered</i>	<i>% oxidised SVW</i>	<i>% BB</i>	<i>% Grey</i>
Pre-Phase W			1.4	17.2	0.5	35	35	6.5
Phase W	AD 367-410	AD 367-390/410	3.2	13.6	2	38	24.5	11
Phase X	AD 410-500/550	AD 390/410-430/440	10.6 (31.5%)	8.4	10 (29.8%)	24.5	26	13 (38.7%)
Phase Y	AD 500/550-660	M-LC5?	6.8	11.2	5.5	28.5	29.5	11
Phase Z	AD 660-790	LC5/C8	11.4	8.8	16	23	24	9.5

Table 5.6 Wroxeter ware class occurrence by phase (after White 1997, figs 366-7)

When did Roman pottery cease to be used? It must have ceased to be used in quantity within a decade or two of its ceasing production, but individual vessels could survive much longer than that, as samian from later Roman contexts often demonstrates.

Cool (2006, 221) comments on the contrast between the continental tradition of study of late antiquity (with a date range of late 3rd to 7th centuries) and the lack of such a tradition in Britain. In part this reflects the character of the archaeological evidence available in both areas. There is a recognisably 'Roman' pottery tradition in Merovingian Gaul which is simply absent in Britain, and indeed nearly another century of 'Roman' history in parts of the Gallic diocese.

The end of Roman pottery use in the early 5th century will clearly have had major implications for how people cooked and ate. Cool shows that the use of glassware was increasingly being reserved for drinking vessels in the 4th century, something that ties in well with the ceramic evidence for the disappearance of beakers in the later 4th century. Later 5th and 6th century production of distinctive 'Anglo-Saxon' glass in South-East England can be suggested to be a 'natural development of the late Roman industries' (Cool 2006, 222). This may be so, but in Britain ceramic assemblages do not show a parallel pattern of development.

Geographically, the collapse of the Roman pottery industries took place in the area south of the Tees-Exe line. Roman pottery was never used in any quantity on sites in Co. Durham, the Pennines, the North-West, Shropshire (except at nucleated settlements), Wales (except round the Severn), Cornwall or much of Devon. In Cornwall a partly Romanised gabbroic pottery tradition remained embedded in the local subsistence economy and is one of the few pottery traditions which continued into the post-Roman period. The disappearance of Roman pottery is very real, but only takes place over about half the area of the diocese, the other half having almost never used it in the first place, something that Cool (2006) fails to acknowledge.

Over much of the area which had used Roman pottery, a ceramic tradition did appear in the 5th to 7th centuries, *i.e.* Anglo-Saxon pottery. There are clear and radical breaks between this pottery tradition and the preceding Roman one, breaks which seem to require more than a 'fashion change' (*contra* Reece 1979). Saxon cooking vessels usually have rounded bases and would appear to be intended to be used held over a fire, rather than set in the hot ashes, which is clearly the pattern for Roman vessels, as can often be seen in burning patterns (where the base is

protected by the ashes – cooking in *thermospodio*). One feature of Roman cooking vessels is that whilst they are often externally sooted it is very rare indeed for them to have internal carbonised deposits (or any deposits except limescale). It seems fairly clear that on the whole they were used for heating liquids, be these water or stews (or porridge). In contrast, Saxon vessels have internal carbonised deposits relatively frequently, often about mid wall, with evidence of heavy wear on the rounded base below this. Apart from suggesting that Saxon food hygiene was not all it might have been, the pattern suggests the stirring of something in the rounded base of the vessels, potentially consistent with the cooking of individual portions of food in meat fat. It is a very different pattern from that ever commonly seen on Roman cooking vessels.

None of this is to deny some cultural transmission, in at least some areas, between 'Roman' and 'Saxon' inhabitants. As noted above, during the Roman period Co. Durham and Northumbria north of Hadrian's Wall were aceramic. This Roman tradition of pottery use, or rather non-use, is wholly transmitted to Saxon settlers here, with the result that there is no Saxon pottery here either. The cessation of pottery supply in the 5th century is undoubtedly something that the inhabitants of half the Roman diocese would not have welcomed, but the other half had got by without any meaningful quantity of ceramics for the entire Roman period, as they had in the Iron Age, and continued to do until well into the medieval period or later.

Cool (2006) has considered the functional composition of pottery assemblages with time, although using very few data, and overlooking the major dichotomy between northern assemblages and, particularly, urban and high status assemblages in the south in the last decade or two of Roman rule. She picks up the major trend in the functional composition of northern assemblages (Evans 1985; 1993), namely the return to a strong emphasis on jars in later Roman groups in the region, and misapplies it to the interpretation of one or two southern groups in an attempt to establish whether it is a diocese wide trend, which it is not (*cf.* Millett 1979; Evans 1999; 2001b).

Trends in Roman pottery use in the 5th century and beyond, with regard to both fabrics and forms, can only be discerned at sites which have an appropriate stratigraphic sequence. Such sites are of course very few and far between, and in the case of one key example – the Wroxeter Baths-Basilica sequence – controversial with regard to their absolute dating. In summary, however, the pottery shows characteristics broadly consistent with

those of the late 4th-century assemblages discussed here in Digital Chapter 9, with non-local sources predominant: the ware classes present are shown in Table 5.6. There does not appear to have been any significant evolutionary pattern except in respect of redeposition of pottery which, in terms of likely manufacture date, was increasingly residual.

Detailed contextual study of material from pits at Silchester argued to belong to a sequence running into the 6th century (Fulford *et al.* 2006) similarly produces no convincing evidence for 'post-Roman' ceramic development, as opposed to continued recycling of an existing pool of material. It is to be hoped, however, that with the advent of rehydroxylation dating (Wilson *et al.* 2009) we should have some definite answers to these questions within a few years.

XIII. Conclusions

This study has sought to determine the typology, chronology and distribution of the Horningsea pottery industry, filling a gap in the study of Roman coarse wares in the study area, and creating for the first time a synthetic study of the overall model of Roman pottery supply for Cambridgeshire and southern Bedfordshire.

Horningsea's pottery industry seems to have been established in the Flavian period, and continued until about the beginning of the last quarter of the 4th century AD. Dates for individual types have been established in part, but many types were very long-lived. Typologically there seems to have been an early phase from the Flavian period until perhaps as late as the beginning of the Antonine period, followed by a major repertoire change in the Antonine period drawing on BB2 types. Production of this range then just went on and on, with few new types appearing before the end of the industry. The distribution of Horningsea products seems to have been equally conservative. It expanded between the Flavian and Antonine periods, but from then onwards it seems to have remained very stable (Fig. 3.23). The bent 'crescent'-shaped distribution which resulted at first sight seems explicable in terms of the role of water transport, with a major expansion down the Cam, but this does not explain the westward expansion of the distribution, and in economic terms nothing does, except, perhaps, the location of competitor industries. However, other factors may be at play. The eastward limit of distribution on the Norfolk fen edge seems to reflect a rather 'hard boundary', perhaps of social origins. It is notable that the micaceous grey wares (fabric R33 in particular) so common in Norfolk and Suffolk, also seem to have a sharp fall-off at the fen edge. Equally one wonders at the possibility that the Scored ware/plain ware boundary (Digital Fig. 4.3) that existed to the end of the Iron Age, and probably into the pre-Flavian period, had some effect of determining the westward edge of the Horningsea distribution, particularly in the vicinity of Godmanchester, although there are good alternative economic reasons for this. Either way the shape of the Horningsea distribution is something of a conundrum and is quite possibly not solely a consequence of economic factors.

Interactions of industries across the area through the Roman period have been demonstrated by the study. The results of this can be compared with data from a few other

areas, such as parts of Essex (Going 1987) and Kent (Pollard 1988). Some comparable work has been done for the north (Evans 1985) and to a lesser extent in Warwickshire and the upper Thames Valley (Booth 1991; 2004). Beyond this, analyses of distributions tend to have been carried out at the level of individual industries, as for the New Forest (Fulford 1975), Oxfordshire (Young 1977), Alice Holt (Lyne and Jefferies 1979) or BB1 (Allen and Fulford 1996).

There is an important caveat to this volume in that, subsequent to the initiation of this study in the late 1990s, the results of recent large scale investigations, such as those at Earith (C. Evans *et al.* 2013), Longstanton (Ellis *et al.* 2001), Hinchingsbrooke (Lyons in prep. a) and St Neots (Lyons forthcoming), have added to the distribution of Horningsea material and thus as always, this study is a work in progress. This is of particular importance when considering the distribution of the material.

It is now clear that the ceramic assemblage of Cambridge (*Duroliponte*) does not support the interpretation of the site as a classic Roman urban centre with a hinterland of sites which look to the town as their focus. The study has also cast doubt on the existence of an early fort at Cambridge and suggests that an interpretation of the site as a cultural or religious centre would be more accurate (*cf. e.g.* Taylor 1999). The reasons for the later fortification remain enigmatic, but have encouraged the historic interpretation of Cambridge as an urban centre, to the detriment of a clearer understanding of the nature of the site. There is little evidence to indicate that the Roman settlement of the southern Cambridgeshire fens was orientated towards Cambridge as an urban centre in any conventionally meaningful way.

New light has been shed light on the nature of the Roman fens and Romanisation. There was little change in the area in the post-Conquest but pre-Flavian period, when the pottery maintained its Gallo-Roman character in most of the longstanding client kingdom areas (*cf.* Creighton 2000; Evans 2005), but continued in a middle Iron Age tradition in areas which failed to adopt the former, such as the *Icenian* territories. There were transformational changes in the Flavian period, which probably reflect direct rule and the start of a market economy through the levying of taxation. The 'Romano-British' material culture which emerged came out of the mix of military traditions, those of colonial settlers with only some local cultural predecessors. A study in Essex suggested a similar situation (Pitts and Perring 2006) and the Cambridge data support this model.

The study adds to previous work which challenges the suggestion that there was an imperial fenland estate and shows that the available evidence does not support this hypothesis. The study does identify the important emphasis on transport corridors in the fens, along the rivers with little lateral communication except on the islands. Some aspects of pottery distribution, however, clearly relied on road transport, a pattern which may have become more pronounced with the passage of time.

Finally, this study was instigated as a result of the excavations at the monument previously known as Car Dyke, but now known as the Old Tillage at Waterbeach in 1997. The chronology of the monument can now be fully understood; constructed in the early Antonine period, probably around the mid 2nd century, the main usage ran though the 2nd and 3rd centuries with the canal finally

abandoned in the mid-late 4th century AD, mirroring the end of the Horningsea industry. This provides the only understood sequence for the monument anywhere along its putative route in Cambridgeshire, but it is also important to cease linking this canal with the Lincolnshire Car Dyke as parts of a single monument. The Old Tillage was clearly not used to distribute Horningsea ware west of the western fen edge, or even into the western fen edge and it was not used to send it north towards *Durobrivae*: rather this pottery went north and east down the Cam and then

west of Stonea. It is clear that the understanding of the Old Tillage's probable distributive function cannot be determined from the ceramic evidence. The functional interpretation of the monument results from the palaeo-environmental evidence, which suggests the movement of large scale grain shipments along its route. Clarification of the context of this shipment, however, will require further work.

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