Pottery and the Emporia:
Imported pottery in Middle Saxon England with particular reference to Ipswich

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For the archaeologist at least, a real difficulty of the Dark Ages is that they are not dark enough. they are illuminated by fitful will-o'-the-wisps which tempt him perpetually from the narrow path of scientific inference into the morasses of pseudo-historical conjecture. The historian is permanently if reluctantly in doubt as to the authenticity or accuracy of his documents. these same documents are sufficiently plausible and alluring to prejudice the independence of archaeological judgement. The archaeologist, valiantly rallying to the aid of the historian is perpetually seeking to give to his cumbrous and dubious material the precision of written history.

Indeed it must be confessed that the historian and the archaeologist of the Dark Ages are very like two men clutching each other in mid-air to prevent themselves from falling.

(Wheeler 1935:3).

Abstract

This thesis looks at the problems of trade and exchange in the Middle Saxon period (AD 650-850), using, as a case study, the imported pottery excavated in Ipswich over the past 20 years. Richard Hodges' study of the imported pottery from Hamwic was taken as the starting point, although his work deals almost exclusively with pottery from France. Much more of the Ipswich material originated in the Rhineland, and it is postulated that these two emporia were operating under different trade diasporas. The context of the trade in pottery and other imported goods is discussed with reference to anthropological research into long-distance trade and exchange. The social position of the traders and who they were is discussed.

Part II deals with the trading settlements themselves. The roles of the four major English emporia of Ipswich, Hamwic, London and York are examined, and their chronology, archaeological evidence and imported ceramics are considered. The relationship between the English emporia and their continental counterparts is discussed, and four of the major continental emporia are described.

Part III describes the methodology used for analysing the ceramics, and gives detailed descriptions of the main types recovered at Ipswich. The macroscopic and thin-section analyses are described, and the problems of the various ceramic types, in particular the northern French Black wares and Tating ware, are discussed. The appendices give details of the thin-section analysis undertaken.

In Part IV the implications of the sequence and origins of imported pottery are discussed for England in general, and for Ipswich and East Anglia in particular. The changing roles of the emporia within their societies are discussed The problems of coinage, gift-exchange and the development of markets and a monetary economy are examined in Chapter 7, looking at the problems of using ceramics as a means of understanding social and economic development.

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Contents

List of Figures

List of Plates

PART I

INTRODUCTION

Chapter 1

TRADE AND THE DARK AGES

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I Introduction

> 'The time has come,' the Walrus said,
> 'to talk of many things:
> Of shoes - and ships - and sealing-wax -
> Of cabbages - and kings'

(Lewis Carroll, *Through the Looking Glass*)

1. The changing face of the Middle Saxon period

East Anglia is not generally viewed as one of the more important of the Anglo-Saxon kingdoms. However, archaeological research in recent years is starting to alter the picture somewhat. A recent publication by Böhme has indicated that East Anglia may have been the first area of Britain to have been settled by migrating Anglo-Saxon peoples (1986:558-9). This, it is suggested, happened in the middle of the 5th century, up to fifty years before Kent or Wessex was settled, and 100 years before Northumbria or the West Midlands. This would imply that the socio-political situation in East Anglia was quite different to that in the surrounding areas, and that East Anglia might have established both its boundaries and its connections with the continent during the late 5th century (Carver 1986:148). John Hines has gone further in developing the theory of continous contact between the countries from which the migrants originated, and the areas in which they settled. Similarities in ceramics, metalwork and other grave-goods, between East Anglia and Lindsey and with Norway and Denmark respectively, have been noted by many archaeologists. The Sutton Hoo burial has certain clear links with the burials in Swedish Uppland.

> 'Following the fifth-century period of settlement, direct contact with lands in Denmark, south-west Norway and Swedish Uppland was continuous and at times intense. It may have involved migration; it may have involved trade; it should certainly have involved ideological interaction. The poverty of the archaeological evidence as a whole allows the speculation that such contact continued beyond the seventh century into the eighth and ninth.' (Carver 1986:149).

East Anglia, as a kingdom, is historically obscure, especially when it is considered in comparison to the better documented kingdoms of Wessex, Mercia and Northumbria. Contemporary literary references to East Anglia are scarce; Ipswich, like Hamwic in Wessex, is passed over or deliberately ignored in the writings of Bede. In his *Ecclesiastical History* he only mentions four sites in East Anglia: Ely, Rendlesham, Dunwich and Burgh Castle, all of which are ecclesiastical centres. This paucity of references to East Anglia probably reflects his lack of a correspondent in the kingdom. Hill (1981:31) suggests that it was due to such a contact that Bede was able to provide a comparative wealth of information for the Hampshire region.

In view of the inevitable biases of our documentary sources, archaeology provides an inestimable source of knowledge concerning the period that is often regarded as The Dark Ages. This is not to suggest that archaeology is without comparable biases. The nature, scale, and direction of archaeological research varies between regions; some archaeological bodies concentrate their resources on particular classes of site, others on specific periods of history. Funding of excavations varies markedly, and the upsurge in developer funding in the 1980s created a Britain in which London had as much archaeological capital as the whole of the rest of the country. Alternatively, the MSC schemes of the early 1980s allowed for extensive programmes of field-walking to be carried out in rural areas. The high level of pasturage and moorland in some areas of the country makes it impossible to assess large areas of land through field-walking; these areas may be archaeological blank spots for certain periods. All in all, the economic and political factors that influence archaeology, combined with individual research interests and the restrictions imposed by the agricultural landscape, produce a distorted picture of the past. We must face up to the fact that our knowledge and understanding of the archaeological landscape at any given period will always be faulty, and will never reflect a historical reality. But nor can the written word.

The last fifteen years of excavation within the modern town of Ipswich have provided us with a rare opportunity to re-examine the nature of trade during the Middle Saxon period. It has also allowed us to look at the emporium's role in the continental trade network, and to examine Middle Saxon Ipswich as the major ceramic production centre in England. As the archaeological database is made up of material culture, those perspectives centering on trade and economy are seen as being particularly accessible as imported artefacts are frequently a distinctive part of the material culture set.

2. Artefacts and context

The importation of prestige artefacts through the emporia is only one aspect of the relationship between Anglo-Saxon England and Carolingian Europe, and between the ports-of-trade and their hinterlands. The transmission of non-material aspects of culture such as symbols, knowledge, ideas and ideology, must have played a far more significant role than is generally contemplated by archaeologists working in the medieval period. The imported artefacts carry within them information over and above an experience of the palpable substance of function and origin. Just as the definition of a prestige good does not rest simply on its rarity or quality, but also on contemporary requirements as to what is desirable and acceptable for specific members of a given community; so everyday domestic elements of material culture carry within them symbols and information which will be actively used in structuring relations within that society (see Hodder 1982a, 1982b). It is not so much the form of the commodity that is of significance, rather it is 'the relations which are embedded in the commodity which makes the point.' (Gailey 1983:246). This structural approach to artefacts is summed up by Miller: 'artefacts, as objects created and interpreted by people, embody the organisational principles of human categorisation processes.' (1985:1). The major problem in studying the material world as a means of understanding social relations is the tendency to fetishise, that is, to substitute material relations for social ones. This can lead to equating groups of objects with groups of people socially or geographically, without any basis in reality (see Hodder 1982a).

Such is the material nature of archaeological data that the purely economic elements of society tend to be over-emphasised, with a concomitant falsification of reality. We have been, and probably always will be, guilty of imposing our own world view upon the past, naming particular 'bits' in order to facilitate analysis, but failing to place them 'back in the field from which they have been abstracted' (Wolf 1982:3). Concepts like status, wealth, territory, and agriculture are often treated as separate entities in archaeology. The golden trinkets found in graves, the pottery and textiles from distant lands, the refuse of food-preparation and consumption, the layout and construction of dwellings, villages, individual and group territory, field-systems, the bones of the ancestors and the relationship of the living to the dead, are all part of the thought-world of any individual, any society. In order to have some understanding of a society it is necessary to look at all of these elements, and place the pottery, or the animal bones, or the cemeteries in their wider social context.

The past is largely lost to us in terms of the lives of the masses of people gone before us, so we have to be aware, that by its very nature, archaeology is creating a past, creating history, and this past is very much a product of its creative environment. As Hopkins pointed out, 'All history is contemporary history and reflects not only the prejudices of the sources but current concerns and concepts.' (Hopkins 1978:ix). It is necessary to study the articulation of these interconnected but disparate forces that come together to comprise a society in order to comprehend even part of it. We must, as Wolf reminds us, try to understand the 'totality of interconnected processes', and the 'bundles of relationships' which make up our world, in order to be able to present a comprehensive history, or one that even attempts to be 'total' (Wolf 1982:3).

3. The connection of the past and the present

Placing the early medieval period within a historic continuum is an interesting excercise, and can be fraught with problems. It is, perhaps, in this area more than any other that later historians (and archaeologists) *create* histories that are most pertinent as reflections of their current political thinking (see Hodges 1989 as an example). Almost without exception, contemporary accounts which purport to be examinations of the early medieval period are dominated by the descriptive treatise. Systematic change has tended to be portrayed as positive, directional progress, so that the early history of England is presented as a peculiar, nationalistic, success story. Geoffrey of Monmouth's *History of the Kings of Britain*, written in the first half of the 12th century, appears to have been one of the inaugural presentations of the Anglo-Saxons as the chosen people, with a heritage stretching back to Brutus, grandson of Aeneas, hero of Troy. The rapturous acceptance of Gregory's 'factual myth' by the developing nation suggests that the English, in common with the majority of societies, from the most primitive to the highly complex, were keen to legitimise their hierarchies and dignify their history by associating their origins with earlier civilisations (MacDougall 1982:8).

The connection of past and present in social reproduction brings security in the face of social change and contradictions within and between communities. The past is effectively appropriated by the present; appropriated selectively and purposefully, with both deliberate and unconscious omissions and emphases. Giddens (1979:221) suggests that the disavowal of tradition as a form of legitimations is in vogue in the modern west, and specific to it. I would suggest that this is by no means the case; particular traditions may be disavowed according to circumstance, but tradition as a means of legitimation will continue as inventively as ever (see Cannadine 1983).

4. Ipswich in context

The assemblage of imported pottery from the excavations in Ipswich is the second largest collection recovered from excavated Middle Saxon contexts, after Hamwic (Middle Saxon Southampton). Ipswich was the major trading settlement within the kingdom of East Anglia, and lay only 20km from the burial ground of Sutton Hoo, and a few kilometres from the elite ecclesiastical centres at Brandon and Butley. It is clear that an appreciation of its role is of paramount importance in understanding the socioeconomic environment during an important era in England's early history.

It is within this sociopolitical context that we must seek to understand the economic workings of societies; the relations of dominance and hierarchies between individuals, communities, and corporate groups, in terms of the manipulation of relations of production, exchange, and the circulation of goods.

II Evidence for trade in the Middle Saxon period

1. Introduction

The subject of trade is an unremitting archaeological problem. It has been the focus of research and debate in all spheres of archaeology and with reference to all of the periods and places under study. Why this should be so is simple; archaeology is most directly concerned with the material remains of past societies, and many archaeological artefacts are not native to their site. Questions then arise as to where the artefacts came from, how they got there, and what the implications could be for the ideological and social apparatuses of those societies. The resultant research has produced a whole body of literature devoted to the problems of trade and exchange particularly with reference to the prehistoric period and pre-capitalist societies (see for example Gregory 1982, Kohl 1975, Renfrew and Shannon 1982, Sabloff and Lamberg-Karlovsky 1975, Sahlins 1974). Archaeologists studying the medieval period also displayed considerable interest in the problems of trade and exchange, with the added bonus of having access to some documentary evidence to flesh-out the material archaeological remains (Astill 1985, Bakka 1971, Grierson 1959, Hodges 1978b, 1979, 1982a, Jankuhn 1982, Jellema 1955, Lewis 1958).

The Middle Saxon period is particularly fascinating in terms of trade because it sees the birth, floruit, and in many cases, the demise, of a class of settlement that have become known as the emporia. These settlements were unlike anything that had gone before them, and appeared to be devoted to the production and distribution of goods, although they are probably more famous for the imported goods that are found there. These settlements were literally, as well as figuratively, ports of trade, being located at well-chosen sites for mercantile trade (see Hodges 1978a).

The primary reasons for the existence of the emporia were production and trade. It is generally agreed that most of these large sites were planned in advance and had close connections with an overseeing, or controlling, royal authority, although the seat of this authority would not be located within the trading site itself. For many of these sites, for example London, regional administration took place elsewhere; the religious seat was also located outside of the trading settlement (Vince 1990:93).

2. Trade in the Middle Saxon period

Archaeology will only give us a fractional insight into the volume of trade and the range of goods exchanged. The vast majority of traded items disappear rapidly from the archaeological record, and the intrinsic nature of the majority of goods make it very difficult to determine whether they were local or not. Foodstuffs, even if traded over long-distances, are rarely discernible in the context of trade. If we are fortunate, their containers survive to allow us to trace the trade in their contents; for example this has been done with the trade in Rhenish wine (Peacock 1978).

In *Daily Life in the World of Charlemagne*, Riché lists the following items as important trade items in the Carolingian world: pottery, metalwork, cloth, salt, wheat, wine, iron, lead, arms, Frisian mantles, bolts of silk from the East, brocades, bearskins, marten fur, spices, ivory, balm, leather, eunuchs and slaves (Riché 1978:112-6, 164).

3. Slave trading

Arguably, one of the most important objects in trade in the early medieval period was in slaves. The Carolingian kings attempted to ban the trade, but to no avail. Thousands upon thousands of slaves passed through the hands of traders during the period; in Tarento in 870 the monk Bernard noted six ships filled with 9,000 slaves destined for Egypt (*ibid*:117). This prolific trade gets a passing mention in the late 6th century when Pope Gregory ordered the purchase of English slaves from Northumbria for training as missionaries, with the purpose of sending them back to England after their training, to convert their own people (Whitelock 1955). This religious aside on slavery gives us a somewhat oblique slant on the trade. Slavery constituted one of the major means by which wealth and status were measured, displayed, and transferred throughout the ancient world, and is one of the distinctive features of the ancient mode of production. As a means of status differentiation and social control it continued in use throughout the early medieval period, but received scant attention from chroniclers of the period. It is however attested in law codes of the 6th and 7th centuries, and in other legal documents up to, and including, Domesday (Pelteret 1981). During the early medieval period slavery could befall anyone, whatever their rank in society, indeed, Guthfrith, king of Northumbria, may once have been sold as a slave by the Danes. Wars and skirmishes produced numerous captives who could be dealt with profitably by ransom or enslavement. Slavery also ensured that the enemy was physically removed as a source of trouble, 'Just as the continental Germans had exported their slaves to the Roman Empire, so the Anglo-Saxons exported their slaves across the seas.' (Pelteret 1981:104).

Slavery was responsible for the movement of people all over Europe, and indeed further afield. At the major slave market at Marseilles, slaves from all over Europe could be found, including Saxons. Slaves from England frequently ended up in Normandy and the Low Countries. Slavonic slaves were a major trade item between the Vikings and Islamic merchants in eastern Europe (Bolin 1953:30). Viking raids in Spain led to Moorish slaves ending up in Ireland in the 9th century (O'Donovan 1860). Three groups of people are recorded as being responsible for the bulk of slave trading: the Frisians, the Vikings and the Jews. Frisians are mentioned as slave traders by Bede, and Gregory the Great mentions Jewish slave traders working in northern Gaul (Pelteret 1981). The Frisians presumably operated mainly in the North Sea area, whereas the Jews are best known as slavers in the western Mediterranean. The Vikings are well attested as slave captors all over Europe, including eastern Europe.

4. The trade in animals and their products

Livestock and their secondary products must have made up a voluminous part of early medieval trade. However, it is extraordinarily difficult to assess the scale and volume of this traffic, particularly when having to differentiate between local, regional, and long-distance exchanges. It is perhaps most likely that bulky, perishable objects such as wheat, were largely confined to trade or exchange at a local or regional level, and that long-distance trade was utilised for the transportation of non-perishable (or protectable) goods and artefacts.

Studies of the animal bones from Middle Saxon sites suggest that some of the emporia were having their foodstuffs brought in from outside, whereas others produced food within the site. At Hamwic it appears that animals were being brought in 'on-the-hoof' from the surrounding countryside and were slaughtered within the settlement (Bourdillon 1988, Bourdillon and Coy 1980). In London the high proportion of young pigs suggest that these were being raised within the settlement, although the majority of cattle were mature, and so, as at Hamwic, they could have been brought in from the surrounding countryside (Vince 1990:94). At Haithabu the pig bones suggest that the majority of animals were mature (Reichstein and Tiessen 1974:46), and at both Haithabu and Ribe the bone assemblages suggest off-site butchery. So the animal economies appear to have varied according to the emporium concerned. However, the large numbers of animal bones found in the emporia suggest that secondary products (leather, horn, wool/textiles, and possibly foodstuffs such as cheese) were being exported.

5. The trade in goods

i) Textiles

Although we have a mass of evidence for cloth production at the emporia, as well as on other non-trade sites such as Brandon in Suffolk, and Flixborough in Humberside, we have scant archaeological evidence for a trade in cloth in the Middle Saxon period. Documentary sources occasionally mention this trade. It is rare that preservation conditions are such that organic materials as delicate as cloth are preserved, but imported silks have very occasionally been recovered from excavations of this period and later, and are considered to be Byzantine in origin (Hall 1988:130, Hobley 1988:80, Pritchard 1984:70). Chinese silks and gold-threaded cloth fragments are known from the excavations at Birka (Crowfoot and Hawkes 1967). More important is the amount of evidence for cloth **production** at the emporia. All of the sites in question have produced large numbers of loom-weights, indicative of cloth-production on a large scale.

The exportation of English products to the continent is poorly documented. We have some indication of what the potential native products and raw materials for export would have been in the Middle Saxon period by reference to the Roman period. However, it is probable that the volume of trade in the Saxon period is significantly lower, and possible that a number of goods ceased to be available for export after the economic recession of the 4th century. Honey and lead are two products documented as being exported from England in the 9th century (Dhont 1962:88, 204, 217, Whitelock 1955:375). It is likely that tin was exported from Cornwall, and, as I have already indicated, wool and cloth, and slaves were also objects of trade. Foodstuffs, raw materials, and finished products would all have been exported and imported during this period.

ii) Pottery

Pottery does not appear to have been exported from England to the continent, although there is abundant evidence for the reverse happening. There are two potential ceramic exports from England during the Saxon period; the first is Ipswich ware and the second is shell-tempered pottery. Ipswich ware was the only pottery type in Britain that was produced on a wheel in large quantities. The ware occurs on sites all over eastern Britain (see Chapter 5 and Appendix 1). However there is, as yet, no evidence for it having crossed the Channel. The shell-tempered pottery, which is particularly prolific in the Late Saxon period, but also occurs in the Middle Saxon period, occurs on sites all over the North Sea littoral. Hand-made shell-tempered pottery from Medemblik and Dorestad is not thought to be of Dutch origin; it could come from an area such as Flanders, or even Britain. A suggestion has been made that Birka has produced one shelly-ware pot from

Lincoln (Graham-Campbell and Clarke 1985). The pottery may have been made in one centre and exported to other places, or it could have been made in many places. The evidence is inconclusive, but it seems most likely that it was produced at a number of centres, and exported from some of these.

Although there are problems in identifying *imported* goods and products, particularly with consumable items, many artefacts are distinctive enough for us to provenance them with some certainty. Other artefacts, whilst obviously imported into Britain from the continent, have been the subject of lengthy analyses and debates as to precisely where they originate from. This is true of two types of pottery found in Britain during the Middle Saxon period, that is, Tating-type ware and E ware. Both of these ceramic types have been subjected to macroscopic, petrological and chemical analyses, and the results of these analyses have only furthered the debate as to where they originated from (see Campbell 1984, Coutts and Hodges 1991, Peacock 1985, Peacock and Thomas 1967, Thomas 1959, 1981).

However, we are able to provenance some imported goods. Certain artefacts, such as fine metal-work, we can provenance because of the abundance of a particular school of crafting in an area, perhaps combined with evidence for workshops and the necessary raw materials in that area. Some artefacts, such as certain ceramic types, we can provenance because of distinctive tempering materials (Mayen ware, for example), or because of their form and decoration. Again, the ability to pinpoint the origins of an object must depend, in part at least, on workshops having been found in the area of hypothesised origin. Otherwise, the suggested provenance will be based on a very high concentration of the product within that area, as is the case with northern French Black wares.

Ceramics are perhaps the most easily identifiable imported artefacts to be recovered from excavations in large quantities. They are frequently good dating evidence, as their time-span of production might be more tightly defined than the local wares.

iii) Querns

Stone was imported for a variety of purposes during the Middle Saxon period. The most notable stone type to be imported was Niedermendig lava from the Rhineland, used extensively for querns. It appears from the evidence at centres such as Dorestad and Haithabu that the stone was shipped out in the form of rough-outs, and finished off there before export. Ipswich may also have been a centre for quern-finishing, and the relatively high quantity of imported quern fragments in East Anglia supports this suggestion.

Fragments of Niedermendig quern-stones have been found in Ipswich, London, Hamwic, and York, and also on many village sites, monasteries,and royal settlements, all over eastern England, as well as on numerous sites on the continent (Crawford 1955, Horter *et al.* 1950-51, Kemp 1985/6, Parkhouse 1976, 1977, Peacock 1980, Roder 1953, Williams 1987). London has fragments from the Strand site, and from a building at Pudding Lane where unused quern-stones were being used as post-pads (Hobley 1988:70). The fragment from York comes from the Fishergate excavations (Hall 1988:129).

iv) Hones

Honestones were also imported, probably in large quantities. Norwegian ragstone, and blue phyllite hones were common imports from the 11th century onwards, whereas in the Early and Middle Saxon periods it appears that sharpening stones were usually of local origin (Ellis 1969, Evison 1975, Moore 1978, 1980, 1983). Potassium-argon dating can be carried out on Schist honestones, and this was used to date hones from Kaupang, Aggersberg, Haithabu and Wolin (Mitchell *et al.* 1984).

v) Glass

Glass is another material that can be identified as an import in the Middle Saxon period. However, confusion could arise in being able to differentiate between imported glass, and glass made in Britain by foreign glass-makers; we have documentary evidence for Jarrow relating to the importation of glass-makers (Cramp 1968, 1970, 1975, Harden 1978). Imported glass has been recovered from excavations in Ipswich, London and Hamwic (Cook 1958, Hunter 1980), as well as from many sites on the continent. Fine reticella rods were found in the workshops at the Scotch street excavations in Armagh (Craddock 1989:204). Excavations of cemetery sites of Early Saxon date have produced numerous imported glass vessels (Evison 1955, 1972, 1976). Excavations in Scandinavia have produced large quantities of glass from the Rhineland (Ekholm 1958, Lundstrom 1971, 1976, 1981). In Belgium, Merovingian glass has been found, also originating from the Rhineland (Faider Feytmans 1940). Other glass studies in the Rhineland and elsewhere have shed light on the production and distribution of glass during the post-Roman period, particularly by Harden (Haberey 1942, Haevernick 1979, Harden 1956, 1961, 1968, 1972, 1976, 1978, Hunter 1977, L'vova 1970, Pfeffer, 1952, Pilloy and Socard 1910, Rademacher 1942, Steinhausen 1939).

Glass was being produced in the form of beads at centres at Paviken, Ribe, Helgö, Kaupang and Haithabu (Lundström 1976, Callmer 1977).

III Monasticism, trade, and the elite

> 'the beginnings of English foreign trade lie in an obscurity which is only broken by occasional grants of freedom from toll to monasteries owning sea-going ships, by discoveries of early English coins on the continent and by incidental references to trade and traders in ecclesiastical narratives.' (Stenton 1947).

The emporia were not the only sites to be directly involved in trade during the Middle Saxon period, as the opening quote emphasises. We have evidence for both production and trade at monastic sites such as Flixborough, Brandon and Butley. Many of the monastic houses were substantial communities, and as such, consumption of resources within them would have been high. Many of their needs would have been fulfilled via their own production, and from their own lands, others would have been satisfied through gifts. To some extent, the success of both monastic leaders and secular rulers would have depended on maintaining control over the flow of resources, whether this maintenance of control was in the form of direct royal authority, or patronage, of the centres of production and exchange. Such an explanation has been postulated for the emporia, and for industrial sites such as Ramsbury in Wiltshire (Haslam 1980:58). The rulers would also have maintained control by exploiting their position in relation to their subjects, the Church, and the Carolingian Empire. The relationship between the ecclesiastical and secular elites is of crucial importance in this respect. Fenwick's comment that Butley's high-class goods have little 'of the austerity that one usually associates with monastic life' (Fenwick 1985:54) suggests that she is projecting the monastic ideal of poverty onto a somewhat more luxurious reality, and is missing the blatant association between royalty and the Church. Bede himself underemphasised the enormous wealth and power of the Church and its leaders; instead he holds up the more austere bishops as exemplary models. Bede was fully aware of the association of wealth and the episcopacy, but disapproved, and so says little of it (Campbell 1971:13).

Christianity in the 7th century was an entirely different phenomenon to its manifestation in earlier centuries. Unlike their 6th century spiritual forebears, later ecclesiastics were housed in well-built monasteries, surrounded by rich treasures, and exercised far-reaching and well-established powers. The day of the hermit-missionary practising poverty and ascetism, living a life of solitude and meditation, was far removed from the late 7th century elite monasticism. The Church had reached the people, or at least, it had succeeded in reaching those people whose attention it was interested in attracting, that is, the people who had control of the country's wealth. The 8th century missionaries continued their programmes of conversion into pagan areas of northern Europe, outside of the Carolingian Empire, resulting in the foundation of many prestigious monasteries, often in positions of strategic importance, such as Buraburg, Hersfeld, Fulda, Erfurt, Würzburg, and Fritzler (Parsons 1983:285).

At the primary efflorescence of monastery construction in England, the founder of the monastery was, almost without exception, the king of the region, and its head was usually a close female relative. Monasteries were both an expression of the king's wealth and status, showed his ability to manipulate and control his subjects. In Carolingian Europe the heads of prestigious religious houses were almost always close relatives of the royal family. The Church took immediate advantage of any changes in the social order, and was invited to support new leaders in a partnership of Church and Crown. These intertwined elites patronised and regulated each other. The major power arteries of the early medieval world pulsed with blue blood. 'Every high dignitary wheresoever he was in the Kingdom of the Franks, rejoiced that he had a relative in the monastery' wrote the chronicler of St Riquier (see Lot 1894:118-9). Charles Martel's grandson, Fulrad, was the abbot of Lobbes; the 9th century abbots of St Riquier were members of the same family and included Charlemagne's son-in-law and three of his grandsons; Rohaut, abbess of Faremoutiers, was Charles' daughter (Lawrence 1984:64). The remainder of the monks and nuns in the early medieval monasteries were from elite families; these made up approximately a third of the monastic population (Butler and Given-Wilson 1979). Peasants and other members of low social orders had to be content with roles as lay-brothers and sisters, and as servants (Shahar 1983:39). The social exclusivity of monasticism was explicitly reiterated on a number of occasions; the benefactress and abbess of the monastery at Munheim was assured by the bishop of Eichstätt that 'our successors shall see that the abbess has no permission to admit girls of base or ignoble birth to the monastery' (see Schulte 1922:114). That monks and nuns 'seem often to have expected to be nobly housed and surrounded by rich objects' (Campbell 1971:24) is hardly surprising under the circumstances described above.

The Benedictine *ideals* of poverty, chastity and obedience were just that, and to view them in any other way would be to overlook the contradictions inherent in the Church's structure. The Church acted as a relatively cheap, and socially approved, way of ridding the male heads of houses of relatives that they were unable, or did not wish, to support any longer, as well as ensuring that their families continued to be represented in the Church. Sons who lacked inheritances, and were thus unable to take wives, would either enter the Church or live unmarried in secular society, so that the family assets would not be dispersed.

Daughters of the nobility entering into monastic life were obliged to bring a dowry with them, but a lesser one than would have been required for a mortal husband. Numerous noble girls were unable to wed because their fathers could not provide them with a substantial enough dowry to allow them to marry within their own class. The Church dowry was actually prohibited by canonical law, and Church councils reiterated the ban frequently, but apparently in vain. 'It was impossible to root out the custom.' (Shahar 1983:39). The social convenience of the monastery is exemplified by its ability to absorb surplus children who could not be supplied with land, or dowry, without posing a serious threat to the unity of a dynastic estate.

However, once these lesser nobles had entered into monastic life, they had an unparalleled opportunity to wield power, albeit within a limited sphere. In return for renouncing their worldly goods and lusts, they gained the promise of eternal salvation. Their earthly position was greatly enhanced by entering a monastery. The ideal of the virgin nun, for example, presented a non-sexual female in a state of chosen grace, a woman elevated above the ranks of females fulfilling their biological destiny. This is not to suggest that the Church was used simply, or even primarily, as a vehicle for personal power and aggrandisement. There may have been far fewer ascetic hermits in the 7th to 9th centuries compared with the 6th century, but the instigation of organised religion need not be considered as a dilution of holiness. The Church was becoming available as a way of life to many people, not just to a fervent few. With this increase in accessibility came a corresponding rise in concern with the fate of the soul in an explicitly penitential context. Just as sins had to be repented for, so the road to paradise could be smoothed by financial intervention. To use Rosenthal's (1972) phrase, 'the purchase of paradise' was within their means. The founding dynasties were quite aware of their power in this respect. William III of Aquitane, founding Cluny in AD 909 stated that

> 'desiring to provide for my own salvation while I am still alive, I have considered it advisable, indeed most necessary, that from the temporal goods which have been conferred upon me I should give some little portion for the gain of my soul.' (see Breul 1876:124-8).

Indeed, Lawrence considers the pardoning of the soul to be the primary motivation behind the attention paid by 8th and 9th century Carolingian rulers in their endowment and protection of monasteries (1984:63). 'To found and endow a community of monks was to ensure for the donor an unceasing fund of intercession and sacrifice which would avail him and his relatives both in life and after death.' (*ibid*:1984:61).

Monasticism became a powerful force precisely because of its elite basis. The increasing power of the Church went hand-in-hand with its cultivation by the ruling dynasties. For example, during the 7th and 8th centuries minster churches in Hampshire were located on royal estates (Hase 1975). It is possible that a site such as Manor Farm at Chalton represents a royal manor site, connected with the founding of a minster church (Hughes 1984). The Anglo-Saxon missions to Frisia went under the patronage of Pippin; Boniface was invited by the rulers of Austrasia and Neustria to help reorganise the Church in their lands. Just as it was in the Church's interest to be patronised by a wealthy, stable elite, so the proto-imperial leaders benefited from a religious body that expounded the ideals of religious unitarianism. In the 8th and 9th centuries theological ideology proposed one Roman Church, the Benedictine Rule, and the all-powerful authority of Saint Peter. A 'world' religion was the perfect complement to a 'world' empire, and provided the idea of an implicitly divine link between the two - the seeds of divine kingship were being sown. Political instability was not conducive to a secure monastic life, so it was in the Church's interest to foster good relations with its earthly rulers. It was readily persuaded to support existing clan structures, provided that it reaped the benefits of gift-exchange and inheritances. A dual elite, mutually supportive and regulating, enabled the structuring of resources in a manner conducive to its own welfare. This is not to suggest that the secular and ecclesiastical elites operated harmoniously as two arms of the same body; at times there was considerable discord between them. Alfred was actually referred to as an enemy of the Church during the early years of his reign (Brooks 1984:150).

The monastery also appears to have been a cradle for industrial developments (see Haslam 1980), for example in the fields of glass production (at Monkwearmouth and Jarrow, see Cramp 1968, 1970, 1975, 1976, at San Vincenzo al Volturno, see Hodges, Coutts, and Mitchell 1990), fine metal-working, pottery production (at Butley, see Fenwick 1985), and textile production (at Brandon, see Carr 1988, at Flixborough, see Whitwell 1991). Monastic workshops produced high quality materials for use within the monastery itself, or at its satellite churches.

The building of a monastery of any scale required a vast input of labour and materials. The majority of dwellings of the period, particularly in northern Europe, were wooden structures. The churches and monasteries were much more likely to be stone-built. They were built to survive and to impress, as well as being held as testimony to the power and grace of God. Only the very best materials would therefore be considered as appropriate for these monuments. To obtain these materials it would be necessary to enter into the worlds of trade and exchange. The alliances which made up the power base in pre-capitalist societies were, and still are, predominantly established through the medium of exchange, regardless of whether this involved material goods that can be traced in the archaeological record, or if it involved transactions of a more significant (if less tangible) nature, such as exchanges involving marriage partners or knowledge (see Rowlands 1980:46-7). The kinship arrangements, marriage patterns, inheritance strategies, the disposal of land and movable wealth, and the production and distribution of goods were all embedded within a coherent, if changing, social order. Thus, the building of a monastery or church would have necessitated calling upon kin and exchange partners for 'gifts' of labour and material items, and it would have also necessitated entering the arena of trade, whether directly, or indirectly, in order to obtain foreign materials, and perhaps certain goods in bulk.

Once the monastery was in existence, it would have been able to utilise the kinship and patronage networks that had been set up or strengthened when it was originally initiated, and therefore fulfil much of its needs through the medium of gift-giving. Many monasteries obtained exemption from tolls for their ships, suggesting that they played a full and active part in the mercantile world (see opening quote from Stenton 1947). Others would have been involved in exchange at a more local level, rather than being active in long-distance trade.

IV Long-distance and cross-cultural trade

1 Introduction

'Trade is not innocent.' Gailey 1983:247)

The trade and exchange of goods and raw materials is carried out for numerous reasons. The simple economic motive of exchanging a surplus of what you have for a surplus of something different that someone else has is only one facet of the scenario. Social motives, involving the establishment of ties and the allocation of prestige, form a large part of the complex picture of trade and exchange, even in contemporary western society. Items traded may not be necessary in terms of subsistence, but are essential to the social dynamics of that society. This applies to local, regional, and long-distance trade, but is perhaps most apparent in the case of long-distance trade. Long-distance trade needs long-term organisation, and this is often carried out at a high level, involving social leaders. It frequently involves much higher costs than local trade, because of the distances travelled, the expense and maintenance of ships and crews, and potential losses of goods before arrival at the desired destination. Seaborne traffic is 'an undertaking for rich people' (Bakka 1971:38). It is not generally undertaken by individuals or small groups. By definition, long-distance trade has to have traders who spend a proportion of their time engaged solely in travel and trade.

Power relations may be established, consolidated and maintained through the control of prestigious objects acquired through long-distance trade. These products are absolutely indispensable for the maintenance of social relations, even if they are not necessary for material subsistence.

2 Long-distance trade and state formation

Since Godelier's work in 1964, anthropologists have made the link between long-distance trade and exchange and the formation of the state (Godelier 1978). The early researches showed that the so-called Asiatic mode of production was not necessarily linked to major economic projects such as road building, but by activities such as domination, and the levying of a surplus in labour or in products. Coquery expanded on Godelier's work in her *African Mode of Production*, which was defined as 'the combination of a patriarchal communal economy and the exclusive control of one group over long-distance exchange.' (1969:73). She saw long-distance trade as being the foundation of the power base that generated the state. Tribute was used in the societies she studied, and had a symbolic value that guarantied the inherent social structures of those societies. 'Maybe the state was not constructed as a result of trade...surplus value was extracted from these long-distance exchanges, and this surplus value enabled the ruling class to be reinforced through the accumulation of prestige goods, sometimes hoarded, more often wasted, in the framework of an economy of ostentation.' (Coquery 1969:244).

Terray (1974) was critical of the approach that maintained a direct relationship between long-distance trade and state formation. He saw pre-colonial African society as having the combination of peasant communities organising their own labour, and warrior aristocracies basing their wealth and power on their control of long-distance trade. More importantly, slavery was used to produce a surplus of captives from which the elite's means of domination was drawn. Long-distance trade functioned to allow the aristocracy to 'realise' the surplus extracted from its captives labour (Terray 1974:315). Gordon Childe has described this type of state as a *secondary* state, that is, a state that develops on the periphery of a primary state, and supplies it with raw materials.

Rowlands (1979) stressed that the development of early states should not be seen as a disruptive break from an earlier kin-based society. He saw that various elements in the earlier social formation would be elaborated, and come to be controlled by the emergent dominant class for 'the reproduction and elaboration of their elite status' (1979:1). The 'economic' relations between groups were embedded in complex systems of trade partnerships, political alliances, marriage-ties, and gift-exchange (1979:4). Wealth that had been gained from local trade was the main prerequisite for access to the trade in slaves and foreign goods. Long-distance trade was related indirectly, but systematically, to the trade in subsistence goods on a regional level, and acted to stimulate local exchange.

Trade was intimately linked with the elite during the first millenium AD. The kings of Norway had the monopoly on *Finskat*, the tribute from the inhabitants of the north of the country in the form of furs and skins (Jankuhn 1982:37). These goods were highly prized in the international market, and Fitzstephen, a 12th century writer listing goods coming into London mentions 'sable, vair and miniver from the far lands where Russ and Norseman dwell' (Vince 1990:95). The king thus had immediate access to exotica from far away by trading away his tribute.

3 Long distance trade in the first millenium AD

> 'Trade, archaeologically, is part of a larger concept: contact.' (Bakka 1971:37).

It can be difficult to assess whether imported artefacts arrived at their archaeologically discernible destination through trade and exchange, or through some other mechanism such as raiding. Jankuhn (1982) defines first millenium *trade* as

> 'The supply of individuals or groups with indispensable or highly desirable goods, which people cannot or do not wish to produce for themselves, these goods being imported from outside in exchange for other goods whose value is determined objectively or subjectively' (Jankuhn 1982:18).

Grierson has suggested that theft and gift-giving were more likely to be the major distribution mechanisms of prestigious objects than trade (1959:131). Objects themselves are not necessarily indicators of trade, just as coins do not necessarily indicate a market economy. It could be suggested that it is only when objects occur in relatively large numbers that they should be considered to be the products of trade. Individual items such as fine metalwork could equally well be indicative of gift-exchange or raiding. Trade and the distribution of prestige goods are frequently confused; evidence of coins and prestige goods cannot be seen as evidence of trade and traders (Grierson 1959:125). In addition, objectsand coins would travel as tribute, ransoms, dowries and fines, further confusing the question of how they arrived at their archaeologically detected destination.

In the early medieval period of norther Europe long-distance trade appears to have developed from local roots in the 7th century, expanding massively in the 9th and 10th centuries with the development of markets proper. Prior to the development of permanent markets, most trade was carried out in the temporary, or semi-permanent markets of the emporia.

4 Long-distance connections

Throughout the Old World, the 7th to 9th centuries were a time of expansion in the world of trade, due to the policies and practices of three groups of people, the Franks in Europe, the Abbasids in the Mediterranean and Near East, and the Tang in China. To some extent, the basis for this nexus was founded in earlier centuries. In the 500 years before the Christian era, the Hellenistic world, Buddhism on the Asian subcontinent, and Confucianism in China, acted as unifying influences across huge areas of land. At around 200 BC regular overland trade came into existence across central Asia, from China, to the eastern Mediterranean (Curtin 1984:90). Maritime trade also expanded massively, and included the whole longitude from Morocco to Japan. During the Han dynasty, the Chinese exacted tribute from its barbarian neighbours, but in return they reciprocated with gifts which often had greater value than the tribute. A system was set up which proclaimed Chinese supremacy, both by the fact that they exacted the tribute, and because their neighbours were placed in a disadvantaged position in terms of reciprocity. As Curtin points out 'From one point of view, this was a clear example of marketless trade, embedded in a set of social and political relationships across an ecological frontier. From a another point of view, it was an intricate fiction for controlling frontier trade and meeting protection costs while preserving the ideology of Chinese supremacy.' (1984:93). The trade routes and tribute networks survived the fall of Rome and the collapse of the Han dynasty in China, and became the basis for the long-distance trade network that flourished in the 8th-9th century AD.

The rise of Islam established a unity that facilitated trade within the areas controlled by Moslems. Trade was not frowned on by Islam, in the way it was to some extent by Christians and other groups, possibly because Mohammed himself had been a trader in his youth. Trade was used as a means to spread Islam in a far more effective, and less bloody, way than direct conquest.

At the same time, the Tang dynasty (AD 618 to 907) united China and established control over Tibet, Transoxiana and part of what is now Afghanistan. The towns of early medieval Europe appear somewhat inconsequential when compared to the 9th century Tang capital of Ch'ang-an, with its population of 2 million. The simultaneous power of the Abbasids and the Tang made it possible to undertake long-distance trade from the Atlantic, across Asia, to the Pacific.

In Europe, long-distance trade flourished under the aegis of the Carolingians, largely through the pursuits of the Frisians and Jews (see section V). Fairs, semi-permanent markets, and permanent markets thrived.

Foreigners were treated with tolerance under Tang rule until the middle of the 9th century, when a series of religious persecutions made it difficult for alien traders to reside within China's borders. It is interesting to speculate about the repercussions across Asia, to the Abbasid caliphate, and thence to the Frankish Empire and the Vikings, in the context of the collapse of long-distance trade in the East. Was it coincidental that the time of the closing of the borders of the largest world empire of the 9th century was synchronous with the weakening of power within the Abbasid caliphate and with the Viking and Saracenic attacks in Europe?

The trade in certain goods is well documented. Carolingian swords and other armaments, probably produced in the Rhineland, were considered to be of superior quality, and were famous even in the Arab countries (Bakka 1971:48). Byzantine and Chinese silks, and Chinese jade have been found in the excavations of European sites. Spices and drugs were probably also exported across Asia. Cowrie shells from Persia have been recovered from the excavations at York, with Samarkand being the furthest contact in terms of traded goods (Hall 1986). Fine metal-work inset with Indian garnets, and a Coptic bowl were found in the Sutton Hoo burial. A Kashmiri statuette of Buddha was recovered from the excavations at Helgö. Chinese white porcelain was imported into Europe and the Near East in the 9th century (Oliver Watson pers. comm.). Abbasid pottery is found in 9th century deposits in Italy. Pottery and glass, produced in the Rhineland were exported in large quantities to other sites in northern Europe. All in all, the evidence for long-distance trade in the 8th and 9th centuries is varied and extensive.

The trade in pottery, and in the wines and oils contained in many of the vessels is not inconsequential. Wine was a prestigious commodity, drunk by the elite, whilst the rest of the populace made do with water or beer. Wine is listed as being sent to Eanbald of York by Alcuin, probably from the Vorgebirge, showing it to be sufficiently prestigious to be considered as a gift between leading Church members (Grierson 1959:139). Some of the ceramics themselves were also objects of some worth, such as the porcelains, lustre-wares, and Tating ware of 9th century trade.

5 Pottery and long-distance trade

> The bridge between artifacts like potsherds and projectile points and the society that made them is the most critical connection in archaeology' (Deetz 1971:219).

i) Coarse wares and fine wares

The recognition of exchange systems through the analysis of ceramics has tended in the past to rely on the assumption that utilitarian coarse wares will be confined to the locality or region that they were made in, and that finer vessels will be traded over long-distances. Pottery tends to be divided, for the purpose of analysis, into fine quality elite items or poor quality utilitarian vessels (Riley 1984:58). It is frequently assumed that when two societies share similar environments the exchange of non-luxury items is unnecessary, and therefore that utilitarian, low-value vessels must be local. Such a functionalist outlook overlooks the necessity of exchange for political and social ends.

The movement of coarse wares over long distances is now well attested. In areas as archaeologically diverse as the classical Mediterranean world (Riley 1984), the Palanque region of Mexico (Rands and Bishop 1980), and Middle Saxon England, coarse wares can be clearly seen to have travelled great distances. However the application of this knowledge to the study of social organisation and exchange has been limited. This is partly due to the fact that pottery is often seen as having little value within ancient society, either to the economy or as an exchange item. A minimalist view of the Roman world would have 90% of wealth coming from the land, and a mere 10% from trade; as pottery would have played a fractional part in this 10%, its social and economic value was nominal.

ii) Imports and innovations

In the late 6th and early 7th century the Merovingians began to be eclipsed by the Carolingians, whose centre of power lay in the Rhineland and Meuse, to the north of the area controlled by the Franks. Pottery production increased dramatically, with kilns being set up in the Eifel at Mayen and further down the Rhine at Bonn and Köln. At the same time, new glass workshops were set up, for example, at Kordel in the Eifel not far from the monastery at Prüm (Jankuhn 1982:23).

In Britain the situation was somewhat different. With the exception of Ipswich, very little large-scale pottery production appears to have taken place. Pottery traditions appear to be strongly regionalised. Use of pottery appears to be highly variable across the country, although to what extent this is due to differential recovery is difficult to say. Figure 1,1 shows the distribution of find-spots of pottery thought to be of Middle Saxon date. As

Figure 1,1 The distribution of Middle Saxon pottery in England

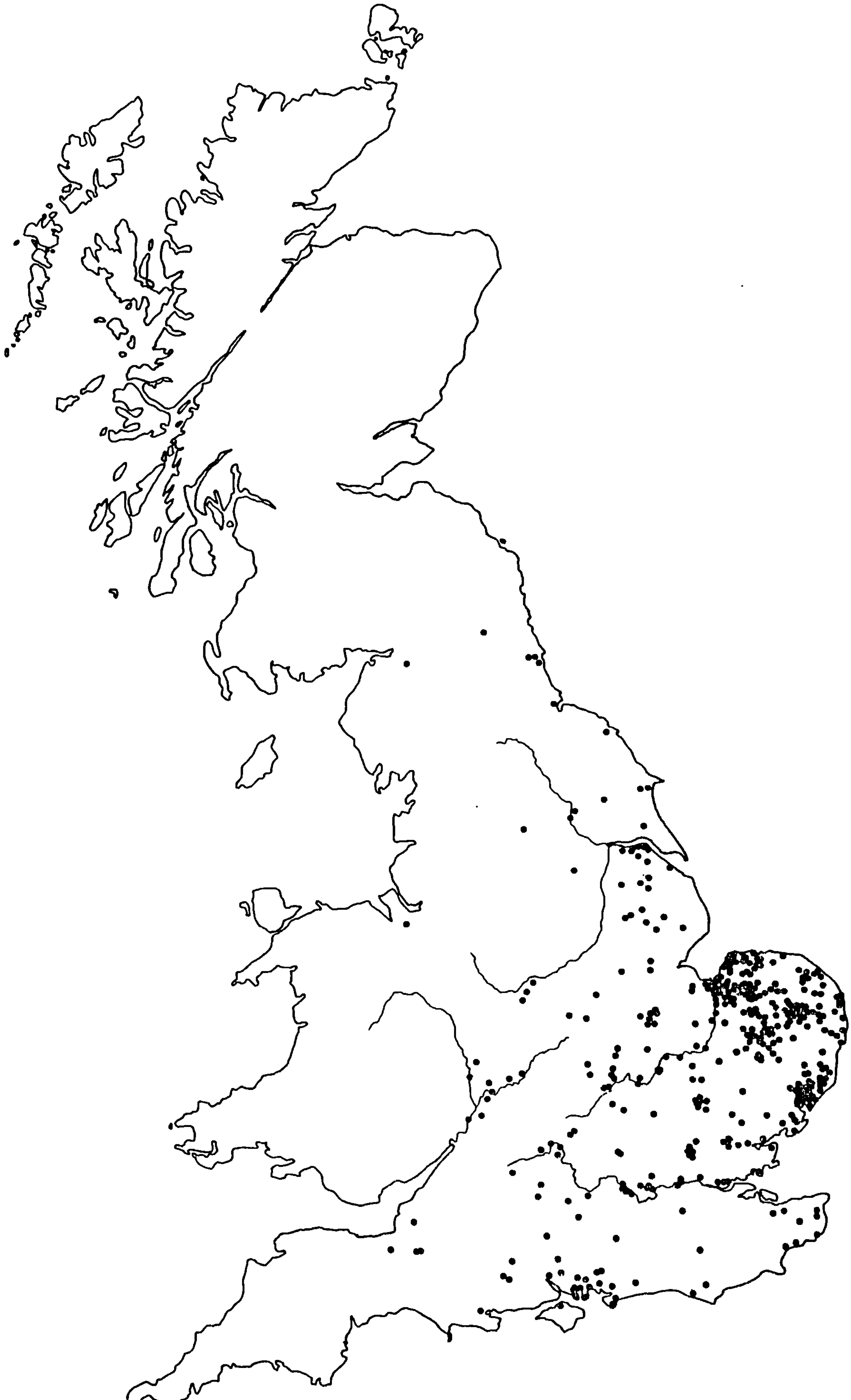


Figure 1,2 The distribution of imported pottery during the Middle Saxon period

can be seen, the major concentration lies within East Anglia, with a number of more minor concentrations. Figure 1,2 shows the distribution of finds of imported pottery; the distribution is similar to that of English pottery, but much sparser. In both cases, most of the dots reflect single, or very low numbers of finds. Only Hamwic, Ipswich, London and York have significant numbers of imports. Other sites, such as Raunds, have considerable quantities of Ipswich ware and local pottery of Middle Saxon date. Most other sites have small numbers of identifiable Middle Saxon sherds, from hand-made vessels, in simple forms.

The wheel was not widely used until the late 9th century. Most English wheel-thrown pottery types, it appears, developed out of indigenous tradtions, rather than being inspired or influenced by continental forms and techniques. The range of forms increased to include bowls, dishes, amphorae, pitchers and lamps (Hodges 1989:161). As on the continent, English potters started to produce red-painted pottery after the mid-9th century. This technique became widespread in the 10th and 11th centuries, but whether English potters were copying continental styles (as suggested by Hodges *ibid*:161) is debatable.

V The traders

Who carries out trade in a society that is primarily governed by gift-exchange and raiding? People who earn their livelihood by trade in pre-industrial societies are very much in the minority. The majority of the population would work on the land, with a minority performing other apparently essential tasks such as interceding with the gods or being king. Merchants do not produce, and as such are frequently treated with suspicion. Commerce was a low ranking profession in societies as distant from each other as ancient Greece and Tokugawa Japan (Curtin 1984:6). The unpopularity of merchants, particularly foreign merchants, would be further exacerbated if their low status was combined with great wealth.

It has been suggested that trade, when it is not considered to be an 'honourable' occupation, will be carried out by middlemen. These people may belong to minority ethnic groups, and thus already be somewhat outside of the usual strictures of the majority group's mores concerning honour and prestige. The majority group may well find it advantageous to do business with aliens as there would be no kin-ties or social intimacy to interfere with the commerce (Zenner 1986:118). The economic success of minority traders can lead to envy, fear, and ultimately violence. Ethnic minority traders in the past hundred years have been subjected to such antagonisms, eg. Indians in east

Africa, Armenians in Turkey, Chinese in south-east Asia, Lebanese in Ghana, and the Jews in central and eastern Europe (*ibid*). This might lead to, or be despite, the majority group providing protection for the minority traders. In the Annals of Fulda, in 873, it is recorded that the Danish and East Frankish kings drew up a trading agreement for the protection of merchants from both countries (Jankuhn 1982:37). The protection of merchants and their goods was obviously seen as being of the utmost importance by the kings.

Compared to the extent and longevity of Jewish middleman commerce, most such communities are shortlived. 'The Chinese "diaspora", by comparison with the Jewish, is an illusion created by a mere hundred years or so of history.' (Freedman 1975:318). In ideological terms this may be relevant, but a 'mere' hundred years is an enormous length of time to ensure that whatever is being carried out is considered to be a long-standing tradition (see Hobsbawm 1983, Hobsbawm and Ranger 1983).

Who were the traders of the Dark Ages? Archaeological sources tell us very little about the merchants of the day, but we do have some written documents telling us of extensive trade between the Arab world and northern Europe (Jankuhn 1982:39). There are historical references to Jewish and Syrian merchants in southern France on the 6th and 7th centuries (Hodges and Whitehouse 1983:76). In southern Europe and north Africa trade and crafting were shunned by Muslims in the 8th/9th century, leading to occupational niches being filled by ex-peasant Jews (Zenner 1986:124). For a short time in the late 8th and 9th centuries the Jewish trade diaspora was probably the most important trade network, linking a complex and diverse system of routes from Europe to China. The Jews were better tolerated than Christians by the Muslims, although both paid special taxes to trade in Abbasid controlled territory (Curtin 1984:105). Mercantile activity was open to all and generally marked by large-scale mobility and tolerance (Goiten 1967:72). However, trade was carried out at a relatively low-level in the Mediterranean until the Abbasid expansion of maritime trade during the caliphate of Harun-al-Rashid (AD 786-809). The Baltic sea was linked directly with the Abbasid caliphate, allowing Arab silver into northern Europe, after it had been melted down for re-use by Slavs and Scandinavians. The links with the Mediterranean have become particularly apparent through the excavations of sites in Sweden. At Birka, in central Sweden, we have evidence of trade from all over Europe: many graves contained Arab coins, Carolingian pottery and Slavic vessels. At Kaupang there is a mingling of artefacts originating from the Baltic, the Orient, and the Carolingian Empire. At Helgö a Buddha from the Kashmir was recovered, along with an Irish bishop's crozier (Holmqvist *et al.* 1961).

It is generally argued that trade in northern Europe was monopolised by the Frisians, who 'since Roman times had participated intensively in the coastal trade of the North Sea region' (Boeles 1951). It has been suggested that they were responsible for the establishment of the emporia of London and York, and others on the North Sea and Gaulish coasts (Hill 1958:144). Dorestad appears to have been the major export centre for Frisian trade, with the Frisians being particularly active in the North Sea during the 8th century. It seems likely that Frisians lived permanently within Dorestad, as well as in other emporia, from the 7th century onwards, forming a loose trade diaspora. However, historians, and more recently archaeologists, have argued about the importance of Frisians as traders, with the suggestion that their importance has been over-emphasised (Bakka 1971:49). It has also been suggested that the Franks and Frisians were in direct competition with one another, Hodges 1984a:31). During Charlemagne's reign, the Carolingian world has strong trading links with the south of England, so that there were potentially two trade spheres existing during the Middle Saxon period. Whereas the east of England, and most noticeably East Anglia, looked towards the Rhineland and Scandinavia and the ports of Dorestad, Domburg, Medemblik and Ribe, the south of England looked to France, to Quentovic, Rouen and Paris. This split is reflected, although not exclusively, in the ceramics in particular.

The extent of permanent markets and trading settlements in the Middle Saxon period is much debated. Additionally, there is the question of whether the traders themselves were full-time. The settlement evidence suggests variability between the emporia. Helgö, for example, has its settlement area on terraces, but there is no sign of agricultural activity. The excavations at Birka and Haithabu suggest that these settlements were populated by full-time, professional merchants. However, there were also merchant-farmers, active in trade, but not relying upon it as their sole, or major, source of income (Jankuhn 1982:39).

The gender of the traders is not normally an issue that is considered for discussion; it is implicit in virtually all archaeological literature that the traders will be male, even though this runs contrary to a wealth of ethnographic evidence. Cemetery evidence suggests that a significant proportion of the population of the emporia were female. Analysis of the human bone from Hamwic suggests that a third of the population was female (Brisbane 1988:104), and a similar figure has been reached for the sites of Haithabu and Trelleborg (Randsborg 1980:80). The suggestion usually made to account for the occupancy of females in the emporia, when there is undisputable evidence for their presence, is that these women were traders' wives. Whereas this is a strong possibility, it tends to imply that the women's occupations were of no relevance to their being in the emporia. Enough that they had the position of wife.

Recent research has suggested that women were actively involved in trade in the early medieval period. In trading sites in Scandinavia, women's graves frequently have within them trading accoutrements such as scales and weights (Stalsberg 1991). The traditional explanation for these grave-goods is that they represent the occupation, not of the woman herself, but of her father or husband, and that the woman was buried with her man's symbols of trade because she died when he was away, or that they were gifts from men (Dommasnes 1982:83, Ellmers 1984:178). Stalsberg presents a strong case for women being active in Viking trade, particularly the silver trade. There is a large body of circumstantial evidence for the presence of women as textile producers in the emporia, in the form of the large quantities of spindle whorls, thread pickers, wool-combs, and loom-weights, assuming that this work was generally done by women. It seems most likely that the majority of women in the emporia were actively involved in some aspect of trading life, whether it was in production, buying or selling goods, or prostitution. The strong linguistic bias against the visibility of women traders is illustated by the clumsiness of the term *tradeswoman* as opposed to *tradesman*, terms that are reflected in Scandinavian languages; no neutral term like trader exists. As Polanyi pointed out, our 'obsolete market economy' has had a great deal to blame for our inability to comprehend different economic systems (1957).

VI The trading places

A number of models have been put forward to explain how trading settlements functioned, and how they integrated with the rest of society. One of the most influential was the 'port-of-trade', but forward by Polanyi and others of the substantivist school of economics (Dalton 1968, Polanyi *et al.* 1957). A port of trade was held to be a town, or even a small state, and was not necessarily coastal. It was an intentionally neutral spot in terms of its relationships with larger states. Long-distance trade would be controlled by the state. Such a situation can be seen in areas as diverse as the borders of the Tang Empire, and Carolingian Europe. As stressed earlier, if a ruling body wishes to use long-distance trade to support itself, it has to be able to control that trade. In early medieval Europe this was done, to a large extent, through the emporia.

The next two chapters consider the major emporia in England and continental Europe.

PART II

THE EMPORIA

CHAPTER 2

THE EMPORIA OF ENGLAND

Chapter 2
The Emporia of England

I Introduction

The trading sites established in the 7th and 8th centuries are a peculiar phenomenon, and appear to owe little, or nothing to the world of Roman Britain or early Saxon England. They appear to have been set up at approximately the same time, in dozens of sites around the North Sea basin. Archaeologically, they have become highly visible in the last twenty years, although historically they remain somewhat obscure. In this chapter I will discuss and describe the four major trading sites of Middle Saxon England: Ipswich, Hamwic, London, and York. The relative importance of these sites is still debated, and as new archaeological evidence comes to light the picture will undoubtedly change. At the present time the archaeology suggests that Hamwic and Ipswich were the major sites, whereas the meagre historical references imply that the old Roman capitals of London and York were of primary importance.

However, it would be erroneous to suggest that these four sites were the only trading sites in Middle Saxon England. It is perhaps truer to suggest that they were the four permanent sites (for at least part of their histories), whereas periodic trading took place at many other sites. Hodges has suggested that the following sites acted as minor nodes in the trading system of the British Isles: Dalkey Island (near Dublin), Bantham in Devon, Sarre in Kent, possibly Reculver and Richborough, Minster, Fordwich, and Norwich (Hodges 1982a:67-73, 1989:92). The archaeological evidence for trade at these sites is sketchy, and takes the form of small quantities of imported pottery and sceattas, and documentary references of toll remissions. At the possibly monastic sites of Reculver and Richborough in particular, large numbers of sceattas have been recovered. Kent appears to have had a series of small sites involved in long-distance trade, rather than a major, permanent emporium. East Anglia, with its large trading site at Ipswich, certainly had smaller sites involved in trade. One of these is the monastic site of Brandon, which was involved in production as well as exchange. Barham and Barrow Hill may also have acted as trading sites, to judge from the concentrations of coins that occur there. It is likely that these sites were periodic trading places, primarily concerning themselves with monastic or church life, rather than production and exchange.

Looking at this distribution geographically, it can be seen that most of these sites lie in the south-east of England. What of the other areas? Northumbria was one of the great kingdoms of the Anglo-Saxon age, but our evidence for trade to the north of York is poor. Northumbrian sceattas are rare in the late 7th and early 8th centuries. Maybe some trade

Figure 2,1 The emporia of England

took place at Whitby, Jarrow, Monkwearmouth and Yeavering; coin evidence exists at Whitby, but little else suggests trade (Cramp 1976).

The west of the country appears to have been less involved with long-distance trade, and occasional finds in Ireland, Scotland and the north-west of England suggest integration into the European trading sphere. It seems more likely that these areas operated under a more pristine gift-exchange economy than the south and east of England.

II The Origins and Development of Middle Saxon Ipswich - 'The Butlins of the Wuffingas'.

1. Introduction

The Saxon settlement of Ipswich was located on river terrace gravels on the north bank of the river Orwell, at the head of the estuary where the River Gipping joins the Orwell as a tributary (see Fig. 2,1). The site provided a physically safe and sheltered location for a harbour and a politically safe place to set up a trading station. The Romans appear to have made little impact in the Ipswich area; there is a single villa under the Anglo-Saxon town, to the north of the river, and a Roman road fording the River Gipping, 10km upstream. The nearest Roman town, Corbretovium, lies 18km upstream at Coddenham (Wade 1988:93).

Ipswich is an unusual town in terms of its contemporary archaeological emphasis in that it is probably best known to archaeologists for its Saxon archaeology. The history of Saxon research in Ipswich can be traced back to the late 19th century, when antiquarians in the area began collecting archaeological finds, principally of Saxon and Medieval pottery. In the opening years of this century Nina Layard was responsible for the acquisition and recording of much of the archaeological material in the area, and in 1906 undertook the first of Ipswich's Saxon excavations - the Anglo-Saxon cemetery at Hadleigh Road.

2. The historical data

To answer the question 'what is the documentary evidence for Ipswich in the Middle Saxon period' is simple - there basically is none. The first documentary references to Ipswich occur in the 10th century, whereas the archaeological evidence demonstrates the existence of a settlement from at least the 7th century. Ipswich was not discussed by Bede and does not merit so much as a passing mention in the Anglo-Saxon Chronicle. This is despite the fact that the Kingdom of East Anglia was large and powerful, and played a significant role in the power-politics of the day. But the role of a trading site may simply have been considered to be of insignificant value to ecclesiasts and other such recorders of history.

3. The Hadleigh Road Cemetery

Hadleigh road lies approximately 4km from the centre of present day Ipswich, across the River Gipping and the marshes to the south-west. The cemetery site is large, with c.200 inhumations and a large, but unknown, number of cremations. Many of the graves contained grave-goods: large square-headed fibulae, annular brooches, garnet disc brooches, and glass objects. At the time of excavation these finds were dated to the 6th century. Unusually, there was a complete absence of objects such as girdle hangers, wrist clasps and cruciform and small long-brooches, which are all part of the 'normal' package in Anglo-Saxon female graves.

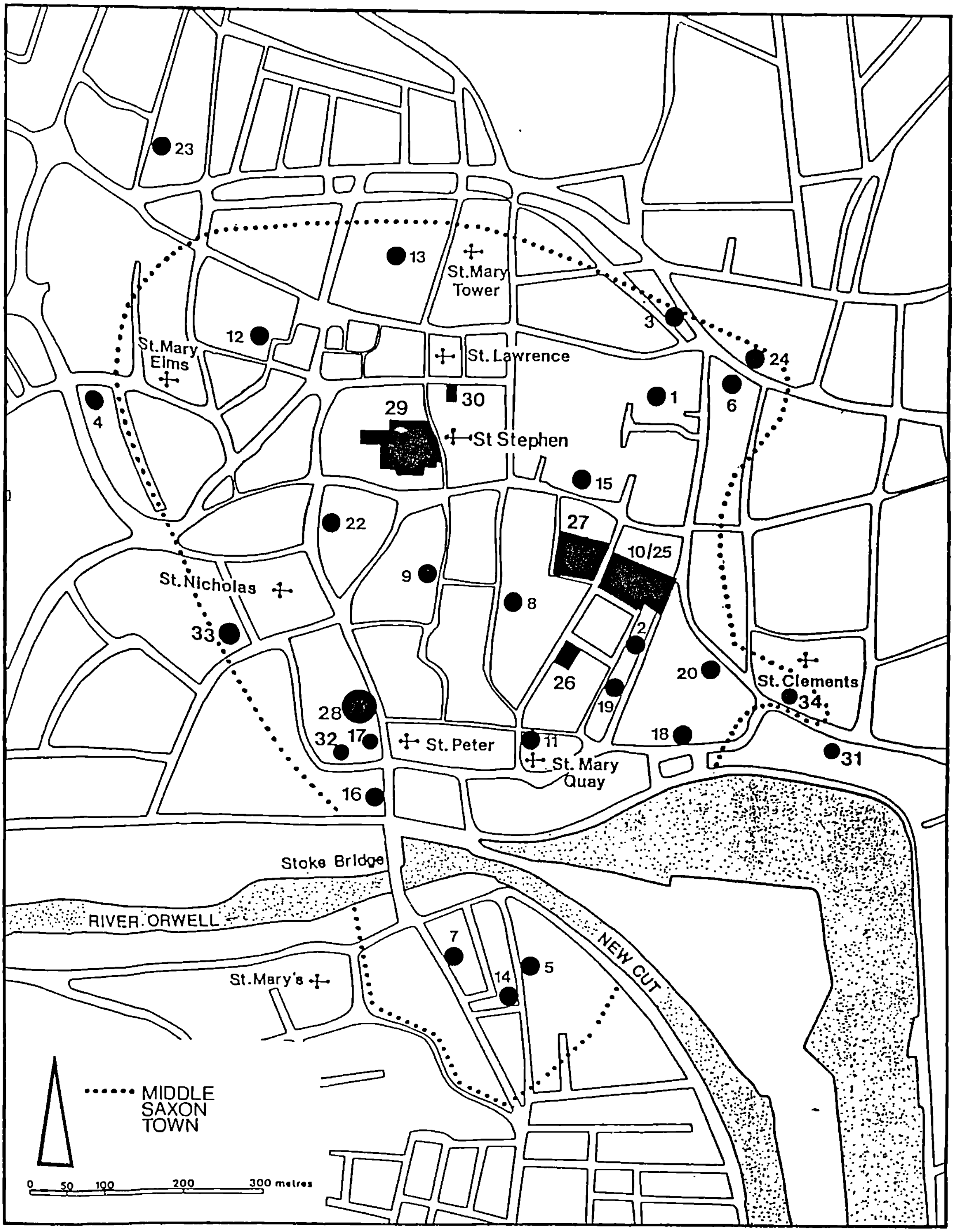
Re-examination of the finds led to the suggestion that the majority belong to the 7th century. Harden has suggested that most of the glass objects belong to the 7th century (Harden 1956:162, 167), and most of the metalwork, including an imported Frankish buckle and a Kentish buckle and silver neck-ring, is also considered to be of this date (see Leeds 1936:85, 1949:121, 132 no. 138). Indeed, according to West (1963:234), the earliest Saxon object is a glass claw beaker of 6th/7th century date, and beyond this there is nothing of Early Saxon date.

In addition to these grave-goods, a fine hanging-bowl was also recovered from the site, and this is unlikely to date earlier than about AD 650 (Ozanne 1962:211). To sum up, it seems that the Hadleigh Road cemetery was primarily of 7th century date, with its origins in the late 6th century, and continued until the mid- to late 7th century. It is interesting that no Middle Saxon wheel-made Ipswich ware was found at the cemetery site, which led Ozanne to conclude that this pottery could not have been in production until AD 700 or later (Ozanne 1962).

4. Excavations in Ipswich

An early date for the Saxon town was first suggested in 1957, when the pottery was studied by Hurst (Hurst and West 1957). Hurst suggested that the town had been founded in the early 7th century, on the basis of the ceramic evidence. The first systematic excavations in the actual town of Ipswich were carried out by the Ministry of Works at Cox Lane in 1958, close to the area where a Thetford ware kiln had been discovered in 1928, and at Shire Hall Yard in 1959 (West 1963). These were rescue (rather than research) excavations, carried out prior to the redevelopment of the two areas. At

Figure 2,2 Excavations in Ipswich (courtesy of Keith Wade)



Cox Lane, 19th century cottages overlay post-15th century material; the layers below the latter and above the Norman levels were virtually barren of archaeology. The dearth of post-conquest deposits meant that the Saxon levels were relatively intact and the first of the Ipswich sequences produced levels containing Late Saxon Thetford ware overlying postholes, rubbish pits and a defensive ditch. The pits contained Ipswich ware, Thetford ware and a small quantity of imported Rhenish pottery. The ceramic assemblage and associated timber buildings suggested that part of a mid-9th century settlement had been located. The Shire Hall Yard excavations have Middle Saxon levels represented by a single rubbish pit containing Ipswich ware. The retrieval of six sherds of imported Rhenish pottery dating to the 8th/9th century was of enormous importance at the time, in view of the tiny amount of identified imported pre-conquest pottery in Britain in the 1950's.

In 1961 the Ipswich Borough Museum was responsible for the excavation of the site of five Anglo-Saxon kilns (Smedley and Owles 1963). Wasters of Ipswich ware had been found in the area prior to 1920, and it had been thought for some time that the Cox Lane/Carr Street area of Ipswich was likely to be the site of the pottery industry. One of the kilns was badly disturbed, but contained Ipswich ware pottery. The remaining four produced Late Saxon Thetford ware, and two of these were excavated. During the 1960s there was a reluctance to undertake excavation in Ipswich that was directly concerned with looking at the Middle Saxon period. This may have been due to the settlement's historical invisibility. The lack of those two prime sources of cardinal information - documents and coins - restrained the bodies responsible for archaeological excavation in the area from throwing away resources on a possible chimera.

The full potential of the settlement was not appreciated until the 1974, when Keith Wade of the Suffolk Archaeology Unit initiated a series of problem-orientated excavations in an attempt to establish the extent and dating of the Middle Saxon settlement (Wade 1978). Work in the late 1970s aimed at fulfilling three particular goals:

1. The systematic sampling, by means of small excavations, of the area of Ipswich known to contain Ipswich ware.
2. Problem oriented excavations designed to answer specific questions about churches, the town defences, streets and the waterfront.
3. Large-scale excavation designed to reveal information about the plan and organisation of the settlement.

(Wade 1978:281).

Since the 1960s there have been c.34 excavations in the centre of modern Ipswich. Only three of these, Cecilia Street (trench 5001), St Georges Street (9802) and St Stephens Church (3203) have not produced evidence of Middle Saxon occupation. The imported pottery from St Georges Street dates to the Late Saxon period, or possibly later. These trenches lie outside of the core of the Saxon town. The Cecilia Street area lies adjacent to the old course of the Gipping. In Middle Saxon times this would have been a fairly marshy area, not ideally suited for habitation or industrial purposes. Further north along the Gipping, at Elm Street (3902, Fig. 2,2 no. 4), there is scant evidence of Middle Saxon occupation. St Georges Street (9802, Fig. 2,2 no. 23) lies outside of the Saxon area, and excavation there revealed no evidence for Middle Saxon occupation, even though Ipswich ware was found close by at Westgate. At trench 8804 on St Helen's Street (Fig. 2,2 no.24), at the east side of the settlement, the earliest imports appear to be early Late Saxon, whereas close by in trench 3601 (Fig. 2,2 no.6) a tiny 3sq.m excavation produced a Middle Saxon pit and Ipswich ware, indicating that there was some Middle Saxon presence in this area of the settlement.

One of the most interesting trenches to be excavated in Ipswich has been in Greyfriars Road in 1986 (5203, Fig. 2,2 no. 28). Most of the imported pottery from this trench dated to the 7th century (Bornheim-Waldorf types, Walberberg ware, Mayen ware and Black wares). In a significant number of contexts, imported pottery was found in pre-Ipswich ware contexts, suggesting that this area was occupied, and used by traders or for trade, in the first half of the 7th century. The assemblage from this site contrasts markedly with that from other major trenches such as 4601 and 4801 in the Foundation Street area (Fig. 2,2, nos. 10/25 and 27, and Fig. 2.3). In these latter trenches the imported assemblages are dominated by late 8th to early 9th century ceramics. In the other major trench in Ipswich, at the Butter Market site in St Stephen's Lane (3104, Fig. 2,2 no. 29, and Fig. 2.4), there are only a handful of imports that can be conclusively dated to earlier than the 9th century, although the Black wares found there could date to any time between AD 600 and the early part of the Late Saxon period.

All of the areas mentioned so far have been on the north bank of the River Orwell, but the Middle Saxon occupation of Ipswich extends south of the river into the parish of Stoke. The northern and southern parts of Ipswich were connected by a bridge from at least AD 970 (Scarfe 1972:129), and by a ford in the shallower water slightly to the east. Three trenches on the south bank, located at Great Whip Street (7501, Fig. 2,2 no. 5), Vernon Street (7402, Fig. 2,2 no. 7) and Little Whip Street (7404, Fig. 2,2 no. 14), have produced

Figure 2,3 The Foundation street sites (courtesy of Keith Wade)

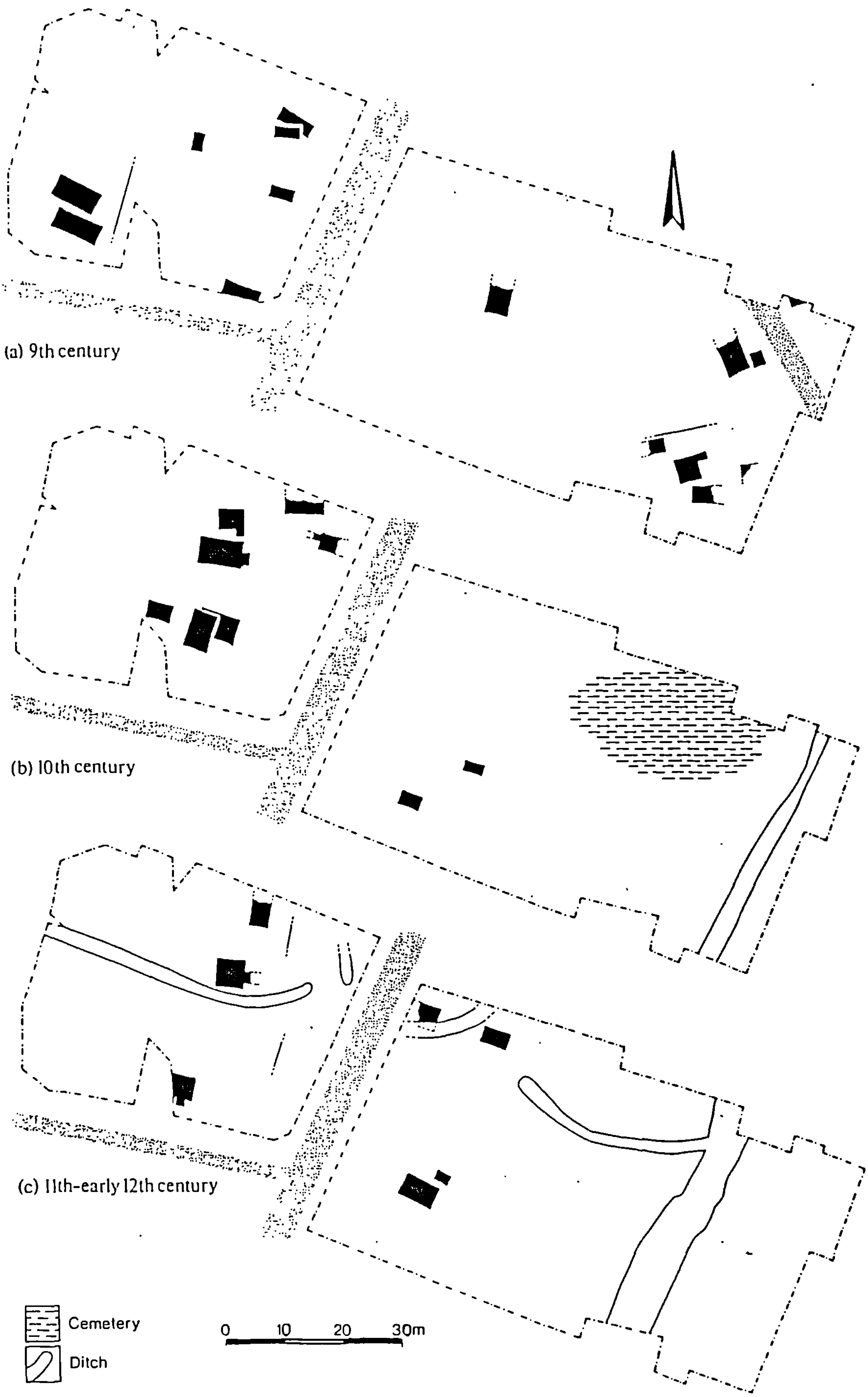


Figure 2,4 The Buttermarket site (courtesy of Keith Wade)

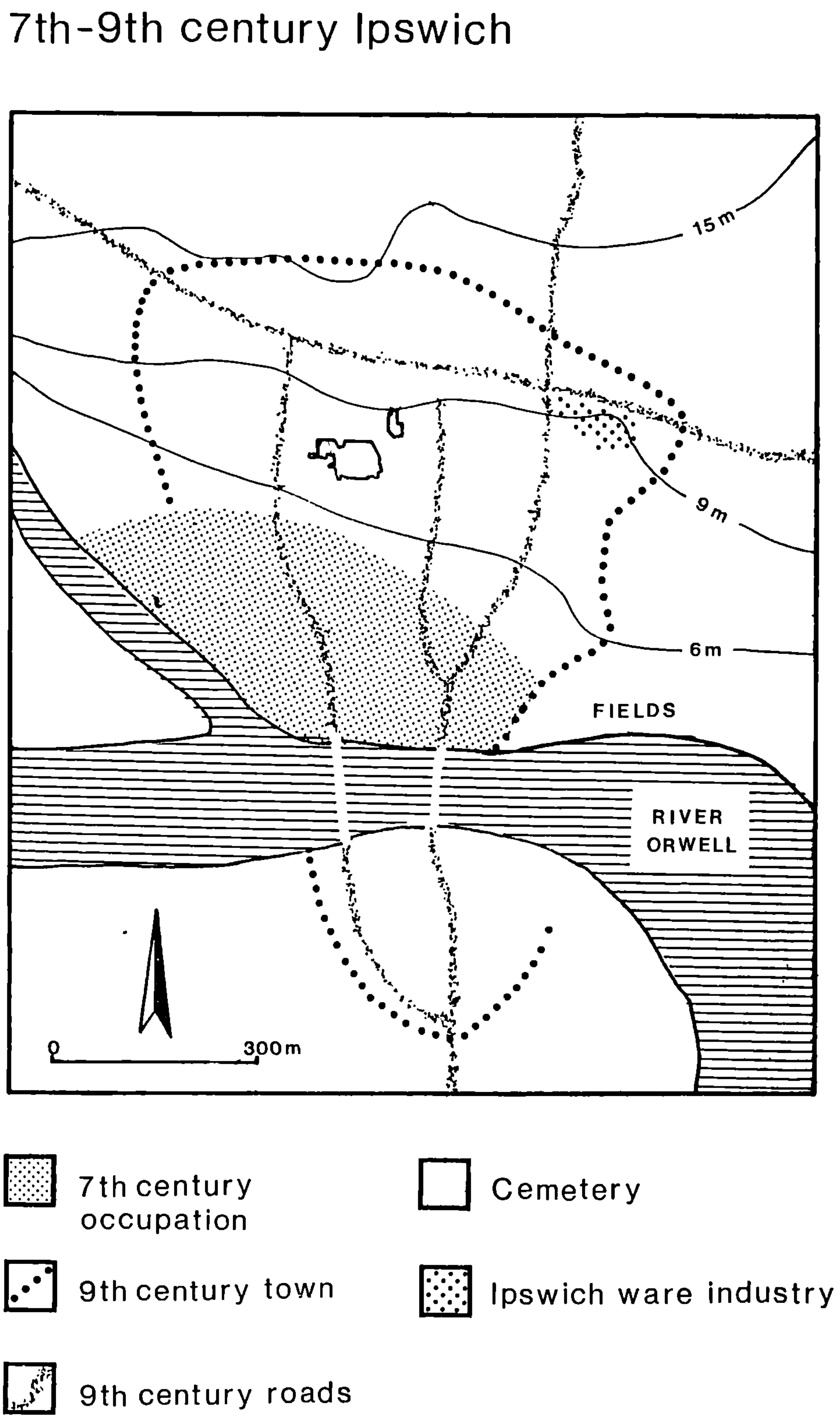
Middle Saxon features in the form of a ditch, a foundation trench and pits, Ipswich ware and Middle Saxon imported pottery.

Thus the north-south axis of the Middle Saxon area of Ipswich extends at least 1km, from Vernon Street to Tower Ramparts, and west-east from close to Elm Street to St Helen's Street, an area of approximately 50ha (Fig. 2,5).

Even taking into consideration the large area of ground Saxon Ipswich spread itself over (with c.10,000 sq.m of the Middle Saxon area excavated), we cannot produce a comprehensive description of the layout of the Middle Saxon settlement. This contrasts sharply with the vivid picure of Hamwic, drawn from the Six Dials excavations in Southampton (see plates 2,1 and 2,2). The layout of the Ipswich street system probably dates back to the Middle Saxon period, and it has been suggested that Brook Street, the main north-south road through the town, has its origins in this early period (Dunmore, Loader and Gray 1976:140). The Middle Saxon pattern forms a loose grid of streets, some of which remain in continuous occupation from the 9th century to the present day. The later Saxon street pattern, which appears to consist of a compact rectangular pattern of streets in the central area, surrounded by a curving line of streets that follow the course of a defensive ditch, can still be seen fossilised in the modern street-plan of Ipswich (Dunmore *et al.* 1975:65). But many areas of the town have not been touched by excavation, and other parts have had their early levels destroyed by Victorian cellaring.

Other trading sites of this period appear to be divided up into zones with different functions (for example Dorestad), but the patchiness of structural survival in Ipswich makes it very difficult to determine if such a zoning exists in the latter. The excavators suggest that Middle Saxon Ipswich can be divided into four zones: permanent building on the higher ground, seasonal activity closer to the river, a waterfront zone and a pottery making zone (Wade 1988:99). The Cox Lane area undoubtedly represents one of the major industrial areas, having produced both Ipswich ware and Thetford ware kilns; the kiln waste extends for 160m along the south side of Carr Street, suggesting mass production on a scale unlike any other ceramic industry in Middle Saxon Britain, and rivalling continental centres of production. Many other trenches have revealed traces of industrial working of one kind or another. All of the classic artefacts that are associated with the large emporia of Dorestad and Hamwic for example, are to be found in this settlement. Antler working for combs is particularly well represented in the Greyfriars Road/St Peter's Street area (5203, Fig. 2,2 no.28) which was excavated in 1986, and there is also evidence for this industry occurring south of the river. There are few offcuts or unfinished pieces of bone and antler, which suggests that this was a casual industry. The

Figure 2,5 7th to 9th century Ipswich



waterlogged deposits near the waterfront area produced large quantities of leather and shoemaking debris. In addition, there is evidence for metalworking and weaving - activities found to be carried out in virtually every excavated settlement in the Saxon period. Industrial activity in Ipswich is widespread, but of low intensity; Wade suggests that much of it was in the form of a 'cottage industry' (Wade 1988:93).

The waterfront area of Ipswich has received an increased amount of attention in the late 1980's. The line of the waterfront has been plotted using boreholes, and an excavation near Stoke Bridge revealed timber revetments (Wade 1988:94). The revetments start their life in the Middle Saxon period, and extend outwards during the later Saxon period. They would have provided an area for goods to be off-loaded from boats.

5. The imported finds

Imported glass and Rhenish Niedermendig lava quernstones appear in the Middle Saxon levels in Ipswich, as do 8th century sceattas (see Table 2). The glass fragments at Ipswich are all distinctive pieces, and most of them can be recognised as belonging to the glass production series of the 8th century or later. The continental connections appear to be with Scandinavia, the Netherlands, and Germany. The glass includes a number of tall palm cups, in bluish-green or greenish-blue glass, squat cups, funnel beakers, a claw beaker, and vessels decorated with reticella threads. The tall palm cups are known from 7th century cemeteries, and their form and colour suggests that they are late 7th century in date. They compare well with examples from Germany and the Netherlands (Rademacher 1942: Taf. 58 and 59), and examples from England, for example at Hamwic, and Sarre in Kent (Harden 1956:153). One of the funnel beakers from Cox Lane is similar to that found in Grave 849 at Birka, which suggests a 9th century date for the Ipswich vessel (Arbman 1937: Taf. 3).

Decoration with reticella trails was a technique used in the 8th and 9th centuries, and vessels of this type are found in dated contexts in Esslingen, Helgö, Kaupang, Sodermanland, Old Ladoga, Belgorod Dnjestrowski, Rome and San Vincenzo al Volturno, and in contexts in Hamwic, Whitby, and Armagh (Arwidsson 1932:262, Craddock 1989, Haevernick 1979, Harden 1956:152, Holmqvist and Arrhenius 1964:251, fig. 112. Hougen 1969b:119, Isings 1978:260-2). Reticella decoration is found extensively on glass vessels in Scandinavia, and less extensively across mainland Europe.

Some window glass has also been found, manufactured by the cylinder-blown method common in the period (Harden 1961).

The most common, and indeed significant, class of artefact found is the imported pottery, ranging from Rhenish and northern French wares of the early 7th century, and continuing through the medieval period with occasional peaks and troughs in quantity.

6. The pottery

A full account of the imported pottery follows in Chapter 5; this section provides a summary of the imported pottery found in Ipswich.

The earliest datable pottery to be found in Ipswich that has a well-defined provenance belongs to the early 7th century and comes from the central Rhineland. Whereas very little pottery appears to have reached Ipswich from the Mayen workshops, pottery from Bornheim-Waldorf is quite common in certain areas of the town. At the same time, Black wares were being brought to Ipswich from northern France. In both of these cases, the imported ceramics are being found in pre-Ipswich ware contexts.

The 8th century is more difficult to define in ceramic terms. Contexts are noted as being Middle Saxon because they hold Ipswich ware, but no later pottery. Within the two hundred year period that produced Ipswich ware (AD 650-850) it is not easy to define shorter phases because of the apparent uniformity of the locally produced pottery through time. It is possible that there was a lull in activity in the early to mid-8th century, but this could simply be a reflection of the greater ease of identification of the later pottery.

Before the recovery of the 7th century assemblage from Greyfriars Road in 1986, it appeared that virtually all of the potentially earlier imports were northern French Black wares, and Merovingian vessels. This suggested that there was a distinct source for most of the overseas trade in Ipswich, namely the Pas-de-Calais area. The excavations at Greyfriars Road have shown conclusively that Ipswich had dealings with the Rhineland as well at this time. The majority of the imported pottery in the 7th century, and possibly throughout the 8th century, does appear to originate in France.

In the later part of the Middle Saxon period (the late 8th and early 9th century) the Frisians appear to have gained, if not the upper hand, at least a substantial market in East Anglia. Badorf ware is common; at least 100 vessels of 8th/9th century Badorf ware are represented in Ipswich. There are at least 26 Frisian *kugeltopfen*, probably of the same date. Fragments of eleven vessels of Tating-type ware, from eight different trenches, have been recovered. These include pitchers, small jars or cups, and a fine, shallow dish.

Although most of the Tating-type ware will date to the late 8th to early 9th century, some of it may be earlier (see Chapter 5, section 14).

Throughout the Late Saxon period, the continental focus appears to favour Frisian (ie. Rhenish Pingsdorf) pottery, but a greater proportion of the red-painted pottery could have originated in Frankish kilns than is immediately apparent. Excavations in Ipswich produced approximately 5800 sherds of imported pottery (at least 930 vessels) up to 1986. In many cases an imported vessel is represented by a single sherd of pottery, and examples of near complete profiles, such as Figs. 5.9.3 and 5.10 are very rare.

7. The coins

Sceattas are not found in Ipswich in anything like the large numbers they are found in Hamwic. It is comparable with frequency of finds from Dorestad, taking into account the much smaller area of Middle Saxon settlement excavated in Ipswich (see van Gelder 1980). The 'peaks' of coin finds in Ipswich occur in the mid-8th century and early 10th century, and follow a different pattern to the peaks and troughs in the imported pottery sequence. This may reflect East Anglian/English political machinations rather than cross-channel trade upheavals, with the ceramic sequence providing an indication of more mundane trade and exchange patterns. The coins may well be seen to demonstrate a quite different level of exchange to that shown by artefacts such as ceramics.

8. The role of Ipswich

The emporium of Ipswich has to be seen historically as part of the Kingdom of East Anglia; and economically in relation to the continent and other emporia in England, to the 'region' of East Anglia, including Essex, and to the local hinterland. These three zones would have operated in different ways in terms of their trading relationships. The social meaning of goods passing through Ipswich would change as they departed one socio-economic context and entered another. To take the pottery industry as an example; Ipswich ware, manufactured within the Anglo-Saxon town was consumed locally, regionally, and in other large sites in England. There are a growing number of excavated sites in England, outside of East Anglia, that have produced Ipswich ware (see Fig. 5,19, Appendix 1), although many of these are either monastic, royal, or trading sites. Until recently it was assumed that the Ipswich ware that found its way outside of East Anglia was all the more finely made, decorated ware. In effect it seemed that 'exported' Ipswich ware was acting as a prestige good, in the same sort of socio-economic context that Rhenish pottery operated in Ipswich itself. However as more Ipswich ware is recovered from excavations outside of East Anglia, it is becoming apparent that basic, utilitarian pottery was also being exported in large quantities. This does not actually contradict the argument that Ipswich ware acted as a prestige good when it is considered that the alternative local pottery would be hand-made and fairly crude. The virtual absence of Middle Saxon pottery in the much of the northern and western part of England suggests that pottery itself could have been rare enough to be considered a prestige good. In these areas vessels made of organic materials such as wood, leather, reeds, straw, and heather would have been used as the principal cooking and storage containers. Ipswich ware found outside of East Anglia may well have been accompanying imported goods from the continent that had been initially landed at the emporium.

In Ipswich itself, the imported pottery was probably brought in for the personal use of the foreign traders rather than as traded items in their own right (see Hougen 1969a:116). The pottery, and the wine that much of it contained or accompanied as storage vessels, had a different social meaning once it became separated from its retailers. In the monasteries and palaces of Saxon England wine drinking was a prestigious, and indeed religious affair. Riché refers to the Carolingian period as 'an age obsessed with wine' (1978:177), and reveals that it was sometimes considered to be a penance to drink beer if wine was lacking. Wine was needed for the Sacrifice of the Mass, for monks' and canons' meals, with the best wine being kept in reserve for important guests. The finely made, foreign pottery, coming from the heartland of the Carolingian Empire, carried with it the prestige that goes hand-in-hand with rarity and long-distance acquisition, a hint of the Emperor Charlemagne, and a suggestion of the sacrament in its use as container for the 'blood of Christ'. The wine that the vessels contained would have been the primary prestige good, the pottery containers merely a token of this prestige.

III Hamwic

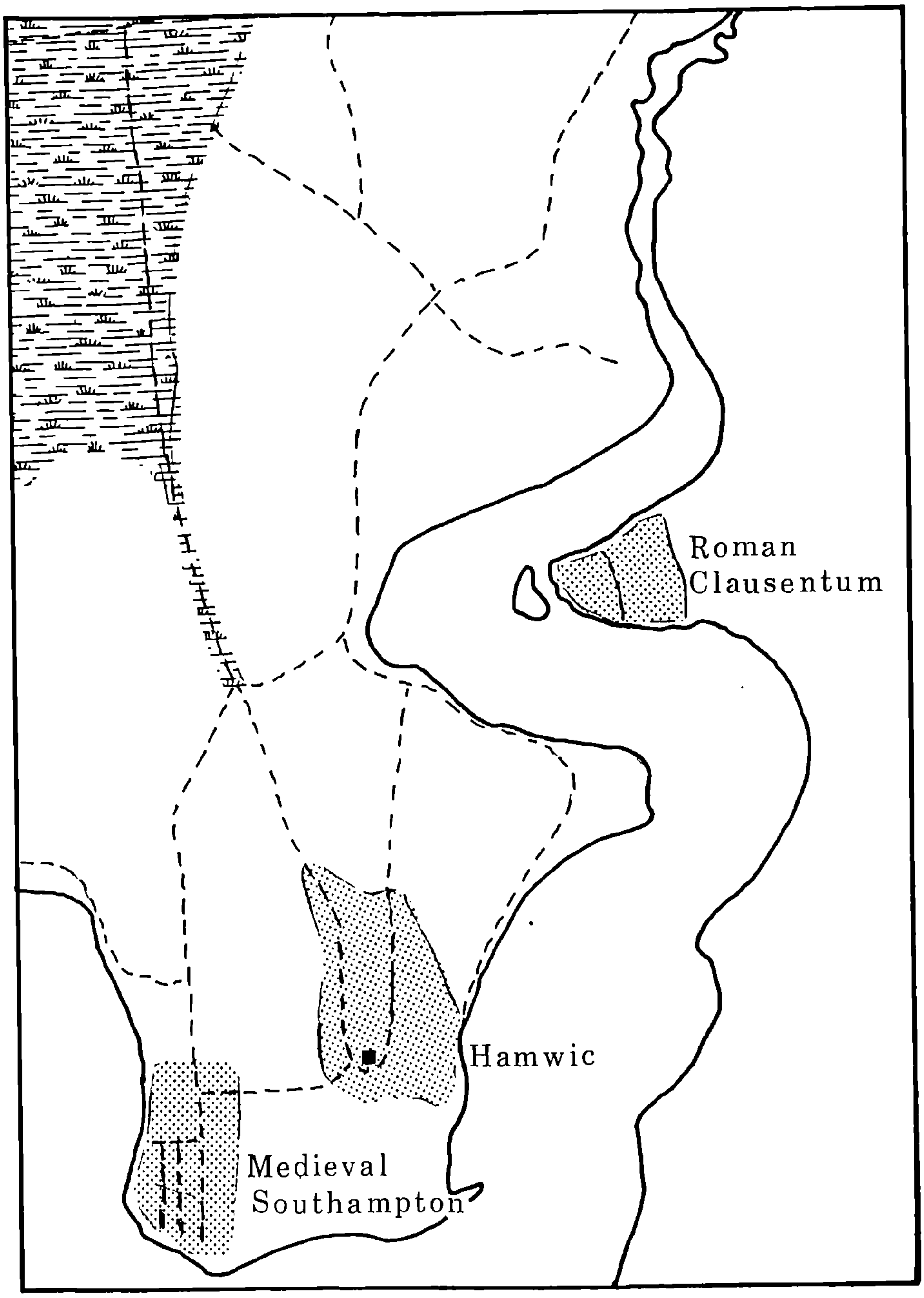
1. Introduction

The Middle Saxon port of Hamwic (also known as Hamwih) lies in a sheltered spot on the low ground on the west bank of the river Itchen, not far from the mouth of the Solent estuary. The area available for occupation was restricted by marshes to the north and east, making it almost an island site. The site was bounded by a non-defensive ditch system dating to around AD 700 (Brisbane 1988:102-3). The dendrochonology and coin evidence also support a date of c.700 for the origins of the settlement (Hillam 1985b, Metcalf 1988). The vast majority of the evidence for occupation lies within the ditch area. Although the Saxon port, Roman fort and medieval town all lie under the modern town of Southampton, they were originally situated some distance apart. The Roman fort of Clausentum lay on the east bank of the Itchen, and the Saxon site was built more or less opposite it. The medieval area occupied the land close to the confluence of the rivers Test and Itchen on the gravels of the peninsular, with its warehouses facing onto the Test (Fig. 2,6).

2. The name of Hamwic

For most of the past forty years the site has been referred to in the literature as Hamwih. This spelling is a continental Germanic form of the name, recorded in a Heidenheim document of 778 (Rumble 1980:7). Coins of the late 10th and early 11th century represent the name as Hamwic, and this is likely to have been the insular spelling during the Saxon period, in common with Ipswich (originally Gippeswic), Quentovic, Eorforwic and Lundenwic. As such it is the form more commonly used nowadays, and is kept to throughout this report. Hamtune is the name-form recorded in the Domesday book, giving a third version of the Saxon place-name. Hamwic was the first site in England to gain major archaeological prominence as a Saxon trading port. Attention was first drawn to the site in the late 19th century, when brick-earth diggers uncovered numerous coins from Saxon pits. Between 1946 and 1950 excavations in the area uncovered a considerable amount of Saxon period material, indicating to the excavators that a major site had been stumbled across. The actual size and uniqueness of the site was not appreciated until after the excavations of the 1960s and '70s, which showed it to have covered about 40 hectares, making it comparable to Dorestad and Quentovic on the continent.

Figure 2,6 Roman, Saxon and Medieval Southampton



3. Documentary evidence

The first document that mentions the site refers to the town in 721. The last mention of it is in 840 (Pay 1987:3). These documents merely signal the existence of the town, rather than informing us a great deal about activities there. They do tell us that a port of some kind was in existence in the first quarter of the 8th century, and carried on at least until the mid-9th century.

4. The excavations

Excavations since the 1960s uncovered large areas of the Saxon town (see Addyman and Hill 1968, 1969, Holdsworth 1975, 1976, and 1980). Approximately 4% of the settlement has been examined archaeologically, with a further 2-3% observed by antiquarians and historians (Brisbane 1988:101). The systematic, large-scale, open-area nature of much of this work is usually very difficult to undertake within the confines of a modern town, but in the case of Hamwic shows just how profitable such work can be. Unlike other Saxon sites with continuous occupation through to the present day, the Hamwic area was under pasture from about AD 1000 to c.1830, thus allowing the archaeological deposits to remain undisturbed (Brisbane 1988:101). The tenement divisions and street plan of the Saxon settlement could be discerned after the excavations, along with structures of various sorts, and an overwhelming quantity of refuse and artefacts. The street system was clearly planned before being laid out, for it is a regular gridded pattern, to some extent still fossilised in the present street system (Plate 2,1). Gravelled roads run throughout the site towards the river, and most of them show signs of re-surfacing. As with all of these sites, the occupied area is riddled with pits containing animal bone, pottery, and other waste material. Some of these pits cut into roads towards the end of the sites period of use, whereas others appear to have been in use for a considerable period of time.

Major rebuilding within the St. Mary's area led to the excavation at Six Dials, a piece of work that revealed a clear plan of one part of the town. The excavation showed that a major road had ran under the present St Mary's Road in the 8th century. This road measured 15m across and was crossed by smaller roads (usually about 5m wide). Houses fronted onto both the major and minor streets, with paths or alleys leading to buildings that stood behind the roads. Rubbish pits had been dug in most of the 'backyards', some of these were up to three metres deep; Six Dials alone had produced over 400 pits. The pits appear to have been initially used to dispose of sewage, and were later filled with general household rubbish.

Plate 2,1 The street system of Hamwic (taken from a drawing by John Hodgson)

The density of occupation, as revealed at Six Dials, appears to have been fairly constant throughout the town, without any obvious status differentiation reflecting in the sizes of the houses. The major streets were well maintained throughout the settlement's lifetime, being patched and resurfaced as the need arose, while the alleys running off from them shifted or disappeared according to whether buildings nearby were being utilised. The extensive street system and large, well-laid out thoroughfares suggest that, like Ribe and Haithabu, Hamwic was both planned and regulated by some central authority. The uniformity of settlement also suggests that it is all of one period, that it was planned, then laid out, in a short space of time. The town could well have been established by royal prerogative or instigation, or be a response to the economic security found during the reign of king Ine of Wessex in 688-726 (Loyn 1962:138).

The structures themselves were fairly densely packed together along the street fronts. The buildings were generally rectangular and measured c.12m x 5m (Brisbane 1988:104). Their plans suggest that they were simple, single storey houses, with walls of wattle and daub. In common with other emporia, stone-built dwellings are unknown.

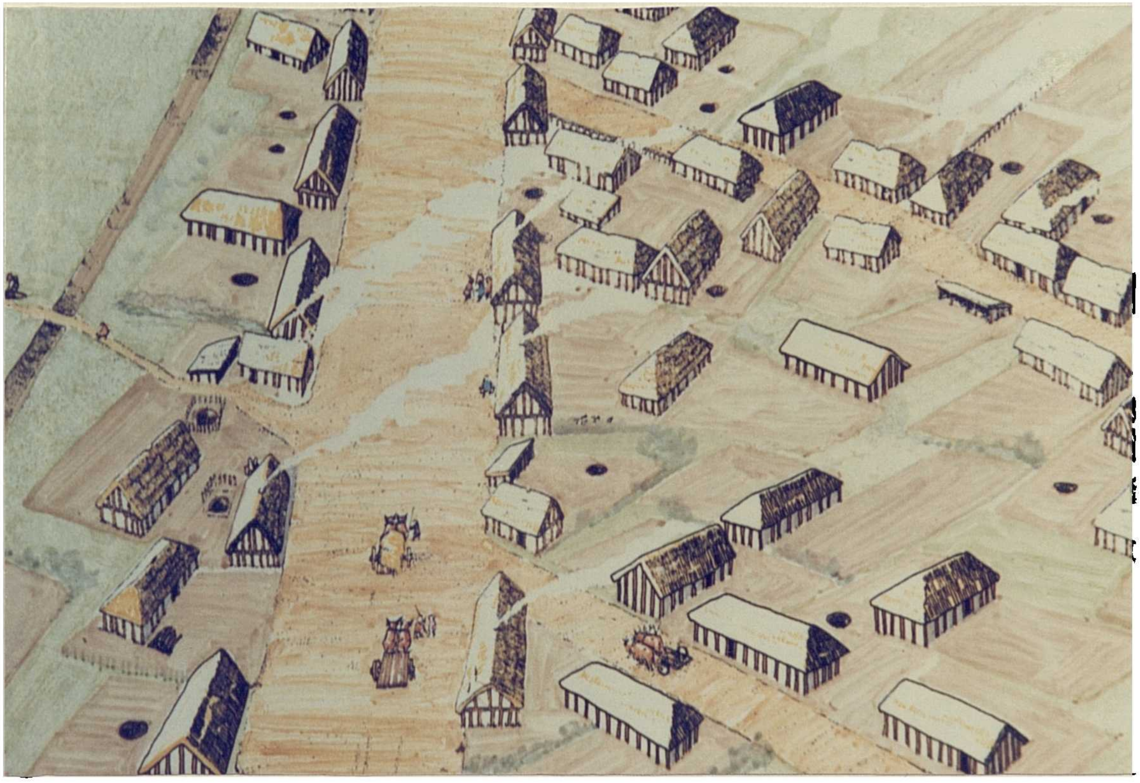


Plate 2,2 Reconstruction of the Hamwic workshops (from a drawing by John Hodgson)

5. Church and cemetery

At least four cemeteries have been located, and as at Dorestad, one of them contains a wooden structure which may well have been a church. The building was rectangular with a nave and chancel, and fragments of window glass close by suggest that the windows may have been glazed. The presence of the church suggests that at least some of the occupants of Hamwic appear to have been Christian. The bodies in the cemetery were laid in coffins aligned west-east, with no accompanying grave goods, although evidence of grave-markers have been found in some cases (Pay 1987:27). The largest cemetery contained c.100 burials and about 200 burials have been uncovered in all; if

Haithabu is a good example, the Hamwic skeletal sample must be a very small portion of the actual population.

6. **The finds**

Animal bone dominates the finds assemblage by its sheer quantity, and a large proportion of this has been worked. Bone needles, pins, spindle whorls and threadpickers, all accoutrements of the weaving industry, were found in some numbers. A few fragments of woollen cloth also survive. A bone comb industry appears to have been flourishing in Hamwic (Addyman and Hill 1969:75-77, Hinton 1980:77). Other bone objects include bone handles, mounts and a broken flute or 'penny whistle'. As well as the usual species utilised for bone-working such as deer and cattle, a few fragments of worked whale bone were found (Bourdillon and Coy 1980:114). Along with bone working, we have evidence for other industrial processes such as metal-working and pottery manufacture, albeit in a vestigial form. Iron was being worked in the town, as the concentrations of slag and hammerscale show, but there is no evidence for its actual smelting. The two smithies, complete with hearths and metal-working tools and debris, were located at street junctions. Crucibles and moulds show that bronze was also being worked. Utilitarian objects such as pins, strap ends, tweezers and buckles were made on site. A small proportion of the bronze work was gilded, but there is a lack of really fine metal objects at Hamwic (Hinton 1980:73). Leadworking and goldworking were carried out (Brisbane 1988:104).

It appears that wool was being processed on site, and that textiles were being produced from the spun wool. Leather working may have constituted an export industry in Hamwic (*ibid*:106). Brisbane suggests that Hamwic must have been exporting a small number of commodities abroad, and not to just the immediate hinterland, and the evidence suggests that these were wool/textiles and leather.

There may have been a glass-bead industry in Hamwic too; the large quantities of cullet indicate that this material may have been brought in for reworking into beads. Some of the glass beakers have a distinct form, colour and decoration, unique to Hamwic, hinting that these vessels may have been made in the town itself (Pay 1987:13). Glass was certainly imported from the Rhineland, and is found scattered all over the settlement. It is interesting to note that none of this material appears to be 7th century in date (Hunter 1980:68). Basalt lava quernstones from the Eifel mountains were also imported into the settlement. Mica-schist whetstones have also been found, imported from Norway (Peacock 1980:75).

7. The pottery

The imported pottery from Hamwic is one of the most important Middle Saxon assemblages in the country. The imported pottery makes up about 15% of the total assemblage (c.18% by weight) (Timby 1988:73, 78-9: tables 5 and 6), a figure which is considerably higher than the 5% that is generally considered to be the proportion of imports in Ipswich (Paul Blinkhorn pers. comm.). The vast majority of the pottery is locally derived and hand-made, coming in a variety of fabrics and forms - mostly cooking pots and storage jars, in sand-, chalk-, mixed grit- or organically-tempered fabrics (Hodges 1981a:5-14, Timby 1988:77, table 4). Brisbane suggests that the fact that 80% of the pottery is made from the local brickearth, in addition to the recovery of pot dies in bone and antler, acts as indirect evidence for pottery manufacture within Hamwic (Brisbane 1988:104).

The imports (frequently spouted pitchers and bowls) principally derive from northern France, suggesting close contacts with the Pas-de-Calais port of Quentovic. The French wares are primarily of two sorts, Black and Grey wares, although there is a lesser amount of cream-coloured wares from the Seine valley. Many of these different types appear to derive from the kiln site of La Londe, near Rouen (Hodges:forthcoming). Beauvais pottery can be recognised within the assemblage, as can pottery from Normandy. There is a lesser amount of material from the central Rhineland, in the form of Tating ware, Mayen pottery, Relief-band amphorae and Badorf ware (Hodges 1981a). Haqmwic's ceramic assemblage contrasts sharply with that from Ipswich in terms of the number of Rhenish vessels found at the latter site. Timby's 1988 report on the Hamwic pottery does not add any more provenanced groups of imported pottery to that given by Hodges in 1981.

8. The animal bones

Animal bones have been recovered in enormous quantities from Hamwic. The faunal studies show that the assemblage was dominated by cattle and sheep. Most of the cattle seem to have been kept until they were a good age before slaughter, only about a quarter were killed at the best age for tender meat. The high proportion of females suggest secondary products of milk and cheese were important. Traction, dung, bone, and skin were also important secondary products. Within the sheep assemblage, the faunal evidence shows a clear bias towards unusually large, old animals that would have been kept for their wool, rather than their meat. Pigs make up the third major animal resource, and deer, horse, small mammals, birds (including wild species), cats, dogs and amphibians are also represented (Bourdillon 1988, Bourdillon and Coy 1980:79-127). Not surprisingly, another important food resource was in origin. The skeletal remains of fish such as trout, salmon, herring, cod, mackerel, plaice, mullet, flounder, whiting, bass, ray and bream, were all identified at Hamwic (Bourdillon and Coy 1980:119, Pay 1987:23). Eel and oyster remains were prominent in the assemblage; mussel, whelk, scallop, winkle, and cockle were also found. All of these marine creatures could have been found in the estuarine waters close to the site.

9. Other food remains

Seeds and other plant remains have been identified from the site. These include wheat, oats, barley and rye, which could all have been used as bread or porridge bases. Other plant remains include carrots, peas, broad beans, and field beans, and fruits such as pears, plums, apples, cherries, raspberries and blackberries were all available to the occupants of Hamwic. Herbs like parsley, thyme, mint and mustard, and wild foods such as nettles and sorrel could have been collected from around the settlement.

10. The coins

Nearly two hundred sceattas have been recovered from the excavations within Hamwic, more than from any other site in England. The sheer quantity of coins suggest that a monetary economy may have been in force within the settlement, even if it did not extend into the surrounding countryside. Some of the earliest coins date to around 700-10, but the majority were minted in the middle of the 8th century (720-80), suggesting that this was the period of the town's greatest activity (Pay 1987). The large numbers of BMC types 39, 48 and 49 suggest that these might have been the coins minted in the port (Holdsworth 1980:1). The absolute dearth of Series H sceattas outside of Hamwic support the suggestion that Hamwic was operating a closed coin economy (Metcalf 1988).

Sceattas have been found in Hamwic from a number of other centres in England and on the continent. The 'porcupine' and 'Wodan-monster' types suggest links with Dorestad and Ribe. Other types have been found which connect Hamwic with London, Kent and the Midlands. It is yet to be seen whether Quentovic will produce large numbers of sceattas linking it to Hamwic.

In addition to the sceattas, a few pennies were found, suggesting that the site continued into the mid-9th century, before being abandoned in favour of the area of the medieval town. The coin evidence suggests that the site went into decline in the second quarter of the ninth century, coinciding with the harassment of the coast by the Vikings.

11. Discussion

Evidence now suggests that Hamwic was a permanent settlement, rather than being seasonally occupied. Seasonality is 'categorically not in keeping with the archaeological evidence, which shows no sign at all of periods of desertion.' (Brisbane 1988:106). However, even if Hamwic was occupied all year round, it could not have been involved in long-distance trade throughout the whole year. It seems far more likely that the bulk of the population would have been involved in production, and perhaps trade with the hinterland, throughout the year, and engaged in long-distance trade during the months when sea-travel was easiest.

Hamwic's relationship with its hinterland is of crucial importance, but sadly, this is an area that has only been touched on by the massive programme of archaeological fieldwork in the locality. 'We are still at a loss when trying to deal with the spatial relationship of this central place to its rural hinterland.' (Brisbane 1988:107). Whereas it is theoretically possible that the settlement was self-sufficient, and lived off its immediate agricultural hinterland, it is an unlikely model. Why have a self-sufficient trading site? The imported products had to go somewhere and it seems probable that some of them were distributed to surrounding villages. A two-way relationship must have existed between Hamwic and its region. However, it is only recently that systematic fieldwalking projects and field survey are starting to reveal the pattern of settlements in the hinterland of Hamwic. Until this work has been completed and the contemporary settlements around Hamwic documented archaeologically, Hamwic will appear to stand as a gateway community without means of egress other than the sea.

IV London: history's darling, archaeology's nightmare.

The Vikings 'clapped spurs into the flanks of a rather sluggish and indeterminate Saxon England, gave it impetus and to a less extent direction, and rode it vigorously into the middle ages.' Wheeler 1927:3 (London and the Vikings).

1. Introduction

London's supremacy as the major city of England is incontestable from the 10th century onwards, but until very recently there was only the slightest of archaeological evidence to suggest that any Middle Saxon site there had much more status than a group of farmsteads on the bank of the Thames. Given the unusual situation at Dorestad, where farms appear to exist within a site dominated by trading and production activities, it would have perhaps been wiser for those involved in the debate to have taken less polarised positions on the present capital.

Before the recent Jubilee Hall excavations, views on the status of London were firmly divided into two schools of thought. Firstly, there was the view based on the scant documentary evidence of Bede and his contemporaries. Bede described London as an `emporium of many people coming by land and sea'. The historical precedent of London having been the nation's capital both before and after the Saxon period gave support to the suggestion that it was the capital, or at very least a major centre for trade, during the intervening years. The position was not fettered by the lack of archaeological evidence - Schofield stated that London's use `as the principal port of the otherwise landlocked Mercian kingdom established its pre-eminence over the 7th century rivals such as Ipswich and Hamwih', followed by `but the buildings of this formative period have still to be found' in a review of the current state of archaeological evidence pertaining to Saxon London (Schofield 1984:23). This tended to be the position held by historians, who did not see the need for material support for their hypothesis. The alternative view used the available archaeological evidence to present London's position. The collapse of Roman rule in Britain had left many Roman towns virtually deserted, or mere shadows of their former selves. The forts were abandoned and the population decimated by attacks from Scandinavia, plague, and the overall breakdown of the economic system. That London should hold out as an island of civilisation amidst Dark Age chaos was possible, but highly unlikely.

2. The documentary evidence

There is a documentary void for London between 457 and 604 (Dyson and Schofield 1984:285). In 604 the early cathedral of St. Paul's was set up by Mellitus, 'The original intention of this mission, sent from Rome by Pope Gregory, was to make London the seat of an archbishop...this may imply that Pope Gregory knew London to be a centre of population...on the other hand, it may be that Pope Gregory merely knew London to have been the major city of southern Britain in the Roman period.' (Schofield 1984:21). The documentary evidence that relates to 7th-9th century London was considered by Professor Martin Biddle in 1984, in a somewhat acerbic article in *Popular Archaeology*. The most persuasive argument he uses for the existence of a large trading settlement here is the quantity of documentation, which exceeds anything available for any other site of this period in England. However, it is neither substantial or conclusive evidence. The major elements are as follows:

> In 679 a Northumbrian captive was sold to a Frisian slave-merchant in London.
>
> In 673-85 men of Kent could go to the royal hall to have their purchases warranted in the presence of the king's official.
>
> In 716-718 Boniface is reported to have set sail for Dorestad, then Quentovic.
>
> Bede described London in 731-2 as an 'emporium of many people coming by land and sea'.
>
> On occasions through the first half of the 8th century tolls were granted to the bishops of London, Rochester and Worcester, and the abbess of Thanet.
>
> In 790 privileges may have been granted to the port by the abbey of St. Denis near Paris.
>
> In 811 London was referred to as 'the famous place and royal town, the vicus of London'.
> (Biddle 1984:23).

Biddle considers that these snippets of evidence constitute incontrovertible proof of the existence of a great emporium, 'The written evidence makes it quite clear that the London of these centuries was a physical reality' (1984:23). One cannot help but wonder if the professor has equal faith in the accuracy of modern written accounts.

3. Place-name evidence

Strand comes directly from the Old English word meaning 'land at the edge of a piece of water, esp. the sea, a shore, a bank' (Smith 1956:162). The term was first used in a 10th century charter. The name Aldwych (*Aldewich, Aldewic*) first occurs in an early 13th century charter. It has been claimed as a Scandinavian name, but as far back as 1927 Wheeler pronounced it to be of Saxon origin. Biddle takes it to be translated as the 'old wic' - the old Lundenwic of the coin inscriptions (Biddle 1984:26). This place-name may be a direct pointer as to where the Middle Saxon settlement once was.

4. The archaeological evidence

The second school of thought on the status of London was held by those who wished to have a greater body of material evidence before pronouncing London a great centre of commerce. Until 1984 Middle Saxon London was archaeologically represented by `a series of settlements or farms situated at intervals along the dry ridge forming the north bank of the river between the city and Westminster' (Haslam 1975:222). Occasionally excavations produced an imported potsherd or two, but this was hardly evidence for a thriving international port. This position dates back as far as 1935, when Mortimer Wheeler published his book *London and the Saxons.* He discussed the various types of evidence available and particularly noted the lack of Middle Saxon finds within the city. A handful of potsherds and loomweights recovered from Middle Saxon contexts were `the only archaeological evidence for a non-ecclesiastical Saxon building in the immediate vicinity of London'. This smattering of evidence came from excavations on the site of the Savoy palace on the Strand. J. N. L. Myres' position in the 1930's, that the occupation of London was sporadic and marginal, was maintained as late as 1982 (Hodges 1982, Hurst 1976, Myres 1937:433). In fact the archaeology was severely at odds with the scatter of historical references that made mention of London. A telling point is made in Hodges' note on the site in *Dark Age Economics* in 1982 - `Extensive post-war excavations...found virtually no evidence of Middle Saxon occupation **within the Roman city** ' (my emphasis). Could it be that scholars had automatically expected Middle Saxon London to occupy the same piece of ground as its Roman predecessor? Hobley recently suggested that the Saxons saw city walls as a great psychological barrier and therefore built outside of them, as in Ammanius' account of the situation in Merovingian Gaul (Hobley 1988:69). To some extent the emphasis of the search for Middle Saxon London was brought about by the concentration of archaeologists working in the Roman city, rather than the quantity of archaeology, a situation that has only been rectified in the latter half of the 1980's. London's political position in the Middle Saxon period is somewhat ambivalent. Geographically, it lies well up from the estuary on a major river. Although not coastal, it has excellent access to the coast and continent. It was therefore well positioned as a trading site for whoever controlled the region. Its importance in this respect can be seen in relation to Mercia; at one point it was the only accessible 'outlet' for the kingdom. During Coenwulf's rule (798-821) he attempted to have the seat of the southern English archdiocese moved from Canterbury to London (Stenton 1971:226). The Saxon ruling elite's interest in these trading sites is undeniable.

Saxon archaeological material within the Roman city walls is dominated by Late Saxon artefacts. A large settlement was certainly in existence here during the later half of the 9th century, and was a flourishing urban environment by the 10th century. Earlier Saxon buildings comprised a cathedral and a royal palace. Middle Saxon finds are sparse within the city walls.

Recent work has shown that the Middle Saxon settlement at London lay on the north bank of the Thames, west of the Roman walled city (Vince 1990). Apart from Southwark, which was on a relatively firm footing, the south bank of the river was a mass of inhospitable mud-flats (Dyson 1980:84). The actual position of the settlement in relation to the river was different to that of today. The Victorian embankment of 1864-70 moved the frontage a considerable distance away from the Strand/Fleet Street line. The settlement, difficult to envisage now, would have lain on the high shore close to the water's edge, with Roman roads and the river Fleet running through it.

5. The excavations

Two reappraisals of the problem of Saxon London were undertaken in the mid-1980's, by Alan Vince and Martin Biddle. Vince started by re-examining the Saxon pottery stored in the basement of the Museum of London. He then looked at the distribution of Middle Saxon finds within the Roman city and in the area to its immediate west, and found a startling contrast between the two (Vince 1983, 1984a). The density of Middle Saxon finds in the area of The Strand/Fleet Street was much higher than that within the city itself. Middle Saxon London, as indicated by the distribution of artefacts of that date, should have lain in the area bounded by Thorney Island, Westminster, St. Martins Lane and the river Thames, with Covent Garden at its heart (Whytehead 1985). This area is of course in the centre of the modern city, and has undergone massive development in the intervening years, particularly since the 18th century. The deep cellars and foundations of the tall and substantial buildings that dominate this area have had a devastating effect on the archaeology that lies below. The length of the Strand terrace was largely taken up by noble/episcopal residences, and the construction of their gardens especially involved a huge amount of earth moving. Indeed such is the extremity of the situation we are lucky to have ANY of the insubstantial pit and posthole evidence that we normally associate with Saxon sites. However, between 1985 and 1987 Vince's hypothesis was given a huge boost of support. Five important Saxon sites were excavated in London during this period: Jubilee Hall, Great Newport Street, Maiden Lane, the National

Gallery, and most recently, the Peabody site. All of these sites were located on the brickearth and gravels of the Taplow terrace just to the north of the Strand (Cowie 1987:31). A week of excavations at the Jubilee Hall site (close to Covent Garden Market), unexpectedly produced a wealth of Middle Saxon finds, when it was discovered that the north-east corner of the old building had only been partially cellared. Instead of the usual situation of only the most vestigial traces of a pit bottom remaining, 75cm of Saxon deposits were left stratified, overlain in some places by another 75cm of black earth (Whytehead 1985).

Micromorphological analysis of the black earth has shown that it was an agricultural deposit (Macphail 1982). Within these deposits the remains of beam-slots, floors, numerous post-holes and a putative sunken-floored building could be determined; as many as four Middle Saxon buildings were revealed. The sunken-floored building may be an early example of the sill-beam tradition normally associated with the later Saxon period (Blackmore 1986:216). In addition there was a single adult burial, three wells, and a possible furnace. A large number of animal bones, some of which displayed evidence of butchery, dominated the finds in every layer. One layer was packed with oyster and mussel shells. A large number of doughnut-shaped loomweights was also recovered.

At Great Newport Street a large Saxon pit was uncovered during a watching brief in early 1986. Finds from the pit included some Ipswich ware, a loomweight fragment, and residues of iron slag adhering to the remains of a furnace lining.

The Maiden Lane excavations in April to June 1986 revealed Middle Saxon stratigraphy. There was some slight evidence for structures in the form of postholes and stakeholes, and the remains of a possible sunken-floored building. The site also produced a considerable quantity of burnt daub fragments, which presumably also relate to structures. Patches of gravel metalling may be the remains of road surfaces. The most impressive feature of this site was a large U-shaped ditch dating to the 9th century which can be closely paralleled at Ipswich. In early 1987 rescue excavations at the National Gallery revealed Saxon pits, but no structures. The pits contained pottery, burnt daub, loomweights, quernstones, a bone comb, and iron and bronze objects (Cowie 1987:33). The Treasury excavations in the early 1960s had also produced a small but significant quantity of finds; for example - fragments of Niedermendig basalt lava querns, bone thread pickers, a chalk spindle whorl, a loom weight, bone comb fragments and a bronze pin (H. G. M. Green 1963:1005).

Storage/rubbish pits were found, and a large Saxon building (measuring 7.8m x 6.3m) and the traces of outlying buildings. The site had all the appearance of being a farmstead, rather than an industrial or trading area.

6. Environmental evidence.

As mentioned earlier, the Jubilee Hall site produced layers rich in animal bones, mussel and oyster shells. Sieving and flotation of soils from the Maiden Lane site produced seeds of barley, rye, oats, wheat and weeds, from the hundreds of carbonised seeds that had been preserved. The bones of fish, birds, amphibians and small mammals were recovered from the sieving, as were cattle and sheep bones from the excavations. Animal bone and oyster shells were also recovered from the National Gallery excavation.

Coprolites had been preserved in the Maiden Lane trench, some of which were identified as human and contained large quantities of whip worm eggs, suggesting a high level of gut parasite infestations in the Saxon population of London (Clare de Rouffignac pers. comm.)

7. The pottery

The quantity of Middle Saxon pottery that the small Jubilee Hall site produced, although not overwhelming, was more than had been previously recorded from the entire London area. The ceramics followed the pattern that had been set in the earlier Treasury site and Strand excavations, with a high proportion of Ipswich ware and local hand-made pottery such as shelly wares and chaff-tempered wares, and a small but significant quantity of imports (H. G. M. Green 1963, Haslam 1975, Hurst 1959:23). Early Saxon pottery in the area tends to be chaff-tempered (or grass/straw/vegetable tempered) or sandy (Canham 1979, Densem and Seeley 1982, Hurst 1976b, Rhodes 1980a). Some early Middle Saxon Frankish imports have been recovered from London (see Blackmore and Redknap 1988, and Vince 1988:90-1, fig. 46). One of these vessels, a biconical jar, is decorated with a type of stamped decoration also found on a sherd of pottery from Ipswich (compare Fig. 5,16.10 and Plate 28 with Vince 1988:91, fig. 46,1). Another fine 7th century Black ware pitcher, found at Maiden Lane, displays a double-arc stamped or rouletted decoration also found on a smaller biconical vessel from Ipswich (compare Fig. 5,10.2 with Vince 1990:145, fig. 72). These similarities in imported pottery being found at the two centres in the early Middle Saxon period suggests that they were being served by the same group of merchants from northern France. It is possible that these vessels were being traded at the same time as Ipswich ware was first being brought to London, which would support a hypothesis that there were trade links in operation between Ipswich and London from the time of their foundation as emporia.

However, the date range of much of the Middle Saxon ceramic material is difficult to determine. Ipswich ware has a broad span of 200 years, and as yet it is impossible to differentiate 7th century Ipswich ware from that produced in the 9th century. Only two sherds of Badorf and Tating ware were recovered from the Treasury site excavations, but both of these were associated with Ipswich ware, showing that the settlement was certainly occupied, and had links with Ipswich, in the late 8th/early 9th century. The importance of the Badorf ware at the Treasury site in maintaining a credible argument for London being an international trading site should be seen in the light of it having been only the fifth vessel of its type to have been uncovered in the country at the time. A sherd of Beauvaisis ware from Jubilee Hall gave us another 9th century marker. The northern French wares that were recovered from the Jubilee Hall excavations are more difficult to date, but could also span the whole period through the 7th to 9th centuries.

The National Gallery, Maiden Lane and Peabody excavations produced a similar spectrum of ceramics to that described above. Ipswich ware and chaff-tempered pottery dominated the assemblage, and fragments of Badorf ware, Tating ware, and northern French Black wares occurred in fairly large quantities. The Ipswich ware in London serves as an indicator of trade between the adjoining kingdoms of the East Angles and East Saxons, but cannot be used as the mainstay of a trading site hypothesis, or else any number of Middle Saxon sites would be able to endow themselves with the title of 'emporium' on equally slim grounds. However, Ipswich ware outside of its source area and immediate environs can be regarded as an 'import'. Alan Vince argues that 'Ipswich-type ware itself may be regarded in London in the same way as the continental wares which have been found in such numbers in Southampton, and the availability of good quality English pottery on the east coast might be expected to result in a lower quantity of continental imports at Ipswich and London in comparison with Southampton.' (Vince 1984b:434).

Two criticisms can be made of this argument. Firstly, it implies that a correlation can be made between the distance a pottery type travels from its source, and the nature of the site that receives the material, in effect suggesting that any site as far distant from Ipswich as London, with a comparable quantity of Ipswich ware, should be regarded as being a potential node in a trade system of international proportions. Secondly, it suggests that if the availability of Ipswich ware was a controlling factor in the number of continental imports to be expected on a site, Ipswich should not have produced the very large number of Rhenish and French vessels that it has. The continental imports and Ipswich vessel types are not functionally, aesthetically or ideologically interchangeable. The

Rhenish imports are closely bound up with the exclusive wine trade, Ipswich vessels are domestic. A fine Badorf of Tating pitcher cannot realistically be compared with an Ipswich ware one.

8. Industry
A furnace was uncovered that bears some resemblance to a one of Saxon date from Ramsbury, and points to industrial activity on site, as does the iron slag and a possible crucible fragment (Haslam 1980:19-30). Other characteristic emporium features include substantial evidence for weaving, attested by large numbers of loom-weights and a spindle whorl.

In addition to the ceramic evidence, fragments of Niedermendig lava querns indicate links with the central Rhineland.

9. The coins
Gold coins, inscribed LONDUNIV were being minted, presumably on site, by 640. A considerable number of sceattas have been found outside of the Roman city walls in London. At least two, and possibly all three, of the pre-9th century coin hoards come from the Strand area, and none from within the Roman city walls. The 842 Middle Temple hoard was found just to the south of Fleet Street. A hoard dated to 875 was found in the area of Waterloo Bridge, and the 'Thames' hoard(s) of c.20/21 sceattas dated to c.740 may also have come from this area (Biddle 1984:25). A single worn sceatta dated 710-730 was found in one of the Jubilee Hall pits, associated with Ipswich ware - perhaps a mid-8th century loss? (Stewart 1984).

10. A question of size and density
Although London is now generally accepted to have been an emporium during the Middle Saxon period, its size is still disputed. Biddle suggests it covered at least 24 hectares, perhaps as much as 80 hectares (1984:27). Vince is even more ambitious and suggests that the distribution of Middle Saxon archaeology in the area could indicate `a continuous area of settlement over one square km', that is, 112 hectares (1984:310). More recently the estimate has been given as 90 hectares (Cowie 1987:33). As Vince points out, this is considerably larger than any contemporary emporium in England, but it is also more than double that of Dorestad! If Middle Saxon London covered an area in excess of c.100ha., then Hamwic will have to be relegated from its position as `the largest town in Saxon England' (Hammond 1983). At such a size London would be established as the largest town of its day in northern Europe. Vince uses the argument that since the town covered such a large area, the settlement could not have been self-supporting, but must

have been backed up by a series of agricultural satellite sites. In a rather self-fulfilling argument he then suggests that the settlement **must** therefore have been involved with the satellite sites by means of trade and industry.

The problem really lies with the uncertain question of the density of occupation. Could we have a densely packed waterfront trading area as at Dorestad, with supporting farms `up the road' from the actual emporium? It is impossible to say with any degree of certainty what form this settlement took, whether it was planned and regulated like most of the major emporia, or if the settlement expanded organically. The archaeological evidence is too scattered and disturbed to shed light on this problem. Whether the population was clustered around the river bank, or if it was equally dense further to the north, is a contentious, but extremely relevant question. As yet the archaeology has failed to answer these questions.

The move back to within the Roman city walls seems to be associated with Viking attacks on the city in the mid-9th century. The 841/2 attack was followed by an even more destructive one in 851 and another in 871. Attacks on vulnerable trading sites such as Dorestad in the 830's may have been incentive enough for the merchants in London to think about moving a small distance into the more readily defensible site of the old Roman town. By the late 9th century the main settlement was once again within the Roman city walls (Vince 1990:19).

Within the Roman walled city, lay the royal-ecclesiastical counterpart to the emporium. As the seat of the bishop of the East Saxons it naturally contained the cathedral, which is thought to lie to the south of modern St Pauls (Vince 1990:10), and a royal palace (possibly located at Cripplegate) in this period, and apparently very little else. But it was close enough at hand to control the trade within the emporium, if its inhabitants so desired.

11. Conclusion

The building developments of the 1980s allowed archaeologists to explore London's Middle Saxon past to a hitherto unimaginable degree. Time, money, and expertise were all available for research into London's Dark Age. The results of this research have markedly changed our picture of the Middle Saxon period in our contemporary capital city.

It is now generally held that

> 'the London of Bede lay outside the walls of the Roman city and occupied an extensive tract of land. It existed in the seventh century, flourished during the eighth and early ninth centuries but ceased to exist before the end of the ninth century. It is also quite clear that large-scale occupation within the walled city started only after the Strand settlement had ceased to exist.' (Vince 1990:25).

In fact, contrary to Wheeler's assertion that the Vikings were responsible for positive progress in London, it appears that the emporium of the 9th century suffered grievously from both the decline in long-distance trade and from the Viking raids. Wheeler's pronouncement (see opening quote) is more apt in the case of Ipswich, which continued and thrived, in the same place, throughout the Late Saxon and medieval periods, possibly as a result of it lying directly within the Viking sphere.

V York: before the Vikings.

1. Introduction

Archaeologically, York is principally known for its extensive Roman and Viking remains and excavations. The age in between these two periods has been particularly dark. It is only in the past five years or so that excavations have produced archaeological remains that can be firmly tied in to the Middle Saxon period, allowing some light to be shed on Anglian Eoforwic.

Like many of the other sites discussed in chapters 2 and 3, York was in a superb position for both land and water communication. Unlike most of the other emporia it was also highly defensible. The town lies well inland at the confluence of the rivers Ouse and Foss, rivers which were tidal at least up to the York area, and which in turn feed into the river Humber and thence into the North Sea. The area is surrounded by the Pennines to the east, the Wolds to the west, and further north - the north York moors. The proximity, and periodic flooding, of the river Foss has allowed for excellent preservation of organic remains.

2. Documentary and historical evidence.

York and London were both capitals of Roman Britain, in York's case *Britannia Inferior* (or *secunda*) rather than *Britannia Superior. It was a large Roman city with remains that stand even to the present day. Twelve hundred years ago much more of Roman York must have been in evidence; Hall suggests that the standing remains of the principia might have been utilised as a* *palace for Northumbrian royalty (Hall 1988:126). Archaeological finds around the Roman bridge suggest that it could have been in use up to the 9th century (Addyman 1981:45, Wilson 1964b).*

York was known as a result of documentary evidence to be a royal site of the Anglo-Saxon kings of Northumbria during the Middle Saxon period, and like London, became a centre for the Church, an archbishopric, and an international trading site. King Edwin of Northumbria was baptised as a Christian in York in 627, and was acknowledged as Bretwalda. The title was also given to his successors Oswald and Oswy, indicating the strength of the Northumbrian dynasty throughout the 7th century. Bede recorded the founding of a bishopric in York in 627 (the year of Edwin's conversion) and the founding of a monastic school in the settlement. In the late 8th century this school must have been recognised as a major scholastic centre, for the emperor Charlemagne summoned Alcuin from York to take charge of his palace schools on the continent. In the Domesday book, York is the largest urban site in England (Hall 1988:129).

Apart from this, the documentary sources give us a scant number of references to kings and bishops who were connected with the site, the erection of ecclesiastical buildings, and a passing mention by Alcuin of a community of Frisian traders in the late 8th century. Alcuin referred to Eoforwic as an 'emporium terrae commune marisque' (translated by Prof. J.Collis as 'an emporium shared by land and sea').

3. The excavations

Large scale excavations have taken place in York since the mid-1970s, but until very recently there was hardly a scrap of archaeological evidence to substantiate the theory that York was a thriving settlement in the Middle Saxon period. We do have a fairly substantial body of documentary references to paint a sketchy picture of the town. As recently as 1984 it was written that 'Archaeological finds to flesh out the historical skeleton of the royal, ecclesiastical and mercantile centre are almost non-existent.' (Hall 1984:29). Such was the paucity of 'flesh' that some archaeologists were beginning to have serious doubts that an international trading centre existed in York between the Viking and Roman periods; 'many excavations have sought seventh- to ninth-century layers and yet none have been found so far. At some stage we will have to accept the power of this kind of negative evidence.' (Hodges 1982a:73-4).

It was hoped that the major Viking excavations at Coppergate would reveal something of the Anglian settlement in the layers above the Roman horizons. Unfortunately these two phases were merely separated by a sterile grey soil that seemed to be the result of the slow accumulation of natural deposits (Hall 1984:30). The picture seemed to be one of complete abandonment of the Roman centre in c.400, with it reverting to an open rural area until reoccupied by the Vikings in the mid-9th century.

A few features in the Coppergate excavations seemed to pre-date the Viking occupation, suggesting that the picture was not one of complete abandonment. These were principally a ditch-like feature and a circular well-shaft lined with black poplar wood supported by wattle; hardly substantial evidence, but a hint that some activity had taken place here in the pre-Viking period.

Fortunately the excavations at 46-54 Fishergate (the Redfearns Glass Factory site) in 1985-6 have given us some rather more positive evidence for the immediate pre-Viking period in York. The whole five acre Redfearns site is covered with Anglo-Saxon remains. About thirty rubbish pits were excavated on the site, and these produced 'classic' emporium artefacts. Fragments of Niedermendig lava querns were found in a number of features, and strewn across the site were fragments of bone combs, iron knives, slag and an ingot mould, glass beads, fragments of hand-made pottery, and dog coprolites! (Kemp 1985/6). The later ploughsoil held a copper alloy strap-end, one gold and one silver ring, and a bronze spoon. Such rich artefacts are reminiscent of the assemblage at Brandon, and it is not surprising that an early (9th/10th century) timber church was found on the site, pre-dating the later Gilbertine priory. The wealthy ecclesiastical side of Anglian York is as much in evidence at Redfearns as the emporium.

The level of industrial activity seems similar to that at Ipswich, that is, extensive but low-level. Bone waste and comb blanks have been found, indicating that comb manufacture took place at least on a small scale. The numerous finds of iron slag and tiny crucibles attest the presence of small-scale metal-working.

The identification of buildings posed something of a problem for the excavators, but by the end of the Redfearns excavation, they were confident in their interpretation of five major buildings from the mass of stake and postholes that comprised much of the Anglian archaeology. These buildings measure c.5m across and up to 15m long (Kemp 1986:13). The buildings seem to have been laid out to run parallel with, or at right angles to the road, and this one excavation gives the impression of a regulated layout, rather than a mish-mash of buildings.

4. The pottery

The ceramic evidence from Anglian York is very poor compared to the abundance of material from the Roman, Viking and medieval periods. The apparently sterile grey layer that lies between the Roman and Viking horizons produced virtually no material of any sort. There are two Anglian cemeteries on the outskirts of York which contain elaborate funerary vessels of 5th-6th century date, but the domestic pottery of this period, and that of the subsequent 7th and 8th centuries, has been conspicuous by its absence. To some extent this seems to have been a result of non-recognition, rather than non-appearance. A small number of simple, undecorated hand-made vessels have been recovered from excavations in York over a number of years. These are often found residually in later contexts, but probably date to the 5th-9th centuries (Mainman 1985:32). Most of the ceramics from Coppergate date to after the mid-9th century (Mainman 1990).

In the last few years however, the quantity of Middle Saxon pottery has increased massively, largely due to excavations at the Anglian Tower and in particular, the Redfearns Glass factory site. The Anglian Tower produced a sequence of hand-made sherds forming one of the best groups for the period in the area. The pottery is usually heavily shell tempered and often partially burnished. The forms are primarily simple bowls. About 200 sherds of hand-made pottery were also recovered from Coppergate (Mainman 1990). These fragments were somewhat different to the Anglian Tower material, being sand tempered rather than shelly, and having everted rims and more globular profiles. It has been suggested that these were manufactured slightly later than the shell-tempered vessels, and are probably of Middle Saxon date (Mainman 1985:34).

The sorting of the Redfearns material produced some ceramic surprises. Ipswich ware (or Ipswich-type ware), both plain and decorated, turned up in quantities not seen before in York, although sherds had been identified in small numbers since the 1950's excavations at Tempest Anderson Hall and Hungate (Mainman 1987). Maxey types also occurred in relatively large quantities. In addition, imported pottery of Middle Saxon date could be identified. The latter was primarily in the form of northern French Black wares, some of which were decorated with stamps. Rhenish material could be identified in much smaller quantities; a few sherds of Badorf ware, a Mayen rim sherd and some possible Tating ware (without tinfoil evidence) were recovered. A few sherds of Tating ware were also recovered from excavations within the *colonia*, from an early Anglo-Scandinavian context (Donaghey and Hall 1986:48). There were also unidentified types, such as oxidised sherds decorated with incised wavy lines, possibly from the Rhineland.

5. The coins

A scant handful of coins have been recovered from the York excavations that date to the Anglian period. However many more coins have been found through chance; a hoard containing 10,000 was found in York in 1840, indicating that a great number of these coins were in circulation in the late 8th and early 9th centuries (Hall 1984:33). 'Coins have been used in York since at least the 8th century AD, perhaps with an interlude in the 5th to 7th centuries.' (Addyman 1986:1). In addition to this exceptional coin hoard, a number of other 8th/9th century coins have been recovered. A Porcupine sceatta (720-40) was found in the riverward end of Coppergate, but in a securely dated 11th century context. A Carolingian half-denier of Charles the Bald, as well as a Haithabu penny and a counterfeit Arab dirham, were also found at Coppergate (Interim 1986:19). Two silver coins of the London series were found at Redfearns, provisionally dated to 735-55 AD (Kemp 1985/6). In 1986 five or six Porcupine series Stycas were found in the Redfearns excavations (Kemp 1986:10). At 31-7 Gillygate a primary sceatta type B (705-15) was found, and at 21-33 Aldward a series Q type (720-40) was recovered. Between 1971 and 1981 nine base sceattas of Eadberht (737-58) were recovered, and eight stycas of Eanred (810-41). Greater numbers of coins have been recovered from mid-9th century contexts, coinciding with the Viking settlement (Pirie 1986).

6. Conclusion

Archaeological evidence for an international trading site at York during the Middle Saxon period is still scanty, particularly in terms of structures. However, this is still the case in Ipswich, where many years of excavating a Middle Saxon emporium have not been able to produce comparable structural evidence to Hamwic. We now have direct evidence of trade between York and Ipswich, and with the continent, to 'flesh out' Alcuin's statement about Frisian traders, and this evidence, taken alongside the growing body of coin data does appear to verify the hypothesis that a trading settlement existed in York in the 8th century. As yet, we have no direct evidence of the manufacture of commodities on a large scale. The size of the site is impossible to assess. Maude's implicit suggestion in a recent article that Eoforwic's size would be the equivalent of the later Jorvik (35-44 hectares) is highly misleading (Maude 1987:44); later Saxon and Viking sites are frequently much larger than their predecessors, and often in different places. Investigations over the next few years may enable us to paint a realistic picture of Anglian Eoforwic.

Chapter 3

THE EUROPEAN EMPORIA

CHAPTER 3
The Continental Emporia

I Introduction

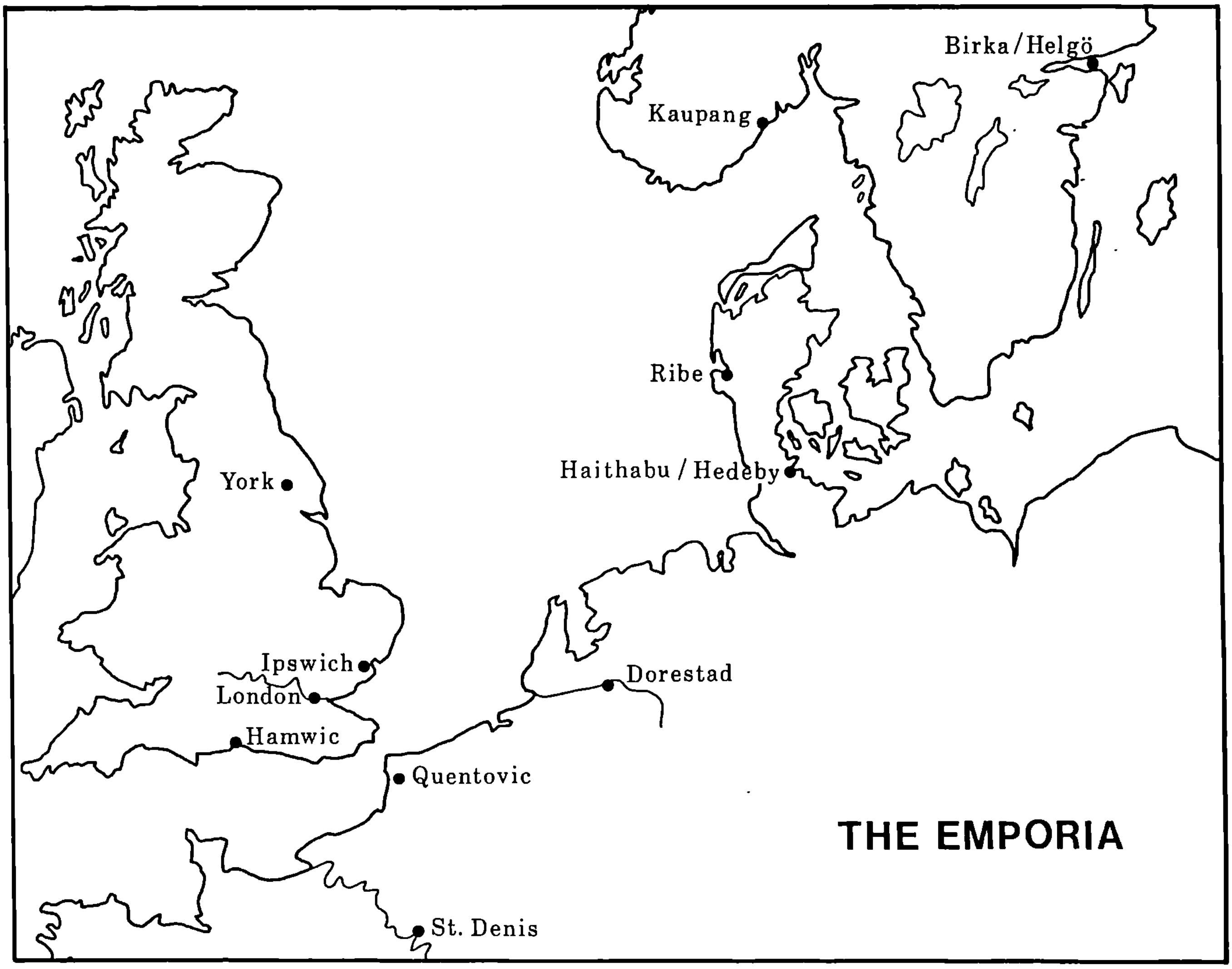
The following section will present detailed descriptions of those European trading sites which are likely to have had the closest links with East Anglia in the Middle Saxon period. This is based on their geographical proximity, the similarity of artefacts found within the sites, and a comparable structure and population density.

It is also based on the likelihood of direct contact between sites. Charles Green's calculation of the crossing-times for North Sea voyages in vessels such as the Nydam ship and the Sutton Hoo ship suggest that a journey from western Denmark (the Ribe area) to East Anglia would have taken about two weeks using rowers, if the winds and weather were favourable (C. Green 1963). Such a route, skirting west along the coast of the Netherlands, would have been considerably faster if sails were used in addition to rowers, as they probably would have been. Ships similar to that found at Utrecht may have been used for trade around the sandy coast of the present day Netherlands, and even across the North Sea (Philipsen 1965). This ship was of considerable size, flat-bottomed, and probably dates to the 9th century. It was a very sturdy craft, and would have been particularly suitable for sea voyages.

I have chosen not to provide detailed descriptions of the other continental emporia, such as Medemblik (Besteman 1974), Kaupang (Blindheim 1973, 1975), Domburg (Capelle 1976), Hamburg (Lobbedey 1977), Birka (Arrhenius 1976), and Helgö (Arrhenius 1964, Holmqvist and Arrhenius 1964), although these are referred to in the text, concentrating instead on the larger ones that were most likely to have direct contact with Ipswich and East Anglia. However a few words on some of them may be apposite in illustrating the relative wealth of central Rhenish material found on continental sites.

Katwijk, in the Netherlands, for example, was a village site inhabited mainly between the 8th and 10th centuries, but with sporadic 6th and 7th century occupation. The pottery is primarily late Merovingian biconical black and grey wares. There is also a considerable amount of 7th and 8th century Mayen ceramics. Badorf and Pingsdorf pottery are also found in large quantites in later contexts. Very coarse, gritted, hand-made pottery was found in large numbers, forming an interesting contrast with the fine imported wares.

Figure 3,1 The European emporia



Some 7th century funnel-beakers from Katwijk are on display in Leiden Rijksmuseum. The site was probably involved in long-distance trade to some degree, but not in a way comparable to its neighbour, Dorestad.

Medemblik, in Zeeland, was excavated intermittedly between 1967 and 1982. Occupation there dates primarily to the 8th and 9th centuries. Two thousand of the 12000 sherds recovered were imports. The imports were primarily Badorf ware, Mayen pottery, and relief-band amphorae. Most of the pottery (c.7000 sherds) is hand-made shell-tempered pottery, in very simple, globular forms, and is not considered to be of Dutch origin. A tating ware jug and bowl were also found. The absense of Pingsdorf pottery suggests abandonment by the second half of the 9th century. Fragments of two glass funnel beakers were found, probably dating to the 9th century. Parallels for these have been found near Köln. Quern fragments were also found, but these were too small for typological analysis.

Domburg has eroded into the sea, and most of the material from the site comes from antiquarian collections of the 19th century. The excavations at Oostkapelle in 1982 produced Carolingian pottery, primarily relief-band amphorae, Badorf ware, and globular cooking pots (*kugeltopfen*). Large quantities of Pingsdorf ware and Andenne pottery were also found, as were complete Paffrath vessels and pottery from the kilns at Schinveld. The relief-band amphorae from Domburg have rouletted or thumb-impressed decoration. Very little glass has been found due to the nature of the site's descruction. Basalt lava querns from the Eifel mountains have been found in the Domburg area.

Other small-scale continental emporia existed, such as Westenschouwen (Capelle 1976), Emden (Lobbeday 1977), Löddeköpinge (Ohlsson 1975-6), and Västergarn (Floderus 1934). These may have been periodic, seasonal sites, used as stopping-off places en route to and from the major sites. Many more sites undoubtedly existed, and as in England, monastic sites would also have acted as sites of production and exchange.

II Dorestad: The warehouse of the north.

> '...and at that time there was an abundant supply of goods of every kind'
>
> *Vita Ansgarii* 24.

1. Location and Geography.

The largest and probably the most important of the North Sea emporia, whose size has been confirmed by excavation, is undoubtedly Dorestad. The site lies 80km inland, sheltered in a fork between the rivers Lek and Rhine, in an area where central Holland was once a mass of islands and waterways. The banks of the Rhine shifted over the time of Dorestad's occupation, and the slow silting up of the river in this area may have been the cause of the site's eventual decline in the 860's (Eckstein, van Es and Hollstein 1975). The old Carolingian-period river course has been determined by deep-borings and relative phosphate concentration (Verwers 1988:54). The settlement was replaced by Tiel at the mouth of the Rhine, which had been built up into a highly successful port by the 11th century (Hodges 1982a:174). Its position was superb in terms of control of traffic; it had direct access to the major production centres of the central Rhineland and the heart of Carolingian Europe, with water access to the river Meuse, the sites on the coast of northern Frisia, the south and east of England and Scandinavia. The site lies on approximately the same latitude as Ipswich, and merchants would have had easy access to the emporia of London and Hamwic. Like Haithabu, the settlement enjoyed a somewhat liminal position; it seems to have lain on the old boundary between the kingdoms of Austrasia and Frisia, and was disputed territory between them in the 7th century.

2. The Church in Dorestad.

Religion seems to have played a more extensive role in Dorestad than, for example, in Haithabu. It appears to have been a toll-station where merchants and travellers were frequently converted to Christianity, often with less than religious motives; a merchant in Birka is reported to have said 'Formerly some of us went to Dorestad and, taking the view that the rule of this religion would benefit us, adopted it of our own free will' (*Vita Ansgarii* 27). The new religion was actively exploited by the 'big men' of the town. In Haithabu there were 'many who were already Christians and who had been baptized at Dorestad or in Hamburg; some of these were regarded as the leading men of the town; all were delighted that the opportunity had been given to them to practise their Christianity' (*ibid* 24). The expansion of Christianity among the merchant community in its turn acted as a sort of 'passport-with-diplomatic-immunity' in the emporia. After the building of the church at Haithabu, the merchants of Dorestad were said to be over-joyed, and 'made for the place readily and without any fear - something which was not possible previously' (*ibid* 24). It is impossible to assess from the extant evidence whether the majority of the merchants were actively exploiting Christianity in order to facilitate their position as traders, or were genuine believers. Their contact with infidel Moslems, as suggested by Arab coins in southern Scandinavia, certainly implies a certain free-thinking element in their ranks.

In the early 8th century the English missionary Boniface sailed to Dorestad from London to spread Christianity. He arrived in 716, during the last brief interlude of Frisian control of the settlement (714-719), before Charles Martel recovered it for the Merovingians. Whether he was able to preach in a church at Dorestad is debatable, but the rectangular building that stands surrounded by graves in the centre of the settlement could well have fulfilled such a function. The cemetery is surrounded by a fence and in addition to the possible church, contains a stone well and a small structure that could have served as a bell tower (Hodges 1982a:75). In the mid-9th century Dorestad was the focus of repeated Viking attacks. Such a rich trading centre would have been an easy target for experienced plunderers. The area must have been unprotected, because after attacks in both the years 834 and 835 Louis the Pious decided to take steps to protect his trading interests and 'made arrangements for the effective defence of the coast' (see Sawyer 1982:81). By this time the damage had been done. These rich, and largely undefended, trading sites were subject to a series of rapacious assaults, and Dorestad was attacked again in 836. Dendrochronology suggests that the site started its physical decline during the period 830 to 840, the same time that Dorestad's economic fortunes took a turn for the worse. The site struggled on until c.875, giving it a history as a trading site of about 200 years.

3. The excavations.

The site was first discovered by starving peasants who scavanged the site's 'bone-pits' as a source of food (Hodges 1987:673). The first publication on the site dates back to the 19th century and records the uncovery of a series of graves in the area of a village called Wijk bij Duurstede, but the first series of major excavations were undertaken by J. H. Holwerda after the First World War (Holwerda 1930). These early excavations demonstrated the enormous wealth of archaeological data available in the site; buildings and artefacts abounded in a quantity that is rarely seen for sites of this period. Extensive excavations took place after the Second World War when Wijk bij Duurstede was being redeveloped. In a ten year campaign c.20 hectares were excavated, showing that the settlement covered well over 40 hectares (van Es *et al.* 1978). Rijkdsienst voor het Oudheidkundig Bodemonderzoek (R.O.B.) began a programme of research into the area in the middle of 1967; and what had started as a small rescue dig ended up as a complex ten year long undertaking, including a systematic field survey of the area (Verwers 1988:52). The major site was in the harbour area of Dorestad (Hoogstraat 1), excavations were undertaken here when a new road was being constructed.

The settlement lies over the site of the Roman *castellum* of Levefanum, of which little is known. Sand-dredgers have brought up Roman finds in the area (Verwers 1988:52). There are documentary references which tell us of the existence of a site called Dorestad in the early part of the 7th century, when the settlement was a valuable pawn in the power struggles between the Frisians and Austrasians. A trading site of some sort must have been flourishing here in 650 when the Frisians captured the site and established a base there, setting up there own mint and producing coins commonly referred to as the Dronrijp type. But the first mint here is recorded in the early 7th century, when the site was still lying on the Merovingian border with Frisia (Hodges 1982a:36). The whereabouts of this early-mid 7th century settlement are unknown, although the huge excavated settlement seems to have its origins at around 680, when the site was recaptured by the Austrasians under Pepin II. Excavations do show occupation from the late 7th century, with the settlement flourishing between c.750 and c.830, with a population of at least 1-2,000 living there at its zenith (Verwers 1988:52).

Dendrochronology carried out on timber fragments from the huge wine barrels that were reused as wells also suggests that the site was in existence from the 680's to the 830's (Eckstein, van Es and Hollstein 1975). The settlement of Dorestad shares certain features in common with the other major emporia of northern Europe. It appears to have been a planned trading settlement from its start, like the later site at Haithabu. Many of the buildings are of a distinctly non-rural type, particularly on the waterfront. There, the long narrow buildings were packed tightly together and fronted onto wharves or landing stages on a river bank for some 2km (van Es and Verwers 1980). However, Dorestad differs from the other sites in this chapter in its apparent combination of industrial and agrarian functions. In contrast to the domination of workshop-buildings on other sites, here many of the buildings appear to be small farms which can be closely paralleled on rural sites. Between 30 and 40 of these buildings are found in the centre of the settlement, and comprise a byre and living acommodation in the one structure - a characteristically Frisian pattern of housing. The farms measure c.8m x 25m and each one is set within a fenced enclosure. Many have an associated well, and sometimes a granary, within the enclosure. These houses are similar to ones found at Warendorf in Germany, and Kootwijk in the Netherlands (Heidinga 1987:45-55). There seems to be no particular order or regulatory principle in evidence in the layout of this part of the settlement.

Preservation conditions for organic material have been very good in Dorestad, allowing the form of the timber walk-ways at the end of jetties to be reconstructed. It appears that they were developed continuously throughout the settlement's history, so that in their latest stage some of them extended almost 100m from the buildings on the shore, growing away from the bank as the river spasmodically shifted its course. There are small, but discernible differences in the pattern of construction of the individual jetties, suggesting that the various merchants who used the river-side buildings would have built and maintained their own walk-ways. The growth of these jetties was not constant; periods of intensive building seem to have been interspersed with times of stagnation, or even temporary abandonment. Not all of the jetties continued to be used throughout the occupation period either, a number were abandoned at various stages of the sites history. Most of the wood that has been recovered from the Dorestad excavations comes from a single source - the piles that supported the jetties. In contrast, Haithabu produced a much broader range of wood species, from a wide range of wooden objects, reflecting the greater variety of timber that is suitable for making vessels, as opposed to use as a building material (Casparie and Swarts 1980:273).

4. The finds

It is hardly surprising that excavations covering 30 hectares should have produced an enormous quantity of finds, more than enough to fill a large warehouse. The faunal assemblage is made up of a veritable mountain of animal bones. This is largely composed of the remains of cattle and pigs; animals such as sheep and horse make up a much smaller fraction of the total assemblage. There is also a significant quantity of fish and molluscs, including deep-sea species, making up a surprisingly large component of the assemblage. But how this would compare with cattle in terms of meat weight is another question. The non-food aspects of large dead mammals should also be considered. A dead cow provides the raw materials for bone-workers and leather-workers, and in life would have provided manure, milk and traction - a mollusc would have had a difficult job competing with that.

Prummel's archaeozoological analysis suggests that Dorestad would have been producing a meat-surplus and it would therefore have been able to export food from the settlement to neighbouring rural settlements (Prummel 1983). Verwers suggests that 'Dorestad may have had the function of a local market.', with industrial activities dispersed in households all over the settlement, but 'geared primarily to local demand' (1988:54).

The variety of craft activities carried out in Dorestad was probably the most extensive for any north European site of this period. There is a profusion of evidence for bone- and antler-working, with cattle, horse/donkey, red deer and elk being exploited for their osseous remains (Clason 1980:238). Leather-working, particularly for shoes, seems to have been equally important (Groenman-van Waateringe 1976). Wood-working, basket making, the production of jewellery, fine metalwork and weapons, ship building and repair, and cloth-making, were also undertaken at Dorestad (see Miedema 1980:250-261, for analysis of the textile remains). Baltic amber was worked on site, probably shipped here from Ribe and Haithabu. A number of glass linen smoothers were recovered from the excavations, and these are probably the by-product of an active glass industry. Imported querns were 'finished' here. Items such as Nordic furs, salt, slaves and foodstuffs were undoubtedly marketed in Dorestad (Verwers 1988:55). A new demand for walrus ivory arose in the Carolingian period; this material could be used as a somewhat inferior substitute for elephant ivory, but its source was much closer to home - even prestigious objects such as the Gandersheim casket were made from it (Beckwith 1972, no.2). Dorestad, as the main port for travellers and merchants from Scandinavia to western Europe and vice versa, would have had a wealth of such Nordic materials passing through. It is obvious from this impressive list of activities and objects that however much Dorestad was geared to its local market, it's foreign connections were extremely important.

The non-organic component of the finds is dominated by imports from the central Rhineland, and includes pottery, Niedermendig lava querns (Parkhouse 1976, 1977), glass vessels, metalwork, stone mortars from the Meuse valley, and coins (see Kars 1983). Much of the stone found on site is imported; this may have acted as ballast for ships travelling down the Rhine, but some of it may well be from the re-use of Roman building material. The metalwork that was recovered from the excavations includes some very fine Rhenish pieces, including a solid gold ingot and a late 8th century Christian brooch. Professor van Es considers that this brooch was manufactured in the Swiss-Burgundian-Alamannic area.

5. The pottery

The pottery assemblage at Dorestad is highly unusual, being overwhelmingly dominated by imports. Only 20% of the pottery found on site is of local origin, and all of this is handmade (van Es and Verwers 1975). As at Medemblik, large quantites of shell-tempered wares occur, as does a sandy black ware of unknown origin. The imports can largely be attributed to the production centres of the central Rhineland, that is, the Badorf and Mayen industries. Two hectares of excavation in the Hoogstraat 1 area produced 18,000 sherds (Verwers 1988:55). Mayen pottery is most common in a very hard-fired grey fabric. The Badorf pottery is particularly prolific. There are also large quantities of relief-band amphorae, decorated with rouletting, stamping, or thumb-impressing, including some relatively early forms. Tating ware occurs at Dorestad and there is a complete jug in the classic Tating pitcher form, but lacking the characteristic tinfoil decoration. There is a distinctive group of black pottery decorated with rouletting, of unknown origin (Verwers pers. comm.). Carolingian red-painted pottery occurs in very small amounts, the costrels in this group have thick lines of paint irregularly smeared over their external surfaces, whereas the cooking pots have thin lines. All of the Dorestad pottery dates from the late 7th century onwards. There are no Merovingian vessels in the assemblage, but Merovingian forms are occasionally found in some of the Carolingian period Badorf fabrics. All of the pottery has been classified into a number of groups, according to form and fabric, with fabric descriptions centering on four macroscopic criteria: tempering, hardness, surface treatment and colour (van Es and Verwers 1980:56). The presence and quantity of the different pottery types varies through time. Some types are confined to short, well-defined periods, whereas others span more than 200 years (*ibid*:151-2). It is the pottery that is particularly useful in revealing that 'the relations with the German Rhineland were maintained from the beginning until Dorestad ceased to be engaged in international trade.' (*ibid*:158).

Dendrochronology shows that the wine barrels found in Dorestad (that had been reused as wells) originated in the Mainz area (Verwers 1988:55). In view of the prolific quantity of Badorf vessels found in the settlement, it is tempting to suggest that the amount of pottery reflects an extremely successful wine trade that appeared to centre of Dorestad. By contrast, the contemporary village of Katwijk had 70% local pottery, and a mere 30% imported wares, suggesting that Katwijk played a far less vital role in long-distance trade.

Although the site largely fell out of use in the late 9th century, there is an assemblage of later pottery from the Hoogstraat 1 excavations. This is made up of Pingsdorf, Andenne and Paffrath types, which are generally dated to the 11th - 13th centuries. There appears to be a time lag between the final appearance of Carolingian pottery and the reappearance of this later imported pottery, but this may well reflect the traditional dating of Rhenish red-painted pottery rather than representing an accurate reflection of a hiatus, be it in terms of occupation or ceramics (see Chapter 5, section 3, iv). It was suggested by the excavators that the later pottery is most likely to be refuse from a settlement some distance away, carried for disposal to the Hoogstraat area.

6. The coins

As mentioned earlier, there was a mint in Dorestad from the early 7th century, and when the site was taken over by the Frisians they minted their own coins there. Runic sceattas as well as Frankish coins were minted in Dorestad. Jankuhn's work on the coins has shown strong variations through time in the numbers of coins lost in the port (which would hopefully reflect the numbers of coins that were actually in circulation at any given point in time). Enno van Gelder's analysis has shown that there is a significant number of coins that were issued under Pepin the Short, who reigned over the Franks between 752-768, then there is a lull before the profusion of 793-840 coins - those of Charlemagne and Louis the Pious (Enno van Gelder 1980:212, 222). The quantity of coins issued under Louis the Pious show that the site was in a strong position economically until the 820's at least (Jankuhn 1976a:39). However, the number of coins had dropped substantially by the middle of the 9th century.

The Dorestad coins had a circulation well outside of the confines of the site. Some of the Ribe sceattas originate in Dorestad. A possible Dorestad issue coin has been discovered at York, and one from York in Dorestad (Hodges 1982a:73).

7. Conclusion

Over half of the emporium of Dorestad has now been excavated, and it is considered that conclusions currently being drawn about the site are unlikely to change as a result of further research (van Es and Verwers 1983:36-46, 1985:65-76). It is abundantly clear that Dorestad occupied a unique position in Carolingian Europe.

> 'However such a town is defined, it is clear that the presence of such buildings, the important position of Dorestad as a port of trade, the impressive harbour area and the enormous extent of the settlement in combination with the complex economic, industrial and commercial activities of its inhabitants provide Dorestad in relation to other sites with a special status that we, as archaeologists, call a town.'
>
> (Verwers 1988:55)

III Haithabu.

1. Location and geography.

The major Viking age site of Haithabu (in German), or Hedeby (in Danish) lies on the shore of the lake of Haddeby Noor at the head of the broad river Schlei. The site sits at the base of the Jutish peninsular, at approximately the central point, but its position at the head of a large river that opens up into the sea allowed it superb access to the 'market' of Scandinavia and the Baltic area, which in turn opened up the possibilities of trade with Russia, the Byzantine empire and the Arab world. Haithabu is also well situated in terms of access to western Europe; a c.15km journey westwards from the site would bring a traveller to the Treene and Ejder rivers, which run into the North Sea and can be navigated by ship (Arbman 1940). The importance of ships and all things naval can be seen in the early 9th century coins that were minted at Haithabu. Many of them imitate the Dorestad ones and are decorated with ship designs (Skaare 1976:46). The settlement itself lies on the flat shelf of the western shore of the lake, its 24 hectares surrounded by a substantial rampart that forms an elongated semi-circle against the lake side. The rampart is linked to the major linear earthwork of the Danvirke, an impressive monument testifying to the power of Godfred, who had his army build it 'from the waters of the Baltic to the Western Ocean' running across the Jutish peninsular, as the *Annales Francorum* explains.

2. The documentary evidence.

There is a relative profusion of documentary evidence that makes mention of the sites of Haithabu and Ribe. In a number of instances Haithabu is called by its Saxon/German name - Slesvig. The first mention of the site is in a document of 804 naming it as *Sliesthorp*, and in 808 in the *Annales Francorum* it is referred to as a trading centre and *portus*. In 870 it is called *Sliaswich* in a source that refers to the building of the first churches in Denmark, and there it is seen to be an international trading centre and a *vicus* (*Vita Ansgarii*). The name Haithabu first appears around the year 900, again in the context of a port and trading centre.

3. The excavations

Large scale excavations were undertaken at Haithabu by H. Jankuhn in the late 1930's, and more recently, but excavation has been carried out sporadically throughout this century. Both the areas within the rampart and outside of it have been studied, including some of the area that lies underwater to the east of the settlement. Many years of excavation have allowed an estimated 5% - 10% of the settlement to be totally excavated producing an enormous quantity of archaeological data, most of which is simply refuse. Indeed the quantity of animal bone recovered so far makes the site look like one enormous rubbish heap!

The 8th century (and very early 9th century) settlement lies outside of the area enclosed by the rampart, immediately to its south. It appears to be much more of a sprawling organic settlement than its regular, well laid-out 9th century counterpart. To a large extent, the 8th century settlement comprises a number of sunken-floored buildings, with a single long house also in evidence. Unusually, most of the sunken-floored buildings have hearths, inferring their regular year-round use, perhaps as both dwellings and workplaces (Steur 1974). A number of the buildings acted as workshops; evidence of amber bead making and jewellery making has been found, and iron slag concentrations suggest that iron was extracted and worked within the south settlement (Randsborg 1980:87). Dendrochronology work on the timbers within the rampart-enclosed central area suggest that it was not occupied until 810. So, in the opening years of the 9th century this expanding trading site relocated itself into an area protected by a substantial rampart (which, even today, stands an astonishing 5-10m high), and regularised its street system.

4. The finds

Analysis of the animal bones has resulted in some extraordinary figures for the numbers of animals there, especially considering the relatively small area of the site that has been excavated. Over 250,000 individual animals have been identified, of which c.100,000 were pigs (Sawyer 1982:37). The other major meat source appears to have been cattle. Analysis of the ages at death of the pigs at Haithabu suggests that the animals were killed when they had reached a relatively old age (Reichstein and Tiessen 1974:46). The same was true of the sheep, although with these animals it is generally considered to be beneficial to allow them to grow old before slaughter, as they will continue producing wool and milk long past their optimum slaughter date (optimum in terms of the quantity and tenderness of their flesh). As at Ribe, the meat-bearing bones of cattle and pigs are over-represented in the assemblage, suggesting off-site butchery. This is supported by the lack of evidence for animal stalls in the excavated areas; only one house has any trace of a stall (Randsborg 1980:57). In addition to the animal bones that are the remains of thousands of meals and feasts, a vast quantity of worked bone and antler has been recovered. Bone- and antler-working is another industry which the artisans of Haithabu seem to have excelled at. Hundreds of bone combs and comb cases have been recovered from the excavations, along with partially worked fragments and waste material. In a single year's excavation (1963-4) 3390 antler burrs were found.

5. **The pottery**

Pottery was also found in the Haithabu excavations in large quantities, particularly in the central settlement. In common with many sites of an 'urban' nature, fragments of individual pots have been located stretched across the site, so that cross-fits can be made from sherds that were located up to 100m apart. Adjoining sherds were sometimes divided by up to 2m of stratigraphy, causing some problems in using the ceramic 'sequence' as a dating tool. Pottery was made in the site itself and imported (Hubener 1959). The selection of imported pottery found in the site is broad, spanning the relatively common Badorf, relief-band amphora and Pingsdorf groups, to the much rarer Hunneschans and Tating types. These import groups form a minority in the ceramic assemblage. Much commoner are hand-made cooking pots and storage vessels, sometimes decorated with incised bands, combed lines or stamps, or a combination of these design elements. The south and central parts of the settlement differ in the proportion of imports found in their respective assemblages. The 8th century area has few imported vessels, whereas the subsequent 9th century settlement abounds in imports (Weidemann 1970).

6. **Organic remains**

Pottery did not constitute the only form of container in Haithabu, it may even have been well outnumbered vessel for vessel, by wooden containers. These are not so archaeologically indestructible as pottery, so it is difficult to judge the actual ratio of pottery to wooden vessels. The excellent preservation of organic matter at Haithabu has allowed objects such as an enormous wooden barrel to be preserved, as well as the cartwheels and a large quantity of domestic containers and implements in various sizes and shapes. Woodworking took place in Haithabu on a large scale, and is attested by concentrations of working debris and woodworking tools.

The damp conditions also allowed for the preservation of substantial amounts of leather, both worked and unworked. Boots in particular have been well preserved in quantity.

The combination of evidence relating to leather, cloth and metalwork from the settlement and cemeteries has meant that the varying types of dress of the people of Haithabu can be judged to a far greater extent than is usual from purely archaeological data.

7. **Industry**

Whereas skills in carpentry and carving were relatively commonplace, the technological expertise that is necessary for a craft such as glass-making was rare in early medieval Europe, and such skills were closely guarded secrets. Yet numerous glass beads have been recovered from the excavations, along with glass slag, cullet and evidence for the various stages in glass manufacture, indicating that such specialists were at work in Haithabu.

Sawyer's comment (1982:37) that the rubbish tip of the town was one in which 'few objects of any value have been found' suggests perhaps a misinterpretation of what constitutes value in archaeological terms, but it is true that the weight of animal bones and pottery is not matched by an equal quantity of fine metalwork, or other obviously luxurious goods. However, in the harbour area of Haithabu, 69 coins have been recovered, along with a leather bag containing 42 bronze blanks or matrices for jewellery making. These blanks came in fourteen different designs in three different sizes, and would have been used to make moulds for ornate silver, gold or other types of metal brooches etc. (see Schietzel and Crumlin-Pedersen 1980). Other evidence for metal-working is currently on display at the museum at Haithabu itself; this includes crucibles, moulds for trefoil brooches and other fine objects. There are also the objects themselves: pins, penannular brooches, trefoil brooches, tortoise brooches, disc brooches...some are gilded, some have gold filigree, others are made of precious metals. The Haithabu swine appear to have had a few pearls cast before them!

Imported goods, apart from the pottery, include west European sceattas, one of which is a Wodin/monster sceatta of Frisian origin (Jankuhn 1976a:216). Lava quernstones were also found; these were brought into the site in a rough state and 'finished' within the settlement.

The craft activities mentioned above do not now appear to cluster in any particular area of those parts of the site that have been excavated. This contradicts the picture of the site conjured up by the early excavations, and is in contrast to the picture we have of medieval towns, where a specific group of artisans might all be located in one district or even in a single street. As in Ribe, local clusters of material do occur, but these might be superseded by a different sort of activity in the same area at a later date.

8. Dating and structure.

Large quantities of timber were preserved in the settlement, allowing very precise dating of certain buildings through dendrochronology; so much so that it was possible to date the construction and rebuilding phases of a number of the houses in Haithabu (Eckstein and Schietzel 1977). The dendrochronology also suggests that the enclosed central settlement had a quite different layout to the earlier south settlement. In the central settlement buildings stand in regular rows within narrow plots, implying that the settlement was planned in such a way from its instigation, whereas the south settlement is composed of a sprawl of sunken-floored buildings. The fences that surrounded the house-plots remained in the same places over much of the settlement's history, in the same way as the 'parcels' of land at Ribe remained constant over time. The houses themselves were lightly built and were probably not meant to stand for long periods of time. They contrast strongly with houses from rural settlements, which are much more likely to have been built for long-term use. Space was apparently limited within the settlement, for the narrow houses had their doors fronting directly onto the street and were packed closely together, with rubbish being discarded between them. The preservation allowed parts of the superstructure of the houses to be recovered and conserved, thus allowing very accurate reconstructions of the houses to be made. Schietzel's reconstruction of a 9th century house from the central settlement shows the cobbled fireplace in the central room of a tripartite building measuring c.10m x 5m (illustrated in Randsborg 1980:88, fig. 24). Although these are not supposed to have been intended for long-term use, they bear a striking resemblance to later medieval houses in areas such as Norway, suggesting that this general pattern of dwelling was a successful, long-term design. In contrast to the southern settlement, sunken-floored buildings were very few and lightly built.

9. The cemetery

Several thousand graves are known from the excavations. Randsborg deduces from this that the average population size for the 250 year occupation of Haithabu would be in the order of 1000 people (Randsborg 1980:81). Analysis of the skeletons in the early 1960's included a random sampling of a group of adults to assess the sex ratio. It appears from this admittedly very small sample of 100 skeletons (of which 76 were assigned a sex) that 62% of the adult dead were male, and the corresponding 38% female (Schaefer 1963:211). Jankuhn's excavation of one of the cemeteries unearthed 41 men in comparison to 23 women and 16 children (Jankuhn 1976a:137). These figures should be compared to the 'normal' distribution of women and men from the cemeteries of rural sites. Randsborg suggests that this imbalance is due to the fact that 'women did not live in Haithabu unless their workpower could be used' (Randsborg 1980:81). Such a statement could also be made for male workpower, but Randsborg goes on to qualify the above statement by saying that women's involvement in trade and craft activities was less than in agricultural production. This overlooks one potential aspect of women's work in ports, namely prostitution (see Bullough 1977). Admittedly only a fraction of the population would be actively engaged in such work, but nevertheless, it should be borne in mind that occupations which are not specifically in the fields of craft production and trade in material commodities do take place in ports, and these may be archaeologically invisible. The demand for prostitutes in such centres would be as high as the demand for furs, walrus ivory and other precious commodities.

Jankuhn's cemetery data indicates that artisan families were living (and dying) in the settlement, rather than it being a town predominantly made up of bachelor craftsmen. The graves and their grave-goods also indicate the high level of wealth among the artisan community of Haithabu.

10. The role of Haithabu

The border aspect of Haithabu was crucial to its success. It appears that the settlement was at a linguistic border as well as being at a geographical junction, just as it is today. Ottar, sailing from his homeland in Norway to Haithabu to sell furs, refers to the settlement as 'a Danish port lying on the border between various peoples' (see Bosworth 1853, King Alfred 9). The Jelling runestones found in Haithabu also indicate that the area was at a dialect border. Haithabu lay pretty much on the final frontier of Christianity, and although it was not specifically a missionary outpost, it was presumably facing the barbarian hordes to the east. Exploitation of this liminal situation can be attested from the large number of Arab coins found in Haithabu (see Nobbe 1936).

11. The Church

The missionary Ansgar had churches built in both Haithabu and Ribe, and two kings (Horik I and his son Horik II) supplied the land for these monuments to the increasing power of the Church. The two Horiks established a royal official within Haithabu, and 'royal power, probably initiated by Godfred, is seen in the establishment of the central settlement with its fixed plan containing larger and smaller streets' (Randsborg 1980:15). So, this large settlement was much more than a mere market site, it was a major port in which royalty had a controlling interest. It is worth noting that the Horiks were not converted to Christianity themselves, but encouraged the activities of the Church in their dominions largely because of the growing number of Christian merchants. These merchants would be encouraged to visit the market centres where churches had been set up, where royal patronage extended to encompass their religious, as well as economic, position. The upsurge in 'mercantile-Christianity' is indicated in the *Vita Ansgarii* where it is stated that there were 'many who were already Christians and who had been baptised at Dorestad or in Hamburg; some of these were regarded as the leading men of the town.' (*Vita Ansgarii* 24).

12. Conclusion

The site of Haithabu must have played a major part in Viking age Denmark. It was the port to which Godfred came with his fleet of ships and full band of cavalry to meet Charlemagne, which suggests that the port had facilities for the entertainment of numerous high ranking guests. It was beautifully positioned, in strategic terms, to exploit the markets of both the eastern and western Europe. Although Haithabu is unusual in the quality, diversity and preservation of its finds, many of the commodities that would have been exchanged there did not make their way into the archaeological record. Resources such as food, livestock, salt, wool and slaves would have played a major part in the commerce of the settlement. Slaves in particular were a very important trading commodity (see Jankuhn 1976a:180-188, and the *Vita Rimberti* 18). It appears that Haithabu was the settlement with 'the largest and ethnically most diverse concentration of population in Scandinavia.' (Randsborg 1980:59). As a result of this highly dense and diverse population, the social organisation is likely to have been of a much higher complexity than in other sites in Denmark.

IV Ribe: "Die alteste Stadt Danemarks"

1. Location and geography.

Ribe lies c.10km inland from the west coast of Jutland on the river Ribe A, 30km south of the modern port of Esbjerg (fig. 3.1). The early settlement of Ribe was located in a perfect situation for both land and sea traffic (Bencard 1981:10-11); north-south land traffic could easily ford the river, but it was deep enough to be accessible for sea-going vessels coming from across the North Sea. In the 8th century the settlement was surrounded by salt-marsh on the west, and fresh-water marsh to the east where the river was divided into many small streams. Indeed, Adam of Bremen, writing in the 11th century, described Ribe as being encompassed by a flood, by which ships could steer to England, Frisia and Saxony (Skovgaard-Petersen 1981:51).

The area provided superb cattle pasture, which in turn provided the mainstay of Ribe's prosperity. The present 'dryness' of the area is only maintained by carefully engineered locks and dykes, even in quite recent years the river has flooded with devastating results as the sea swept inland. However, this somewhat unstable environment has allowed for the preservation of large quantities of timber, resulting in an excellent series of dendrochronological dates for the site; the timber from a well in Ribe was given a felling date of 711 (Mejdal 1983:31). The flat, sweeping, landscape in this area is very reminiscent of East Anglia, and although Ribe lies on a much more northerly latitude than Ipswich, they appear to experience similar climates.

2. Historical evidence

The first historical mention of Ribe is in a document of about 870 (the *Vita Ansgarii* 32) which describes the site as a *vicus* and makes mention of the first church built here in 860, one of the earliest churches in Denmark. The reference explicitly states that the land was presented to Ansgar by King Haarik, for the purpose of building a church. A prominent role can be assigned to the church in settlements such as Ribe and Haithabu; the church was as interested in the benefits of long-distance trade and prestigious and beautiful objects as the secular hierarchy.

3. The excavations

Due to the restrictions imposed upon the redevelopment of an extremely picturesque medieval town, excavations have been carried out in a sporadic, rather than systematic fashion. However, between 1970 and 1976 a series of important large-scale excavations were carried out in the heart of Ribe, in the area where the medieval cathedral lies (Frandsen and Jensen 1987). The main aim of the excavations was to ascertain the supposed great age of the settlement, as suggested by the written sources; in fact the excavations confirmed that a trading settlement had flourished at Ribe long before the first written reference to the site in c.860.

The first excavations, in the old medieval town to the south of the river, were disappointing in terms of pre-medieval finds; the thick occupation layers in the first trench showed nothing earlier than 1100. Trial excavations and large-scale excavations were later carried out on the north side of the river with much more exciting results. All indications pointed to the pre-1100 Viking settlement lying in this area. Although excavations were limited, a comparatively massive body of artefacts was recovered from the thick occupation layer. Most of these finds related to craft activities rather than domestic debris, and little in the way of structures was recovered. The traces of two sunken-floored buildings were apparent in this area, along with evidence for unroofed workshops (Frandsen and Jensen 1987, 1988)

Excavations in 1985 and 1986 have further added to the picture of Viking Ribe. The finds in these excavations, pushed the dating of the oldest town in Denmark even further back, showing the settlement to date from the later Germanic Iron Age rather than the early Viking period. As was found in the 1970-76 excavations, the occupation layers were thick, jumbled, and teeming with finds. These later excavations, although covering a much smaller area than the previous ones, have actually been more important, due to the way in which they were carried out. The '70s excavations had their occupation layers taken down in spits, which unfortunately did not allow for the existence of later Viking pits cutting through the 8th century layers. As a result the whole of the 8th and 9th centuries were effectively intermingled (Stig Jensen, pers. comm.).

The most recent excavations at Nicolajgade 8 were carried out in a way that specifically respected the stratigraphy. Each pit was dug separately as it was reached, so that any 'contamination' of 8th century layers was avoided. The stratigraphy in this small area was very complex, with hundreds of layers of 8th century workshop occupation interweaved with layers and lenses of sand or clay. The workshop layers could be separated into six consecutive horizons. The later four, VH3-VH6, were divided on the basis of the artefacts found within the layers, whereas horizons VH1 and VH2 were well defined in terms of their stratigraphy. When I talked with Lene Frandsen in Ribe in May 1988 there had been no ceramic cross-fits between the horizons, although there had been cross-fits between parallel horizons in adjacent blocks of land, e.g. horizons VH1 and VH1a. The major part of the area excavated was surrounded by contemporary ditches, implying the parcelling of land into blocks. Below the lowest workshop horizon was a layer of inverted turves. Originally this was thought to be the result of a manuring process called *træk* that was common in this part of Jutland in the 8th century (Lerche and Jensen 1986). This manuring process was undertaken by cutting turves and laying them inside the house when the animals were indoors; when the turves were well-sodden with faecal matter they were taken onto the fields as compost. After the 1986 excavations the excavators suggested that the turfing was more probably the result of clearance (Frandsen and Jensen 1987:179). This turf layer respected the edges of the blocks of land, suggesting that they were laid at the initial stage of development of the trading site.

Bencard maintains that this layer did in fact represent a layer of animal dung rather than turves (Bencard 1988, Bencard and Jorgensen 1990). He states that some of the dung/turf layers in in Kunstmuseets kælder were undecomposed (Bencard and Jorgensen 1990:580). This would imply that in between the land-division phase and the workshop phase, the whole site was allowed to become a dung-heap, and that this dung might have oscured the divisions so carefully laid out at the outset of the settlement. Bencard and Jorgensen admit to being confused by this possible obscuring of the plot divisions, and suggest that the divisions might have been marked out by stakes, although there is no archaeological evidence for this at the present time (1990:581).

Underneath the turf/dung layer ran a continuous settlement horizon, quite different to horizons VH1-VH6 in that there was no evidence for craft or trading activities; the artefacts suggested a purely domestic function for the site prior to the division of land into workshop blocks.

Cutting through the uppermost horizon (VH6) were pits of 9th century date, both VH6 and these pits were overlain by a substantial layer of mixed, disturbed material, primarily of medieval and Renaissance date, but containing occasional finds of Viking date.

4. Dendrochronology

Recent dendrochronological analyses of wood found on a number of sites in Ribe have shed further light on the date of the foundation of Ribe. Wood was found in large quantities at Kunstmuseets kælder and Dommerhaven, and twelve pieces have now been dated. Most of these pieces come from the wood of large barrels that had been reused as wells. Other fragments come from wattle fences in the workshop levels. The analyses suggest that the wood from the barrels was felled early in the 8th century, with the well being constructed between 704 and 710, whereas the workshop levels contained timber felled after 730 and 759 (Bencard and Jorgensen 1990:580-81). It appears that the wells date to the period when Ribe was divided up into plots, attesting to an early date for the organised division of the settlement.

5. The coins

The relative chronology described above was constructed independently of the dendrochronological evidence. The divisions into horizons was largely dependent on changing styles and forms of local pottery and other artefacts. One of the principal means of fitting these horizons into some kind of absolute-dating framework was the coin evidence. A large number of sceattas were recovered from this small excavation, 34 in all, and about the same number from the 1970's excavations (Frandsen and Jensen 1987:175). All but one of the 30 that have been cleaned from the 1980s excavation are 'Wodin/monster' types, the other being a Maastricht type. The Wodin/monster types are thought to have been struck over a period of about 35 years, between 720 and 755 (Bendixen 1981), and so were in circulation during and after this period. It is particularly noticeable that no 'porcupine' sceattas were found during the excavations.

The majority (19) of the sceattas were found in the lowest two of the workshop horizons, VH1 and VH2 (Frandsen and Jensen 1987:181). Nine were found in horizons VH3-4, and four in the uppermost horizons VH5-6. It has been suggested by the excavators that the sceattas in the uppermost layers are not residual but represent a period when these coins were in diminishing circulation (Bendixen 1981). This implies that the coin reforms of Pepin the Small were not particularly effective in this part of Jutland. The coin evidence suggests that the lower workshop horizons were initiated, and came into heavy use, during the period 720-755, and that the higher levels were deposited in the period 755-800. The lowest workshop horizon (VH1) is thought to represent a much longer span of time than the subsequent horizons (Stig Jensen pers. comm.).

The coins are currently being analysed, and it is suggested that they are one of the primary sources of evidence for the expansion of 8th century contacts between western Europe (especially Frisia) and western Denmark (Bendixen 1981). To the south of Ribe the site of Dankirke has produced thirteen 8th century coins of western European origin, including ones from England, Frisia and the Merovingian empire (Bendixen 1974).

6. The metalwork.

One of the other primary sources of artefactual evidence at Ribe is the metalwork. A large number of moulds for the manufacture of brooches were found, particularly in the 1970-76 excavations. In addition to moulds for trefoil and tortoise brooches, there were moulds for pins and keys, as well as evidence for various stages in the casting process (Brinch Madsen 1984:98). Most of the brooches appear to be of the Berdal type and thus date to the early Viking age (800-850), with a smaller number of later Germanic Iron Age type. In the 1985-6 excavations most of the moulds appear in workshop layers VH2 and VH3. These moulds are for two types of object: keys, and anthropomorphic masks decorated in Style D, a style which occurs most frequently in phase 3 of the later Germanic Iron Age, between 725 and 800 (Orsnes 1966:224). The later Berdal brooches were found in ditch G2 (Frandsen and Jensen 1987:179, fig. 6), which cuts through the 8th century layers. So it seems that the apparent contradiction of 'associated' 8th and 9th century artefacts in the excavations of the 1970s has been ironed out; the coin and metal-working evidence no longer tell different stories about the dating of early Ribe.

7. The pottery.

A considerable amount of pottery was recovered from the excavations in Ribe. The vast majority of this pottery is local rather than imported, and it is fairly crude and handmade (see Frandsen and Jensen 1987:186, fig. 14). Occasionally vessels are found with decoration, usually in the form of ring stamps, cross in circle stamps, or simple linear ornament. The forms are simple and fall into three major groups: those with inturned rims, those with lightly everted or upright rims, and those with strongly everted rims (Frandsen and Jensen 1987:182-185). The distribution of these rim forms varies systematically through the horizons, with a noticeable absence of vessels with inturned rims in the lowest horizons, compared to a very high proportion (70%) in ditch G2. In contrast, vessels with upright rims are seen in the lowest occupation levels suggesting that they, in common with the sceattas and the anthropomorphic brooches, date to the later Germanic Iron Age. This concurs with evidence for similar material from other sites in Denmark. At Karby on Mors straight-sided vessels have been found in a sunken floored building in association with later Germanic Iron Age brooches (Nielsen 1985:275), and at Stengarden, East Jutland and Darum, to the north-west of Ribe, such pots have been found in similarly dated contexts (Jensen 1982: fig 1,5). The largest group, pots with slightly everted rims, is found more evenly spread through the workshop horizons, but only two examples occurred in the later ditch (G2), suggesting that this type is typical of the 8th century rather than the 9th. The small group of pots with strongly everted rims were found evenly spread throughout the layers.

Most of the local pottery appears to be closely associated with specific phases of occupation, and reinforces the coin and metal-working evidence. But what of the imported pottery? The excavations of the 1970s produced a fairly large quantity of imported Rhenish pottery, comparable to the type of material found at sites such as Dorestad and Haithabu. Badorf pottery was the most common type, but there were also fragments of Tating ware and Mayen pottery. No Tating pottery has been recovered from the most recent excavations (although Tating-type ware has been found in Ribe - Madsen 1988:246), but a small amount of classic Badorf ware occurs. This was predominantly from the uppermost layers of the workshop horizons, along with a few fragments from the disturbed layers above VH6, suggesting a date no earlier than the late 8th century for the later horizons. Earlier Rhenish pottery does occur in the form of Mayen ware and Bornheim-Waldorf types. The exact quantity of imported pottery in Ribe is not known (*ibid*:246). Pingsdorf ware is common throughout Ribe, and occurs on 11th century settlements in the hinterland.

My own brief (macroscopic) analysis of the imported pottery at Ribe showed that Mayen and Bornheim types were found in horizons VH2, VH3, and somewhat surprisingly, VH6. The appearance of a large fragment of Mayen pottery in this late horizon is problematic, but could be explained by the lengthy curation of a rare and fine vessel. Similarly, the Badorf pottery was not completely confined to the uppermost horizons; a rim sherd occurred in the 8th century ditch G1, which cuts into the horizon where the majority of the 720-755 sceattas were found.

The other large class of imported pottery was a hard, heavily sand-tempered, wheel-thrown type of unknown provenance, in a grey-brown fabric. The vessels in this type are flat based with slightly everted rims which have signs of a ledge for a lid. The shoulders of the vessels are characteristically decorated by c.2cm of lightly incised grooves. The type was found in horizon VH1, and carries on at least until VH5, giving it a good 8th century date. This is definitely not local to the Jutish peninsular, but so far no-one has been able to provenance the ware. It is unlikely that this pottery originates from the south or east of Jutland, and it is definately not a product of the Rhineland (Madsen 1988:246). An English source has also been ruled out.

8. The site of Ribe.

For a Danish site of this period Ribe has a thick and rich depth of early medieval deposits (Randsborg 1980:91). Although c.1.00m of occupation debris does not at first suggest a heavily occupied or major site, this particular situation must be compared with contemporary sites within Scandinavia. Rural sites of 8th century date are fairly rare; Randsborg describes the period as an 'empty' phase before the Viking age proper, characterised by a degree of agricultural expansion and the foundation of the two trading sites of Haithabu and Ribe (*ibid* 1980:127).

The type of animal economy that was apparently operating in Ribe is particularly interesting. According to Randsborg's work, meat was being brought into the settlement 'on the joint' rather than 'on the hoof'. The use of ready-jointed meat eliminates the necessity for driving animals over long distances to market, and is a system that was not common in England until the medieval period. In trading places such as Ipswich and Hamwic an on-the-hoof system appears to be in operation. The Ribe system implies that the surrounding countryside must be directly supplying the settlement with its quota of meat, and this is entirely feasible given the superb grasslands in this part of Jutland. Such a system indicates a higher degree of organisation than animals being driven to market by their owners, and Hodges (1981a:141) suggests that 'the system might be organised through a ring of settlements with a regulated supply pattern, linked to villages farther afield.' Horse bones make up a small percentage of the animal bones, suggesting that they were not a primary foodstuff. Pigs appear to dominate many sites that are located in the central area of Jutland, but not sites on open, coastal areas such as Ribe. In western Jutland cattle bones dominate the faunal assemblages, and sheep/goat remains are noticeably low (see Randsborg 1980:54-9, and 56, fig. 13c).

At Ribe we are clearly not dealing with a rural/agricultural settlement. The extent and character of craft production in the excavated areas is far in excess of that of a simple agrarian settlement. The degree of planning that is apparent in the settlement suggests the hand of a regularised and central authority. The goods that were manufactured on site are primarily non-utilitarian, some of them are distinctly luxurious, even prestigious in nature. The jewellery is a case in point; bronze brooches, fine glass beads and worked pieces of amber are the sorts of objects somewhat on the fringes of normal daily life. The raw materials for some of these goods must have been imported, some of them from a long distance away. This is likely to have been the case with the raw material for the glass beads, which is thought to have come from the Central Rhineland (Frandsen and Jensen 1987:188). Amber is even today found locally on the coast close to Ribe, but the catchment area for this valuable resource is likely to have spread much wider. Most of the amber fragments that were found in the excavations were unworked, but there are a number of pieces that have been faceted or bored, indicating that amber working was taking place on site.

In addition to the craft activities described above, a large quantity of bone and antler debris, and iron-working debris, was found in a number of concentrated groups. These concentrations appear to represent workshop areas, the size and exact delineation of which has proved difficult to determine due to later levelling processes (Frandsen and Jensen 1987:187). However it has been possible to show this in three areas, where clay layers appear to form the floors of workshops, and hearths associated with these layers are positioned in approximately the same area of the floor through the successive horizons. In some cases it appears that the same craftsworker has occupied an individual plot for a number of successive seasons; in others, a change of artisan is apparent from the changing style of the artefact (Bencard and Jorgensen 1990:581). A bead-maker's plot, for example, appears to have changed hands in its four to five seasons of use, whereas four successive layers of a bronze-workers plot produce debris of moulds that are consistent with being the product of one individual.

10. Conclusion

Taking into consideration the existence of features such as clay floors and hearths, the evidence for permanent structures remains tantalisingly small. In 1980 Randsborg considered that the evidence for light post, plank and wickerwork constructions (such as those found in the excavations of the 1970s), the existence of a well, and fireplaces and stamped clay floors as described above, were enough to suggest that Ribe was a permanent settlement (Randsborg 1980:91). The present excavators are not so certain that this is the case - 'the workshops were not of a permanent character but were protected by light and simple structures. In some cases the craftsmen may have sat and worked in the open.' (Frandsen and Jensen 1987:187).

The suggestion follows that the recurring occupation layers at Ribe were laid down over successive years in connection with seasonal markets. This does not rule out the possibility that permanent structures existed within the same settlement, or that the trading settlement was established to coexist with a major estate. Indeed, the loom-weights and sheep bones from aged sheep suggest that the slow craft of weaving was being carried out, suggesting perhaps that some permanent occupation took place on the site.

What the excavators do appear to be certain of is that the instigation of the trading settlement (as differentiated from the non-trading settlement that it overlay), was planned and not sporadic, and that the 'contemporary' construction of the Danevirke in c.737 and the important Kanhavekanal on Samso in c.726 should not be considered to be purely coincidental (see Andersen, Madsen, and Voss 1976, Andersen 1985). The 'parcelling' of land in the trading post must surely have been a major step for some high-ranking or central authority to take, just as the establishment of the two constructions mentioned above must have been. It seems entirely possible that the three events could be attributed to the same, probably royal, power, and that the eighth century trading site of Ribe was specifically set up to facilitate trade with western Europe, and manufacture luxury goods for Scandinavia. Parallels to this situation can be drawn with the contemporary sites of Hamwic and Dorestad; all of these sites appear to have been reorganised at the beginning of the 8th century. However, Ribe was relatively small compared to the 40-50 ha. sites of Dorestad, Hamwic, Quentovic and Ipswich; Jensen has recently suggested that 9th-10th century Ribe covered about 10 ha. (Feveile, Jensen and Ljungberg 1990:42).

The trading settlement at Ribe undoubtedly starts up at an early date, but what happens after the 9th century? Ceramic evidence does not indicate activity much later than the 10th century on the north bank of the river. Pingsdorf ware occurs much more frequently to the south of the river, suggesting that the settlement shift to the south bank of the river

Ribe Å occurred after the initiation of production and large-scale exportation of this ware. The town of Ribe continued to develope more or less continuously until the present day.

V Quentovic: An emporium lost and found

1. Introduction

The emporium of Quentovic (the '*vicus* on the Canche') has long been known through historical sources as a major Carolingian trading site, which was founded to administer cross-channel trade to the south of England. It was, perhaps, the most important port of the Franks during its floruit (Hill et al. 1990:51). It would seem improbable for a large settlement, which after Dorestad may have been 'the greatest centre north of the Alps in the seventh century' (Hodges 1987:673), to disappear into the mists of time, but the exact whereabouts of Quentovic remained a mystery until very recently. The site was known to lie in the Pas-de-Calais region, somewhere close to the estuary of the river Canche in the Etaples area, and may have been built over the site of a Roman fort (Dhondt 1962). Most of the towns and villages in the area have claimed to be on the original site of the emporium, or had such a claim thrust upon them. The towns of Etaples and Montreuil are of respectable antiquity and were prime candidates for the location of Quentovic. But Dhondt's work in the early 1960s pointed the finger at the hamlet of Visemarest on the south side of the Canche. Dhondt makes the point that Visemarest (or Visemarais) derives from Vis-en-Marias, 'the vicus in the marsh', the vicus of Quentovic? (ibid). Carolingian pottery had been found in the river Canche for some time, tantalising the French archaeologists in the area (Leman and Cousin 1977). In 1973 a number of Roman pottery kilns were uncovered near La Calotterie (Couppe and Vincent 1973), well inland from the coast, in an area that had been thought to be unoccupied during the Roman and sub-Roman periods. Other chance finds in the area included worked stone, iron objects and pottery. Some of this pottery was clearly Carolingian in date (Hill et al. 1990:51). A rescue excavation was carried out by Pierre Leman which suggested that this low-lying area could well be the site of Quentovic (Leman 1981).

2. Historical evidence.

The archaeological connection between Quentovic and Hamwic is reiterated by historical sources. Nithard tells us that in 842 a Viking fleet wreaked a similar fate on the two settlements - 'At this time the Vikings pillaged Quentovic, and from there crossed the sea to ravage Hamwic and North Hamwic in the same way' (Lauer 1964:124).

In addition to the artefacts and commodities mentioned in the section above, documentary sources tell us of a number of other objects of trade that passed through Quentovic. Dyestuffs are mentioned in a charter of king Dagobert, where it is said that the inhabitants of Quentovic were permitted to take dyes to the fair he had established at St. Denis. English honey may have been another commodity that passed through Quentovic on the way to St Denys; English lead was noted in 852 as having passed through the site en route for Ferrieres (Dhondt 1962:88, 204, 217, Whitelock 1955:375).

3. The excavations

In the winters of 1984 and 1985 a programme of test-pitting and geophysical survey began in the low lying ground in the commune of Visemarest at the head of the Canche valley to attempt to locate the whereabouts of this lost town. The preliminary fieldwork was undertaken between Etaples and Montreuil c.15km from the Channel, by teams from two English universities, with assistance from Pierre Leman of the French Ministry of Culture. The first season's work recovered a fine array of material. Worked antler, pottery and human long bones that represented the remains of nine individuals were recovered from fieldwalking (Maude 1987:42). Geophysical survey by M. Jeanson showed that the hamlet lay on slightly higher ground than the surrounding area.

The initial results proved encouraging, so a more ambitious programme of fieldwork was carried out in the summers of 1985 and 1986. The excavation of three small trenches (measuring 4m x 5m, 4m x 4m and 1m x 4m) produced a wealth of Merovingian and Carolingian material. The early medieval layers in one of the trenches were partially sealed by the remains of a 14th-16th century farmhouse, but apart from that the area was relatively undisturbed (Coutts and Worthington 1986:23). Early medieval pottery was found in stratified layers, along with worked antler fragments, hone stones, glass, amber and Nierdermending lava quern stone fragments. The quantity and quality of material found indicated that an early medieval settlement, with comparable finds to Hamwic, had indeed been found, but the small scale of the excavations left many questions unanswered. The extent of the settlement could not be determined from the excavation of a number of small trenches, so a test-pitting programme was undertaken, using 4m x 1m trial-trenches at 100m intervals on an extensive grid. A hundred metres to the south of the 1985 excavations, test-pitting uncovered occupation horizons containing large quantities of animal bone a mere 40cm under the present ground surface. Traces of a well were uncovered at the eastern end of this trench. Other trial-trenches uncovered parts of a cemetery (to the east of the excavations) and a sunken track 300m to the north.

The sampling strategy continued in 1987, and the northern boundary was established successfully by further use of the 100m test-pitting method. Taking the presence or absence of artefacts and occupation debris as an indicator, it seems that the settlement covered an area of at least 35 hectares (Hill *et al.* 1990:54).

The early medieval layers in both test-pits and excavated areas consisted of dark grey sands, flecked with charcoal, which at their lowest levels cut into clean, light yellow sands. In one area a thicker, darker humic layer was uncovered, which could be identified as representing pits where they cut into the clean sand below. The 1986 excavations in particular produced a complex and comparatively deep stratigraphic sequence. The sequence is not dissimilar to Ribe's, with occupation layers interwoven with layers or lenses of clean sand. Pits, possible post-holes and a linear feature were found in the early medieval horizons, some of these were fairly insubstantial, but a pit in Area 4 (pit no. 158) contained six recognisable layers, which showed that it had been recut at some stage.

The small and discontinuous nature of the trenches at Quentovic has made coherent interpretation of the layers and features virtually impossible. However, the original intention behind the trenches, to establish the presence or absence of early medieval occupation in the area, and then ascertain the nature of the archaeological deposits, was successful. It is clear that there is a comparatively deep and complex stratigraphic sequence of early medieval deposits surviving in the area. That the deep pits and post-holes features survive is not surprising, even though the early medieval layers are fairly close to the modern ground surface. But in addition, multiple occupation layers survive and will be further investigated during excavations in the near future.

4. The finds

Although only a small area has been excavated, a large quantity of animal bone and shell fragments were recovered from the occupation layers and pits. In addition to the faunal remains, vessel glass, whetstone fragments, an unfinished spindle whorl fragment, two loom-weights, a fragment of Niedermendig lava, a few pieces of amber and a large amount of pottery were found. The recovery of a glass-making crucible from one of the trial-trenches indicates that Quentovic could have been a glass production centre. The 1986-7 excavations produced 87 fragments of vessel glass, primarily in light blue and green colours. The forms represented include palm/funnel beaker, bowl/jar forms and the ring-base of a cup. Occasional fragments display decoration in the form of applied and marvered trails (Hill *et al.* 1990:57).

Cut bone and antler attest the presence of bone- and antler-working at Quentovic, although the amounts recovered so far are not remarkable. The worked objects recovered to date include a spindle whorl with ring and dot decoration, and amulet, and an antler pottery stamp (*ibid*). The discovery of the antler fragment, with a tip carved into a lattice pattern, suggests that decorated pottery was being made on site.

5. Coin evidence

Only one coin was recovered, but it was a Series G (type 3a) sceatta, a type that Metcalf has postulated being minted in Quentovic itself (Metcalf *et al.* 1986). Stylistically the coin fits perfectly into a group of Series G copies (Dave Barrett pers. comm.). The earliest coins attributable to Quentovic were supposed to have been minted in the late 6th century (Hodges 1982a:36). This gives an early date for the origins of the settlement, but has been confirmed by the ceramics. The use of ship motifs on sceattas minted in the reign of Louis the Pious, many of which are thought to have been minted in Quentovic, is of particular note, emphasising as it does, the connections between maritime trade and the settlement itself (Bruce-Mitford 1975, fig. 321a and b).

6. The pottery

The Quentovic group is the only known pottery sequence in the area, and the relatively small assemblage has not allowed for a satisfactory local sequence to be mapped out. No contemporary kilns have been found in the area, but there are Roman kilns less than 1km away at Calotterie (Couppe 1973), showing that there are clays in the immediate region that are suitable for potting.

One thing that is immediately striking is the similarity of the pottery assemblages at Quentovic and at Hamwic on the other side of the Channel. The three most common types are shell-tempered pottery (which makes up about 20% of the assemblage), Black wares (10%), and Grey wares (15%) (Coutts and Worthington 1986). The latter two correspond to Hodges classes 14 and 15 respectively (Hodges 1981). The shell-tempered pottery may well have a local origin as concentrations of shell-bearing clay were found c.2km away from the excavations in one of the trial-trenches. Shell would also have been readily available as a tempering material of 'clean' clay.

Less prolific were fragments of pottery that could be sourced to Beauvais and the Seine valley. Recent excavations at La Londe indicate that much of the fine cream and white coloured wares, and the grey wares (Hodges classes 11, 12, 15, 16, 17 and 25) recovered from Quentovic originated in these kilns (Hodges forthcoming). The suggestion made in 1986 that some of the grey-burnished wares originated from eastern Belgium has since been discounted (Coutts and Worthington 1986:26, and see chapter 2). Thus the wide range of sources for the Quentovic pottery, postulated by Hill *et al.* (1990:56), can be narrowed down markedly to the La Londe and Beauvais kilns, with a small amount from elsewhere. A kiln site for the Black wares has still not been located, but an antler pottery stamp found at Quentovic suggests that pottery was actually being made in the emporium. The identification of two sherds of pottery as Pingsdorf ware in Hills *et al.* (*ibid*), is tentative. It is, in fact, more likely that these sherds are over-fired Beauvais ware types.

The fabric and formal analysis of the pottery suggests that the site spans the period from the 7th to the 10th century, with a range of pottery that is quite impressive for such small-scale excavations.

7. Conclusion

Trade and industry played a major part in the life of an emporium. So what is the sum of our evidence for these activities at Quentovic? Firstly, the archaeology gives us evidence of four possible industries:

Industry	**Evidence**
pottery making	pottery, the antler pottery stamp
glass production	the crucible
bone/antler working	the unfinished spindle whorl and offcuts

amber working	amber fragments

None of these are particularly substantial bodies of evidence, and it is possible to argue that they merely add up to a scatter of farmsteads, rather than a major industrial centre. The crucible fragment containing traces of glass is the object most directly industrial, and least likely to have been derived from a simple farm; glass making involved an array of specialist skills, knowledge and technology that were not widely available.

Secondly, the archaeology gives us evidence of trade from three geographical areas:

Trade	Evidence
Rhineland	Niedermendig lava fragment
Baltic	amber
North/Central France	pottery

Does this slight body of evidence tell us that we are dealing with an emporium? Whereas Rhenish lava querns were undoubtedly widely traded items, their distribution is not confined to trading sites. The amber was probably brought in from Denmark, and the pottery certainly comes from a fairly wide area. The quantity of finds from the excavations and field survey in the Visemarest area does not give us sufficient evidence to be able to state that a major trading site has been found, but their diversity and distribution does suggest this.

Taken together, the excavations and documents reveal that Quentovic was a flourishing emporium. But both Quentovic and Dorestad eventually 'failed' as towns. It is generally thought that Quentovic was abandoned in the 10th century in favour of the site of Wissant, further up the coast. The Canche may have become too heavily silted for cross-channel ships to navigate with ease. The archaeology that has been carried out so far suggests that Quentovic was abandoned around this time (10th century). The area was subsequently used for agriculture, with an occasional farm being built, until the present day. So unlike most of the other emporia on the continent and in England, the site had been left undisturbed since its abandonment. No modern or medieval town dissected it with cellaring and sewage pipes, and as a consequence the site effectively disappeared from history, perhaps the most 'intact' of the emporia yet discovered.

PART III
THE POTTERY

CHAPTER 4

CERAMICS METHODOLOGY

CHAPTER 4

Ceramics Methodology

I Introduction: Why Study Pottery?

Pottery is one of the most common finds on archaeological sites, particularly on sites of the medieval period. It is also the most important and widely used artefact for dating historic sites. The seriation of ceramic types into sequences is a well established means of providing inter- and intra-site chronologies. Without the humble potsherd, the analysis of archaeological field-survey data would not be practicable; the vast majority of historic-period sites would become, to all intents and purposes, invisible. However, it is important to stress that pottery should not be studied in isolation from other sets of data. The physical and social contexts of pottery are of crucial importance; the study of archaeological ceramics should not be an end in itself.

In early medieval society the extent of pottery use varied considerably across Europe. Some of this variability may be more apparent than real; there are still major difficulties involved in identifying and dating much of the coarse pottery of the pre- and post-Roman era. Although there were some areas that were largely aceramic during the early medieval period. In the geographical periphery of northern Europe (from Norway to the Schillies) the use of pottery was marginal as storage and serving containers. The Celtic and Norse populations were not ignorant of the use of fired clay, as is attested by loom-weights and crucibles and moulds for fine metal-working (Graham-Campbell and Clark 1985). Ireland was largely aceramic, apart from the north-east, indeed there is no word for a potter in Old Irish (*ibid*). The majority of ceramic vessels in early medieval Sweden appear to have been imported from the Slavic lands and the Rhineland. Unless there are identifiable forms present within an assemblage, it can be as easy to 'identify' a selection of sherds as belonging to c.600BC as 600AD.

Much of northern and western Britain appears to have been aceramic in the early medieval period, or virtually so. There is very little (if any) identifiable pottery of Middle Saxon date in the counties of Devon, Derbyshire, Durham, Cheshire, Cleveland, Hertfordshire, Shropshire,and the West Midlands. The counties of Dorset, Gloucestershire, Northumberland, and West Yorkshire have barely a handful of recognisable Middle Saxon sherds between them.

People from certain areas of Europe seem, during this period, to have been disinclined to make pottery themselves and preferred to use wooden, metal, stone or horn vessels or imported pottery. When studying either of these sorts of societies, that is, those groups who do not have the technology and expertise, or the desire to make pottery, the archaeologist is forced to consider non-ceramic substitutes for containers and cooking vessels, and in doing so is faced with an array of alternatives that is so wide as to make us question the necessity for making and using pottery at all. Most of the alternatives are made from less durable materials such as leather, straw, and wood, which are only preserved in dessicated or waterlogged conditions. Where waterlogged conditions exist on early medieval sites, for example in Haithabu, York, and Dorestad, the variability and quantity of these remains is astonishing. Anything made from fired clay can be replaced by a non-ceramic substitute or equivalent. Most of the alternatives do not depend upon the specialist skills and technology that a ceramics industry requires; crafts such as basket-weaving and wood- and stone-carving need little more than the the skill of the vessel maker and the source material itself, and if these sources are close at hand they will usually be effectively utilised. This is the case with the Shetland steatite 'industry' in the Norse period, where a soft, easily carved stone is used as an admirable alternative to fired clay. In these situations the reasons for using pottery will be based on factors relating to social needs or prestige rather than utility (see Chapter 1).

The primary reason for analysing pottery from an archaeological site is probably to date the actual site, or refine the dating of phases within the site. A secondary reason for such analysis is to look at what the ceramics can tell us about trade and exchange in that society. This latter phenomenon had received considerable attention in recent years, as it goes beyond the mere compartmentalisation of ceramic types into neatly dated boxes. The trade and exchange of gifts, goods and commodities is closely linked with social and political factors, but to establish what the mechanisms of exchange are it is first necessary to establish what is being traded, and by whom. Those archaeologists who study ceramics we have a slight advantage over those who conduct research into lithics; pottery is a far more malleable medium for self-expression (particularly through decoration) than flint or obsidian, it is also more recognisable in terms of its individual chemistry. A small, undecorated bodysherd from the wall of a wine amphora found in the wilds of Scotland, sounds an unlikely source for a vision of a pan-European trade network, but it is precisely the discovery of such artefacts that allow us to bolster the fragmentary edifice of 'Early Medieval Trade'. However, in order to reach such a vision, it is necessary to be able to recognise the ceramics themselves.

II Macroscopic methodology

One of the main ways in which archaeologists disseminate information about pottery is through the use of standardised and replicable fabric descriptions. The necessity for standardisation has been repeatedly emphasised by archaeologists since the late 1960s (Shepard 1968, Peacock 1970a, Grinsell, Rahtz and Williams 1974, Robinson 1979). This is carried out primarily by using objective means of assessing, for example, the colour and hardness of potsherds. By the early 1970s a number of methods had been proposed which used reference charts (Matson 1969, Peacock 1971) and summary sheets (Borremans and Warginaire 1966). The colour should be described with reference to a Munsell soil colour chart or its equivalent so as to overcome the fact that people see colours differently, and the hardness by using a simple scale such as that proposed by Peacock (1977:30). There are inherent difficulties in using colour as a descriptive tool. Some archaeological ceramicists argue that it is virtually useless - colours may vary so considerably across a vessel as to make colour description meaningless.

To make the pottery descriptions as clear as possible, I will outline the methodology and conventions used for the Ipswich imported pottery assemblage throughout this report in the following section. The comparatively small quantities of material that I examined which had been recovered from excavations at other sites, such as Brandon and Old Windsor, were treated in a similar way.

1. Fabric Description

Three main criteria were used to differentiate between fabrics, these being:

1. The overall characteristics of the pottery.
2. The type and quantity of inclusions.
3. The surface treatment of the sherds.

However, many less 'objective' means of assessment were brought into play during the actual study; based on the recognition of generally comparable qualities throughout European ceramics of this date. Thin-section analysis was employed as an additional means of assessment, and this will be discussed later on.

i) Overall characteristics

All of the pottery was examined using a x10 hand lens, and the majority of sherds were also scanned under a x20 binocular microscope. The typical analytical procedure was as follows: a fresh break was made on the corner of a sherd using pliers, and this 'raw' surface was studied, as well as the inner and outer surfaces of the sherds. Each fragment was examined and assessed for its hardness, texture, colour and fracture type. The hardness was tested using the simple scale recommended by Peacock, which is as follows:

SOFT : the pottery can be scratched with a fingernail.
HARD : the pottery can be scratched by iron.
VERY HARD : the pottery cannot be scratched by iron.

This corresponds to Moh's scale of hardness in the following way:

SOFT = less than 2.5
HARD = 2.5 - 6.5
VERY HARD = above 6.5

See Read (1970:56-58) for a full description of mineral hardness testing.

As most of the pottery examined for this thesis was wheel-thrown and fired at a high temperature, very little fell into the 'soft' category. Those sherds that did were the stray shell-tempered and grass-tempered fragments, made by hand and fired at lower temperatures than the vast majority of the imports. It is unlikely that these soft ceramics were manufactured in the same sort of 'industry' as the majority of the imports; it is even debatable whether or not they were imported. The grass-tempered sherds are most likely to be of local manufacture, but it is possible that the shell-tempered pottery was imported from further away, as shell-tempered ceramics were made at a number of centres, for example at Flanders in the 8th-9th century (Verhaeghe 1984:202), and in the Oxford and London areas in the Late Saxon period (Vince 1990:102).

Texture is a somewhat more subjective criterion to be employed in ceramic analysis; the same fabric may be described as 'gritty' or 'sandy' by two different archaeologists, or even by the same person on two different days, and this can be a difficult problem to overcome, although Robinson's (1979) experiments suggest that experience positively correlates with consistency. Even within a single vessel, sherds can vary from rough to smooth, depending on factors such as differential weathering, and the deliberate treatment of the vessel's surface by the potter, and (less deliberately) by the finds processor(s). A consistent, and (hopefully) easily appreciated, body of descriptive terms was decided upon and kept to throughout this work. These were: burnished, soapy, smooth, sandy, and gritty. The terms fine and coarse were also employed, particularly to differentiate within groups.

A Munsell chart was used to give detailed colour descriptions, but the full Munsell notation is not always employed, as describing the range of colours even within a single sherd would be overly time-consuming, and in the end it often becomes more a means of confusion than clarification. The surface colour of a sherd is frequently different to the internal core(s) that is visible in a fresh break. Pre- and post-depositional scorching and on-site environmental factors can radically alter the colours of adjoining sherds; in Ipswich sherds from a single vessel have been found dispersed many metres apart in a trench (Paul Blinkhorn pers. comm). The post-depositional conditions of these sherds could have been very different one from another.

The variants in each fabric group were also noted. Sometimes a 'classic' group which is characteristic of a ceramic type was present in the assemblage, but there were also many sherds which appeared to lie close to these groups, but not actually be part of them. However, these groups were not distinctive enough to constitute separate classes, but formed sub-groups within a class. Thus there is considerable variation within the Badorf group, and some fabric sub-groups appear to lie in the transition zone between Badorf and Pingsdorf. It is, however, extremely difficult to state with certainty that these observed groupings have a genuine basis in differences in the date of their manufacture time or in their provenance, as the samples were too small to produce significant numbers of forms or decorative elements.

ii) Inclusions

The frequency, sorting and angularity of the different inclusions were described for each fabric, and those inclusions that were recognisable with the aid of a x20 (adjustable to a x40) binocular microscope were described and measured. The frequency of inclusions was determined by assessing how much of the clay matrix was taken up by tempering material (after Robinson 1979: fig.10), as below:

sparse = 1%
occasional = 5%
moderate = 10%
common = 30%
abundant = 50%

iii) Surface treatment

This refers to deliberate alterations to the vessel for decorative purposes, and not natural or post-depositional surface changes. The surface treatment of pots in this assemblage varied considerably, with a comprehensive array of decoration and finishes. The extent of a given type of surface treatment or decoration is described wherever possible. In many cases the decoration is confined to the upper half of the body of a vessel; this is particularly so on vessels which are decorated by painting, applied bands, or roller-stamping.

One of the most common types of decoration in the Ipswich imported assemblage is burnishing, and this could be partial, patchy, or cover the whole of a vessel's surface. On the Tating ware dish (Fig. 5,7.1), for example, both the internal and external surfaces are completely burnished, as well as having the resideues of tinfoil stripes and diamonds on the exterior and interior.

Glaze was described according to its colour, condition and uniformity. The glaze colour was not described with reference to the Munsell chart, as many of the glaze colours did not correspond to those illustrated, and colour variation over the surface of a single vessel could be considerable. Many of the pots were decorated by painting, almost always with red or orange paint that varied in hue according to the firing temperature, atmospheric conditions within the kiln, and the chemical compostion of the paint. This variability is particularly true of the Pingsdorf pottery, which can vary in colour from pink to a dark purple-brown. In general, most of the painting, on both Pingdorf and non-Pingsdorf material was executed in sweeping curves. Occasionally clear brush strokes could be discerned, as for example on Hunneschans ware (see Plates 5,6 & 5,7). The brush-painting on the pottery was sometimes executed in striking geometric patterns (see Figs. 5,4 & 5,5).

Stamped decoration was also common, both in the form of repeated individual stamps (see Fig. 5,1), and rouletted or roller stamping, as is commonly found on the Badorf pottery (Figs. 5.1, 5.2 and 5.3).

Incised decoration is not common within this assemblage, but occurs occasionally in the form of wavy lines, combing, or rilling, usually on the upper half of a vessel (see Fig. 5,11). It was a fairly common decorative motive in the early medieval period however.

Applied decoration is also fairly rare, being almost entirely confined to the class of relief-band amphorae (RBA). In the RBA group, low-relief (c.5mm) bands are present on the upper half of pots. These bands are sometimes decorated with thumb impressions, but more commonly with stamps or rouletting (see Fig. 5,3).

The vessels in the assemblage studied are also sometimes decorated with more than one medium; for example, Tating ware is decorated with burnishing and strips of metal-foil, Hunneschans ware by paint and rouletting, and Early Glazed ware by the exuberant use of paint, glaze and stamping (see Plates 5,19-22).

2. Quantification

All of the Ipswich material was initially examined trench by trench, and then separated into recognisable fabric groups. Those sherds which could not be assigned to a specific group were sorted according to their colour, hardness, and texture. The major fabric groups such as Badorf ware and Pingsdorf pottery from the Ipswich trenches was looked at as individual assemblages. Adjoining sherds of pottery were sought out (particularly from trenches that were close to each other), in order to accurately assess the minimum number of vessels (MNV) in any given group. This was found to be especially useful when dealing with the assemblage from two of the largest trenches, in the Foundation St. and School St. area of the town (trenches 4601 and 4801, see Fig. 2,2), which were separated by a modern road, but had a number of vessels in common.

The fabric groups were also examined in respect of their trenches in order to assess the relative proportions of various fabrics through the town, and through time. The spatial patterning of different ceramic types was shown to be quite important. Certain fabrics occured solely within the bounds of the Middle Saxon town, and others were concentrated in the riverside area. Other types appeared to be spread throughout the excavated parts of the town fairly uniformly.

Most of the pottery was examined over the winter of 1986-7, using the facilities provided by the Department of Archaeology and Prehistory at the University of Sheffield. The pottery from two of the trenches, at the Buttermarket site and Greyfriars lane, was studied in East Anglia, without access to laboratory facilities, thus the same procedures could not be carried out for the whole Ipswich imported assemblage.

The material from all of the trenches except for Greyfriars lane and the Buttermarket site was treated in the following manner: all of the sherds were weighed individually on a Mettler 1210 electronic balance, to one hundredth of a gramme (eg. 9.26g), and individually marked with a letter, in addition to the context number that was already present on the sherd. Thus 26 sherds from context 0000 in trench 9999 would be marked '9999 0000 A' to '9999 0000 Z', and when more than 26 sherds were present in any given context the letters AA, AB and so on were marked. Laborious and time comsuming though this was, it proved to be an invaluable aid in checking identifications and correcting mistakes, as it effectively gave every individual sherd a unique code. Sherds were counted as well as weighed, and rims, bases, handles and other such features were noted. Given the relatively small size of the assemblage, and the low number of rim fragments, it would have been completely unrealistic to use a method such as calculating the percentage of rim diameter to assess the MNV. Very frequently, a single body sherd was all there was to represent a vessel, and it was actually uncommon to have more than one rim sherd from any given vessel. The rims were distinctive enough in form to allow for the identification of individual vessels. All of the rim, base and handle sherds were drawn, with a few exceptions which were too small to allow for faithful reproduction. As a rule, a recognisably distinctive rim was taken to represent an individual vessel, and body, base or handle fragments were only taken as 'vessel representatives' when their fabrics were convincingly different to anything in the rim group.

The material from trenches Greyfriars Lane and the Buttermarket was examined at a much later date, and time and facilities precluded such detailed examination as has been outlined above. The material was not weighed, nor was it drawn. Instead, the assemblages were examined macroscopically and with the aid of a binoculr microscope, and the pottery divided up according to fabric type and individual vessels, which are included in the catalogues in Appendix 2.

There are two main faults with this method of analysis, in terms of assessing the number of vessels represented from a site or trench. Firstly, in a small trench which is separated by more than c.20m from its nearest neighbour, it might be easy to show that every sherd represents a unique vessel, as every sherd can be compared against each other. This problem was also encountered by Hodges, when he was studying the Hamwic pottery (Hodges 1981a:34). As he pointed out, the statistical problems that normally have to be dealt with when analysing large assemblages are not relevant when dealing with imported groups, as the total sherd count is too small.

However, in the larger trenches the sheer quantity of material precludes sherd to sherd comparison, except for the most distinctive material. Thus larger assemblages mean MNV under-representation. Secondly, where there is a great deal of colour and texture variation within a fabric group, as, for example, with the central Rhenish types, it is easy to differentiate between vessels; whereas within a more uniform group such as the northern French Black wares, it is far more difficult. As a result, the Black wares are under-represented in terms of the MNV in the assemblage. This can be corrected by looking at the respective sherd numbers and weights for these groups. By not confining ourselves to the strictures of rim-sherd counting, it can be seen that Black wares dominate the assemblage at certain times, or in particular areas of the site.

III The petrological thin-section analysis

1. The uses of thin-section analysis

By necessity, thin-section analysis is complementary to the macroscopic analysis of a pottery assemblage; it cannot stand on its own. Its main uses are as follows:

a. To provenance pottery by identifying diagnostic groups of mineral inclusions found within the clay matrix.

b. To provide a detailed description of the composition of the clay and its temper, in terms of the type, distribution, quantity, angularity and frequency of its mineral and non-mineral inclusions.

c. To assist in assessing whether a vessel was wheel thrown or hand made. This can be done by cutting the slice horizontally to determine whether the inclusions are lying parallel with the wall of the vessel, rather than being distributed at random. The patterning can be recognised in polarised light (Williams 1983:305).

d. To learn something of the firing temperature of a vessel. Certain clay minerals and substances alter at high temperatures, for example, primary calcite decomposes to calcium oxide at 750-850°C (see Grimanis *et al.* 1980). Optically anisotropic clay minerals break down to form an amorphous phase at 700-850°C, so that pottery fired at a temperature higher than 850°C will have an optically isotropic clay matrix. At even higher temperatures (1100-1600°C) partial fusion between the clay and minerals occur (Tite 1972:229).

Points (a) and (b) are most important and are the most common reasons for using of thin-section analysis. These will be focussed upon in this section. It is worth pointing out that the major problem and drawback of thin-section analysis is that any quantification that results from microscope work is totally dependent upon the initial visual selection of sherds for thin-section. If the original fabric sorting is inaccurate, the thin-section results may well be meaningless.

Petrological analysis of pottery by thin-section is a by-blow of the geological study of rocks; a ceramic thin-section is not unlike a fragment of metamorphosed sedimentary rock. As a technique, thin-section analysis is over 130 years old (Kempe and Templeman 1983:30). In more recent years archaeologists with some grounding in geology and petrology have been able to make, and analyse, their own thin-sections, producing larger and more relevent bodies of data, and refining the questions asked of the thin-sections.

The classic thin-section study which propagated this mode of analysis was Shepards's study of the Rio Grande Glaze-Paint pottery of New Mexico (1942). In Britain, the field of thin-section analysis of ceramics has been spearheaded by David Peacock, whose work has largely been concerned with Romano-British ceramics (Peacock 1967, 1971a, 1971b, 1973, 1977a, 1977b, 1978). Recently the field has expanded, and ceramic petrology has become something of a growth industry in this country (see Freestone *et al.* 1982, Streeten 1982, Vince 1983, 1984b). On the continent, one of the earliest exponents of thin-section analysis was Josef Frechen. Much of Frechen's ceramic analysis was conerned with Rhenish pottery of the early medieval period, and in doing so he dealt with some of the 'source' areas and material relevant to this thesis (see Frechen 1948, 1950, 1962, 1969).

Initially, thin-sections were made in order to study the actual petrology of the mineral inclusions. The principal rock-forming minerals that can be identified under thin-section are:

i) quartz (crystalline silica - SiO2).
ii) silicate minerals: feldspars, micas, pyroxenes, ampib oles and olivines.
iii) hydrous silicates: clay minerals, serpentine and talc.
iv) soluble products of chemical weathering: calcite, dolo mite, gypsum and flint.
v) metal ores: malachite, cassiterite, galena, pyrite , siderite and limonite. (see Tite 1972).

These minerals can be most easily identified in thin-section using features such as cleavage, twinning, isotropy/anisotropy and pleochroism (*ibid* 1972:218-222). It was hoped that the identification of specific groups of minerals would provide a clear 'finger-print' for particular classes of pottery, which could be provenanced on the basis of their unique petrology. The analysis of these minerals can produce striking results, especially when the vessels analysed are coarse-tempered and contain 'exotic' minerals (see Peacock 1969). The 'finger-print' premise was based on the results of early work on ceramic petrology, particularly for the ceramics of the central Rhineland. Sadly, and indeed frustratingly, the premise had a rather unstable foundation. The vast majority of ceramics do not respond well to petrological thin-section analysis, because their tempering materials and native inclusions are not geologically distinctive. One of the most common tempering materials, quartz-sand, is largely the same the world over, particularly when viewed in the hand specimen as a 'sand-tempered potsherd'. However, there are occasional pottery types, such as Mayen ware, that are highly distinctive in thin-section because of their unusual igneous mineral inclusions (Frechen 1948, Redknap 1984). A corollary of this is that these groups are also very distinctive in the hand-specimen, so thin-section is often merely a matter of confirming the suggested provenance made on the basis of macroscopic examination.

Vince's recent work on Saxon ceramics from London has put forward some interesting suggestions for the pottery in that area. His analysis of the shell-tempered pottery suggests that it derives from a non-local source. Its macroscopic similarity to pottery from Flanders, Dorestad, York, Beverley and Waltham Abbey has been noted - perhaps implying a cross-channel distribution for the ware, whatever its source. Analysis of one sherd of pottery from London, of a type thought to be common at Raunds, containing igneous rock fragments, biotite and limestone inclusions, suggests that it had its source in the East Midlands (Vince 1989:170-1).

Fine-textured wares are generally not considered to be ideal for petrological thin-section analysis (Peacock 1970). However Williams suggests that this view needs some modification, as his own work on fine Roman period pottery has produced useful results (Williams 1978, 1979a). Whether petrological analysis is actually 'approaching the stage where it will be regarded as a routine part of the post-excavation study of a pottery assemblage' (Williams 1983:301), is more of a moot point; the method is expensive and time-consuming in comparison with the macroscopic examination of pottery that is done by the on-site pottery specialist. Furthermore, it requires specialist training and equipment that are neither widely available or affordable.

Pottery contains minerals from two potential sources: the clay itself and deliberately added tempering material. These may have been taken from the same source, for example river bank clays and sands, or they could be from sources separated by many kilometres. A potter's workshop might be situated close to water in order to take advantage of transportation routes, but the clay source could be some distance away. In such a situation, the temper may be local to the place of manufacture, and the clay non-local. When 'native' and added quartz-sand grains are found together in the same sherd they often differ in size, and this pattern can be recognised graphically as a bimodal distribution of crystals within a thin-section. The natural inclusions are usually in the form of small fragments of quartz, often appearing as a sort of 'background noise' in comparison with the larger crystals of the added temper. In addition to the size of the temper, crystal shape can also be a distinguishing feature. The quartz that is native to the clay is usually angular, whereas added temper may be made up of crystals of rounded and water-worn sand (Anderson 1984:74).

There are some additional difficulties in sourcing clays that contain granitic rock fragments from igneous sources. Work on pottery from some Saxon period sites in the East Midlands has shown them to contain grains of plagioclase feldspar and brown horneblende that are likely to come from igneous rock sources (Walker 1978, Williams 1977). The source of such igneous rock could be in boulder clay glacial deposits that contain igneous erratics, and many early medieval British sites are situated close to such sources. However, the widespread distribution of the East Midlands pottery type suggests that the source could be a single production centre, producing pottery for a wide area. However, it would be very difficult to determine the precise whereabouts of such a centre.

2. Method

Thin-section analysis was used on a selection of sherds from Ipswich and other sites. To begin with, a reference collection of known kiln groups was thin-sectioned, and then macroscopically similar sherds from the Ipswich assemblage were thin-sectioned for comparison. The remaining thin-section samples were selected on a fairly ad hoc basis. In the case of some of the smaller, more problematic assemblages (for example, the Middle Harling and Humberside collections), a representative sample (one sherd from each vessel) of the imported pottery assemblage was thin-sectioned. Distinctive sherds from the Ipswich assemblage were usually thin-sectioned, and a large proportion of the first group of Ipswich material (from excavations up to 1980) was sampled.

Over 350 thin-sections were made specifically for this thesis, and a further 200, made by Richard Hodges for his comparative analysis of the Hamwic pottery and continental sites, were also studied (see Hodges 1981a:98-9). In the final count, this thin-section assemblage contained material from 28 sites in Britain and 19 sites on the continent, listed in Appendix 4. The major reference works used were MacKenzie and Guildfords's *Atlas of Rock Forming Minerals in Thin Section* (1980), the *Atlas of Igneous Rocks and their Textures* (MacKenzie *et al.* 1982) and the *Atlas of Sedimentary Rocks Under the Microscope* (Adams *et al.* 1984).

The manufacture of ceramic thin-sections varies somewhat between institutions and even between the individuals working within them, so the method used to manufacture the thin-sections for this thesis is set out in some detail in this section. A ceramic thin-section is always made from a transparent slice of pottery c.0.03mm thick, that is fixed (with a substance such as Petropoxy 154 or Canada Balsam) to a glass slide, and examined under a petrological microscope. All of the thin-sections made for this thesis were made by the author, by hand, with the assistance of a number of undergraduate students and friends (to whose bloodstained fingers I am forever indebted). The machinery used was limited to a cutting saw, a coarse grinding wheel and a lapping wheel, and a hot plate. The manufacturing process was as follows: a number of sherds were selected for thin-section and laid out on gridded paper. A thin slice of material (usually no more than 5mm thick) was carefully cut off each of the sherds using a diamond edged cutting wheel. The slices were then rinsed, and their cut surfaces were ground smooth on a glass plate that had a slurry of fine (600 grit) carborundum powder and water on its surface. These slices were then allowed to dry thoroughly on a hot plate that had been pre-heated to 100°C. The drying process, at a constant 100°C, continued for at least 30 minutes. Once dry, the slices were fixed to clean, warm, glass slides with a 1:1 mixture of Versamid 140 and Araldite epoxy resin MY 753. The slices were pressed down slightly to expel any air bubbles present in the adhesive mixture, and then left to dry. Although drying can be considerably speeded up by use of the hot-plate, all of the thin-sections made for this thesis were left to dry 'naturally' for c.24 hours, before the next stage. Once the adhesive was completely solid, the slices were ground down, first using a coarse grinding wheel, then on a lapping wheel which was covered with a light slurry of coarse (320 grit) carborundum powder. Once a slice had become thin enough for the quartz crystals present in the fabric to become transparent, grinding continued manually on a glass plate (using a slurry of 600 grit carborundum powder) until the thin-section was 0.03mm thick. The length of time taken to reach this stage varied condiderably between thin-sections, depending on the matrix constituents, and the firing temperature of the vessel from which the section had been taken. Repeated checking and rechecking was necessary at the fine-grinding stage to assess the actual thickness of the section. It was considered that the thin-section had reached the critical thickness of 0.03mm when the quartz crystals (which were present in every sherd examined) changed from a yellow to a neutral colour when examined under the cross-polars of a petrological microscope (see Kerr 1977 for a full description of this method and theory).

The actual manufacture of the thin-sections was therefore a very lengthy business. Ideally, three sections should have been made from each sherd; this practice guards against the occasional inevitable calamity (such as slides breaking, being overground, or the Canada Balsam being 'cooked' by overheating), as well as allowing for the density, distribution, and range of minerals to be examined under the point-counter (see below). In many cases in this assemblage, such a comprehensive sampling technique was impossible to carry through because of the uniqueness of many of the sherds and their small size. As a result, most of the sherds examined by thin-section were only sectioned once. Sections were not taken through rims, bases, handles or decorated sherds unless it was absolutely necessary, and in those cases the sherds were drawn prior to thin-section. In all cases the thin-section taken was the maximum practicable size, taking into account the factors outlined above. When a soft or friable fragment of pottery was sectioned it was necessary to impregnate the sample with a thermoplastic cement medium (such as Cosmonoid 80, Lakeside 70, or dilute Petropoxy 154) before cutting; this technique only needed to be used on a small number of sherds in this assemblage.

The petrological microscope is different from an ordinary microscope in that it uses polarised light in addition to transmitted light, and has a revolving stage. The magnification potential of the Swift binocular microscope used ranges from x3 to x200, in practice the magnification used was between x3 and x40. The light that passes through the slice of pottery is 'interfered with' by the minerals present in the clay, producing spectrums of interference (or birefringence) colours that are particular to that mineral. The crystal's shape can also be of use in determining what mineral it is, but stages in the manufacture of pottery, such as crushing temper and firing can alter mineral shapes markedly. Potters tend to deliberately choose weathered and disintegrated material for their temper, which compounds the difficulties in identifying minerals (Williams 1983: 302). The splendid full-colour plates in reference books such as the *Atlas of Sedimentary Rocks Under the Microscope* (Adams *et al.* 1984) are sadly of marginal use to the ceramic petrologist, showing as they do, pictures of large and characteristic crystals. In a ceramic thin-section the archaeologist is more likely to find one or two tiny slivers of a 'rare' mineral (that is, any mineral other than quartz!) which do not have any characteristic shape or form. .

One of the difficulties in assessing large numbers of ceramic thin-sections lies in the capacity of the human brain to remember, and distinguish between, large numbers of similar-looking microscope views. Distinctive thin-sections are occasionally represented in publications by micro-photographs, so that the thin-section is represented pictorally as well as descriptively, and comparisons with ones own thin-sections can be more easily made. This is not necessarily as easy as it at first appears. Suitable photographic machinery for this purpose is not widely available, but I was fortunate enough to be allowed access to such machinery at the Department of Ceramics, Glass and Technology at the University of Sheffield. My aim was to take 360 colour slides of the thin-sections, to use as a comparative collection. The secondary aim was to make a series of colour prints of diagnostic thin-sections to use in this thesis.

The theory behind this excercise was simple. The practice was completely different. Technical difficulties with the photographic machinery meant that repeated photographic sessions failed to produce suitable results. In the end, the cost of continuing the excercise, both in terms of time and finance, led to its abandonment.

IV Textural analysis

1. Introduction

In common with most of the techniques of ceramic analysis, textural analysis is a 'borrowed' art, in this case from sedimentologists who studied the deposition sequence of fluvial deposits (Streeten 1982). Textural analysis uses thin-sections, but examines the form, sorting, and quantity of the inclusions rather than their petrology; the results will then be quantified. Unlike petrological analysis, textural studies are quantitative rather than descriptive. The principals of the method were used on fired clay as early as the 1930's, originally to look at Carolingian and post-Carolingian bricks in German churches (cited in Parsons 1977:186). In this country, Peacock has again been the primary instigator of this technique (Peacock 1971), but since the late 1970s textural analysis has become an increasingly important part of ceramic analysis (Mackenna 1978, Streeten 1979, Darvill 1979, 1980, Darvill and Timby 1982, Timby 1988, Vince 1983, 1984b). Textural analysis is a useful method of analysing sand-tempered ceramics, whose clays originate from areas with sedimentary geology. The petrological examination of such ceramics will yield uninspiring results as the inclusions are not particularly distinctive, but the relatively simple method of analysing the size and sorting of the quartz grains within the clay can be a useful means of differentiating between kiln groups.

The technique was used on medieval pottery from the south-east of England with excellent results. The Kent/Surrey/Sussex region is well known for its high density of kiln sites, but the sedimentary geology of the area makes it very difficult to source material on the basis of the pottery fabric. The differentiation of these kiln groups proved possible through the use of grain size analysis (Streeten 1982). The method was also used successfully on Thetford ware kiln groups in East Anglia (Wade 1973).

The parameters that can be used are size, sorting, grain roundness and sphericity, skewness (the degree of symmetry of the grain distribution within the thin-section) and kurtosis (the degree of 'peakedness' of the grain distribution curve). An estimation of the percentage of inclusions can also be a useful parameter, but the ratio of quartz:clay, as employed by Hodder (1974) does not seem to provide a universal measure for the comparison of different groups. The most common measurements are of grain size and frequency. There are three potential methods for measuring these variables:

i) By using a point counter combined with a stage micrometer, measuring those grains that fall close to the cross-hairs of the microscope.

ii) Using the projected image of the thin-section, and measuring 'on-screen'.

iii) Using a computerised image analyser.

The last method has an enormous advantage over the former two in that it can give a virtually instantaneous calculation of size, shape, frequency, and so on. However, the expense of image analysers severely restricts their usage. It is easiest to calculate the parameters of skewness and kurtosis by using the methods that are outlined by the sedimentologists Folk and Ward (1957).

Textural analysis is an excellent means of differentiating between otherwise indistinguishable sandy fabrics. One of the main drawbacks is the length of time such a study takes using conventional (non-computerised) means. In the end it must be remembered that 'Textural analysis is capable of no more than providing an objective standard against which visual identification can be tested.' (Streeten 1982:131).

2. Point counting

Point counting analysis uses an electronic counter to record the number of times a particular mineral appears below the cross-hair graticule of the microscope. Each time a point is counted, the slide is automatically moves along the microscope stage. Each thin-section ends up having been effectively subjected to a 'grid-sample', with a specific number of counts being taken on each slide. Making three slides of each sample becomes particularly useful when using this analytical technique; each of the three slides can be point-counted, then the resulting counts can be averaged out to provide a more statistically reliable result.

This method has some obvious limitation; each count, however carefully and accurately carried out, can only be representative of that particular thin-section, and there is always the possiblility that any extreme through-vessel diversity will not be measured. This problem exists for all sampling techniques and is therefore not confined to thin-section or point-counting analysis. It is impossible to overcome in instances where no other samples are available.

The following section outlines the work done using the point-counter for the purpose of this thesis. The results of the point-counting analysis can be seen in Appendix 5.

3. A Study of Middle Saxon black-surfaced pottery by point-counting analysis.

i) Introduction

A small-scale study of Middle Saxon black-surfaced pottery was undertaken by the author, using thin-section analysis, and by Joanne Williamson of Bradford University, using neutron activation analysis, in order to determine whether or not the products of Saxon kilns in Ipswich were producing the wheel-thrown pottery that is found in small but significant quantities on certain Middle Saxon sites in England. The group of pottery that is usually considered to be imported was categorised by Hodges as his `Class 14 Black ware' (see Hodges 1981a) and was considered to be a product of Frankish kilns in the Pas-de-Calais region of northern France. Excavations at all of the major Middle Saxon sites in England seem to produce this ware, and many of these pottery assemblages also contain Ipswich-type ware in variable quantities. Ipswich was a large-scale producer of pottery during the Middle Saxon period, so it is not surprising that the suggestion has been uneasily voiced that Ipswich could be the producer of at least some of these fine vessels. This worry has been exacerbated by the recognition of variability amongst the Black wares; some are of a poor enough quality to be considered to be imitations of fine imported vessels.

Ipswich-type ware has been recognised as occurring in four fabrics, of which two are particularly distinctive: `sandy' and `pimply' (Hurst 1976). Another Ipswich-ware type is the less common, black-burnished sort, which seems to occur principally in East Anglia. East Anglia has also produced relatively large quantities of `Class 14' pottery from fieldwalking, giving further support to the suggestion that these Black wares could have been produced in Ipswich (see Norfolk and Suffolk in Appendix 1 for information).

The question that has to be addressed here is whether or not Ipswich-type ware and the supposed imported Black wares can be divided or confused by their petrology or microscopic texture. Macroscopic analysis is usually sufficient to distinguish between the Ipswich-type ware and imported Black wares. The products of the Ipswich kilns appear to be hand-made and turned on a slow wheel, with thick (8mm) walls and distinctive forms. The `imports' are supposed to be distinguished by their relatively thin (4mm) walls, different forms, and by being a product of a different technology, one that had recourse to the `fast' wheel. A cursory glance would normally tell you that these were very different pottery groups. Yet such cursory glances could be very misleading.

Hodges defined a very similar type of pottery to his Class 14 as originating from Belgium. This he termed Class 13, and many archaeologists have assumed that this is a readily definable type of pottery, which can be identified through both macroscopic and petrological analysis. In fact, Class 13 is merely a variant of his Class 14, and the slight differences between the two originate in the different atmospheric conditions of the kilns in which they were fired. Unfortunately, Class 13 was readily accepted as a distinctive, sourced, ceramic group by later researchers, and Hodges' hypothesis became fact (see Timby 1988).

In view of examples such as the one given above, we considered that it was necessary for Black wares and Ipswich-type ware to be scrutinised together. This would give us the chance to see whether, petrologically, texturally, or macroscopically, there were significant differences between Ipswich-type ware and imported Black wares.

A prime opportunity arose with the trial excavations at the site of Quentovic (see Coutts & Worthington 1986). The excavation of an early medieval emporium in the heart of the area supposed to be producing Class 14 ware could have settled the ambiguity concerning the source of these wares once and for all, with the timely discovery of a kiln site. Alas, it did not. The excavations so far have been on a very small-scale and have not clarified the picture markedly. However, one important variant emerged; one of the features of the Black ware pottery from Quentovic, in contrast to that from sites such as Ipswich and York, is that the latter generally has a reddish-brown fabric, whereas the Quentovic material usually has a grey fabric. The pottery with a red-brown fabric dominates in assemblages over eastern England, whereas the grey fabric is more common in Hamwic. This could well suggest that the pottery with a reddish-brown fabric does not originate from Quentovic, or its immediate environs. Where this large group of pottery comes from is stil unclear, however, a source in northern France still seems to be the most likely.

ii) Method

In the research plan for this project we proposed that we would use 15 sherds each of Ipswich-type ware and of Black ware from Ipswich, 15 sherds of Black ware from York, from Hamwic, and from London, and 15 sherds of Ipswich-type black-burnished ware from Brandon. Sufficient material was forthcoming from all of these sites apart from London, and a number of the already tiny sherds were destroyed during the process of thin-sectioning. This left a total of 71 successful thin-sections to be analysed using petrological examination and point-counting analysis. Because of the defined and non-expandable nature of the sample, it was only possible to take a single thin-section sample from each sherd. Each sherd was then point-counted three times, in order to even out any biases that may have resulted from `reading' an anomalous area of the sherd.

In many cases the similarity that was apparent through macroscopic examination could be confirmed by thin-section analysis and point-counting. In other instances the process of analysis enabled us to group sherds that would not have been immediately obvious as bed-partners. It must be stressed that the analysis, although based on a combination of macroscopic, petrological, and point-counting analysis, is by no means infallible, and the relatively small size of the sample could lead to distorted results.

iii) Results

After the petrological examination of the thin-sections the texture was analysed by point-counting. Variability in the size, shape and frequencies of different minerals did not appear to be significant. However, rank ordering of the percentage of clay in each thin-section showed an almost perfect correlation between the sources of the pottery types and the percentage of clay (as opposed to quartz and other minerals) in their fabric. Some sherds could not be fitted into groups with any ease. Others grouped together most emphatically; it was singularly comforting when some of those sherds proved to originate from the same vessel. In a number of cases the results were too ambiguous to allow the sherds to be classified. The Quentovic sherds were particularly difficult to group.

In short, Ipswich-type ware from Ipswich and black-burnished Ipswich ware from Brandon have a relatively low proportion of clay to temper/inclusions, whereas Black wares from York, Ipswich, and Quentovic have very high percentages of clay.

iv) Conclusions

This study is by no means a definitive study of the Black wares of the period, and it must be pointed out that neutron activation analysis of the same group of pottery did not produce the same groupings. However, this study does indicate that the Black wares of York, Ipswich, and London share common kiln sources, and one of those sources is not Ipswich.

IV Conclusions and hindsights

The analysis of a ceramic assemblage is a learning experience. It takes a considerable amount of time to become properly familiar with the early medieval pottery of northern Europe, particularly when new kiln sites are being excavated during the time of writing up, and when many more sites in Britain are producing imported pottery, or Ipswich ware, in their assemblages. The fact that the pottery studied was passed on to me between 1985 and 1990 did not assist me to write up speedily, but it did actually give me the necessary time to visit many sites and museums on the continent, and thus get a much more thorough grounding in the continental materials than would otherwise have been possible.

The three types of analysis carried out, macroscopic examination, petrological examination under thin-section, and point-counting under thin-section, can be seen as progressing one from another. The thin-sectioning was only carried out when the fabric groups had been sorted macroscopically, with the purpose of testing the groupings, refining them, and assigning unusual sherds to fabric groups if possible. The petrological examination was not wholly successful as many of the sherds were not petrologically diagnostic. However, assessment of the overall appearance of the thin-sections, and direct comparison of them with thin-sections from known kiln sites, was very useful.

The point-counting analysis was a last-ditch attempt to sort out the northern French Black wares, which had responded poorly to macroscopic and petrological analysis. It was carried out in tandem with a programme of neutron activation analysis. Whereas the point-counting analysis suggested that the macroscopic groupings of the wares were valid, the NAA study produced conflicting, and not readily explicable results. Whether this was a result of the precise type of analysis used is difficult to say. The NAA gives a breakdown of the comparative quantity of elements in a small sample of a potsherd, whereas the thin-section takes a slice through a sherd. Both methods rely on sampling of individual sherds or vessels, and are therefore beset with the problem of potential sample error. The tiny sample used in NAA could well be less representative of the sherd, or vessel, than the thin-section slice. However, the groupings acsribed by NAA might relate to finer divisions than we are able to detect through petrological analysis, which may, in the end be archaeologically significant.

The following chapter details the various fabric groups that were studied, on the basis of the macroscopic, petrological, and textural analyses described in this chapter.

Chapter 5

THE POTTERY DESCRIPTIONS

CHAPTER 5

The Pottery Descriptions

I Introduction

This section contains explicit descriptions of the imported pottery types that have been found in Middle Saxon Ipswich and other major Saxon sites in this country. It will also be used to describe and discuss the distribution of some later Saxon period wares such as Pingsdorf ware and Early Glazed ware, which are also found in Ipswich.

A brief history

The distribution of Middle Saxon imported pottery in Britain is concentrated in the south and east of England, and tends to occur on emporia sites, or on prestigious royal or ecclesiastical sites. Almost twenty years of archaeological field surveys and excavations have rendered the distribution pattern of Middle Saxon pottery given by Hurst in 1973 somewhat out of date (1976b:289, fig. 7,1c). In 1981 Hodges showed that many more areas had Middle Saxon pottery, but still underestimated the amount, and showed an innaccurate distribution of pottery for this period, even though he did differentiate between areas with pottery industries and those with infrequent domestic potting (1981a:54, fig. 6,1). In reality, the patterning is much more uneven than either Hurst or Hodges implies, and the distribution covers a much more extensive area (see Fig. 1.1).

The present picture

Our current picture of Middle Saxon pottery distribution draws heavily on the work of archaeological surveys. These surveys (for example those carried out by Tom Williamson in Essex, Pete Hayes in Lincolnshire, and Andrew Rogerson in Norfolk), most of which took place in the 1980s, revealed that small amounts of Middle Saxon pottery could frequently be found over a surveyed area. In addition, new building development in the towns during the late 1980s allowed archaeologists to investigate more Middle Saxon period remains.

Another problem facing Middle Saxon pottery researchers has been the difficulty in distinguishing their ceramics from later prehistoric material. This is especially true of simple hand-made ceramics, manufactured in sandy or shell-tempered fabrics. To some extent the 'filling-in' of the distribution map is due to an exponential increase in the number of workers in the field of early medieval ceramics; and therefore an increase in the number of people capable of recognising Middle Saxon pottery. A similar advance has come about in the recognition of imported pottery from Middle Saxon sites. There are many instances of Saxon sites in the south of England where sherds of imported Saxon pottery have been misidentified as being residual Roman, particularly where the Saxon site had a Roman predecessor. It is often only in those cases where a Roman predecessor is ruled out, for example at Dundurn in Perthshire (Coutts 1990), that the pottery will be passed on to a specialist.

Interpretation

The absence, or scarcity, of pottery in the north-west of Britain implies a huge swath of aceramic settlements, whose occupants were not immediately affected by incoming settlers from the continent, bringing their pottery, or pottery styles with them. The distribution suggests that, in ceramic terms, the Middle Saxon period was a time of minimal contact between geographical areas, or perhaps that the distribution reflected, to some extent, the desire of groups to establish their identiry through material culture. The distribution picture is unlikely to be an accurate reflection of the state of interpersonal and group relationships in the Middle Saxon period; ethnoarchaeological studies demonstrate very clearly that the boundaries and connections displayed by material culture often overlap and even contradict those that are held as mental constructs by the producers of the artefacts (see, for example, Hodder 1982a, 1985). As was stressed in chapter 1, the emphasis archaeologists place on ceramics may be completely out of proportion with their actual importance in any given society. Excavations, and publication of the early medieval ceramics found since Hurst's work in 1973, have allowed the distribution map to be reworked, so that we may perhaps be approaching a realistic representation of the arrangement of Middle Saxon settlement.

The following section outlines the current state of research in the field of Middle and Late Saxon imported pottery in this country. Although I have attempted to make it as up to date as possible, there are inevitable gaps where access to unpublished or recently excavated material has been limited, or where repeated enquiries to specific individuals or institutions have remained unanswered. This analysis draws heavily upon extensive SMR research, which proved to be immensely rewarding for many counties, although in some cases an SMR would prove to be incomplete, or otiose in allowing access to specific periods or classes of material. The research permitted me to take an overview of the recorded distribution of imported pottery groups that have been found in Ipswich and elsewhere in England, as well as native ceramics of this period (the work is collated in Appendix 1). The dating, forms, origins, and distribution of the imported pottery will also be discussed in this section. Each 'type', kiln group, or fabric will be dealt with separately.

II Rhenish Types

Pottery originating from the central Rhineland can often be provenanced more accurately than pottery of the same date from northern France, as a result of the more diagnostic inclusions found in some of the Rhenish fabrics and the macroscopic distinctiveness of the ceramic forms and decoration. It also reflects, to some extent, the amount of work published on the subject in the two countries. On the continent work on ceramics of this period has been carried out by Tischler (1944-50, 1952, 1966), Hübener (1952a, 1953, 1959), and Janssen (1970a, 1970b, 1987, Janssen and Follman 1972). In Britain, continental imports have been analysed by Dunning (1962, 1983, *et al.* 1959), Hurst (1969, 1976b, and Hodges (1977a, 1977b, 1978c, 1981a), and to a lesser extent Mainman (1983, 1985, 1990).

The major ceramic traditions of both the Rhineland and northern France have Roman predecessors; large scale ceramic production had been carried out in these areas more or less continuously throughout the first millenium AD. The major Rhenish pottery types that can be found in Britain come from a small area of the Rhine valley south of Bonn. The best known of these is Badorf-type ware (from hereon referred to as Badorf ware), which has been found in England in small, but significant quantities, throughout most of this century. The large scale urban excavations of the 1970's within Southampton and Ipswich produced a comparative wealth of this type of pottery. More recently, excavations in London and York have also been producing small quantities of central Rhenish pottery.

After the middle of the 9th century Badorf ware was superseded by Pingsdorf pottery, which was produced in large quantities in kilns close to the Badorf production centres. Pingsdorf ware is found in greater quantities than Badorf ware on many English sites, particularly in the east of the country, and is generally a more prolific type on the continent too. The forms and fabrics of the two types are usually fairly easy to differentiate.

Another important pottery type is Tating-type ware. Unlike most medieval pottery, the name of this type does not refer to a kiln site, or to a site where the pottery was thought to have been made, or even to the area that the pottery is thought to have originated from, but to one of the sites where it was first found. Tating ware is something of an enigma in that it appears to have been made at a number of centres, but quite where these centres are, is still a matter of debate (Coutts and Hodges 1990, Peacock 1985). The inclusions in some of the Tating sherds indicate that the central Rhineland was one of the production areas for the ware.

There are a number of other Rhenish groups that occur in England in small quantities, the most notable of these are Mayen, Bornheim-Waldorf, Walberberg and Hunneschans wares. Ceramics were also imported from production centres in the Low Countries, but never in any significant amounts until the medieval period proper.

Unless the contrary is indicated, all of the groups described below were thrown on a fast wheel.

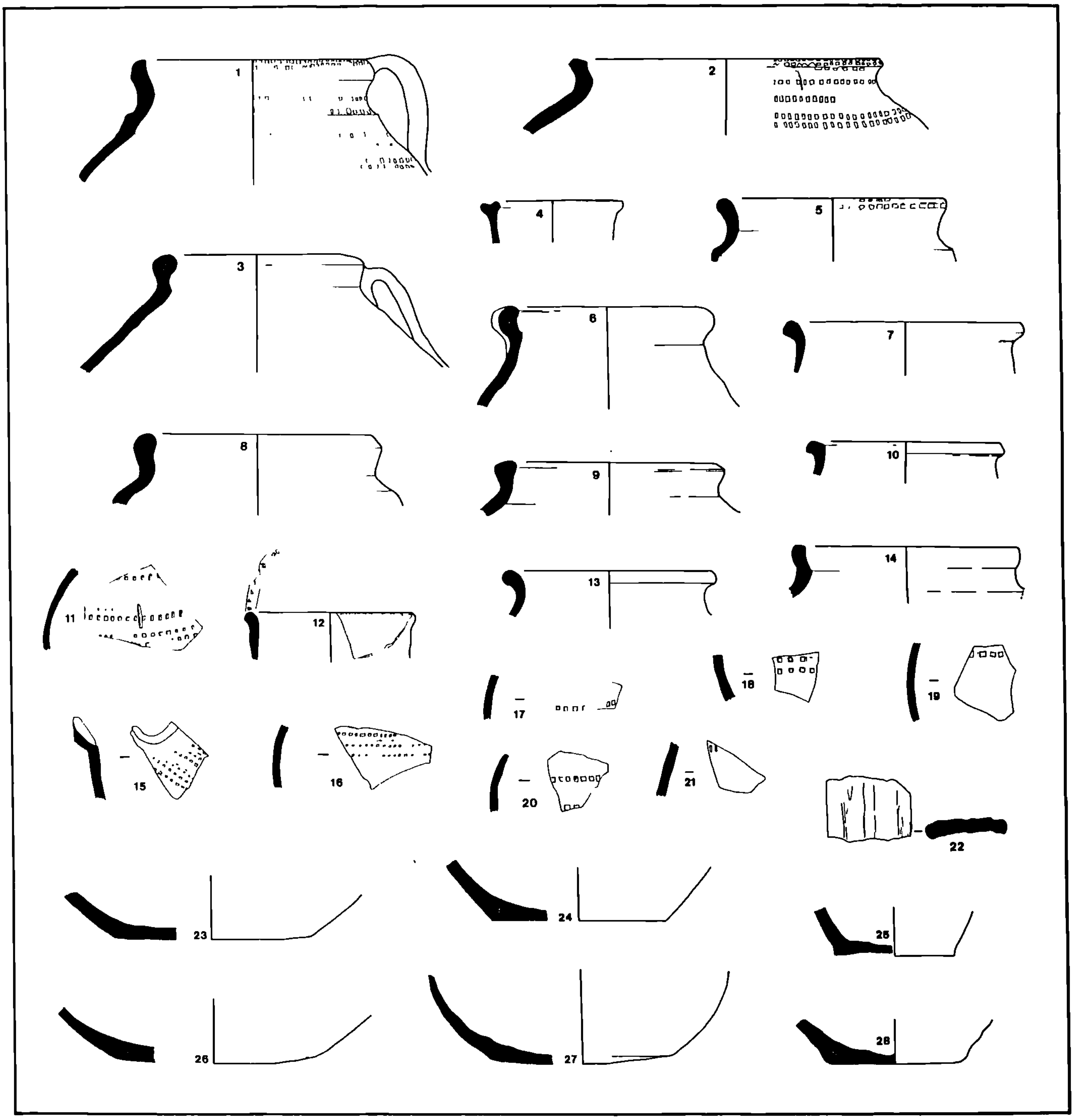
1a. Classic Badorf ware

i) Description.

Badorf ware is usually a smooth, hard-fired, light yellow-brown coloured pottery. The colour varies, but not to any great degree, from cream to mid-orange (10YR 8/4 very pale brown to 5YR 7/8 reddish yellow). Some Badorf variants occur with powdery surfaces, others with slick and glossy surfaces. The classic Badorf fabric is most commonly a hard, very pale brown colour with few visible inclusions. Badorf is also found as a grey, reduced type in a small number of instances; it does not appear as if the reduced fabric was the desired or deliberate result of firing. Many examples of Badorf ware display firing cores, indicating that not all of the carbon present in the clay had been oxidised; a common variant displays a pale brown surface with a light reddish-yellow core.

Plate 5,1 Badorf ware rim sherd from Ipswich

Figure 5,1 Badorf ware from Ipswich (scale 1:4)



The size and frequency of inclusions varies, but most vessels have fairly common, small quartz-sand inclusions, as can be seen in the rim sherd in plate 1 (Badorf vessel no. 12, context IAS 4801 1748). Badorf ware typically contains a light scatter of sub-angular, fairly well-sorted quartz grains, up to c.0.5mm in size. In addition to quartz, iron ore pellets are also found within the clay matrix, as well as occasional muscovite and rock fragments.

Under thin-section a Badorf sherd will typically have a 'clean', anisotropic, light brown clay matrix with a moderate scatter of sub-angular quartz at 0.3-0.5mm, and an additional abundant-common background scatter at 0.05-0.01mm. Iron ore often appears to be common at 0.1-0.3mm across. Muscovite occurs infrequently. The range and size of quartz crystals in a Badorf thin-section contrasts markedly with that found in a Pingsdorf thin-section. In a Pingsdorf thin-section the size range of crystals is narrower and the sorting is very good. The temper also tends to be more densely packed (see Appendix 4 for individual descriptions of the thin-sections, particularly nos. 180-188 and 200-205).

Hodges' thin-section analysis of Badorf and relief-band amphorae (RBA) sherds from Hamwic and Dorestad suggested that the same clays were used to form both pottery

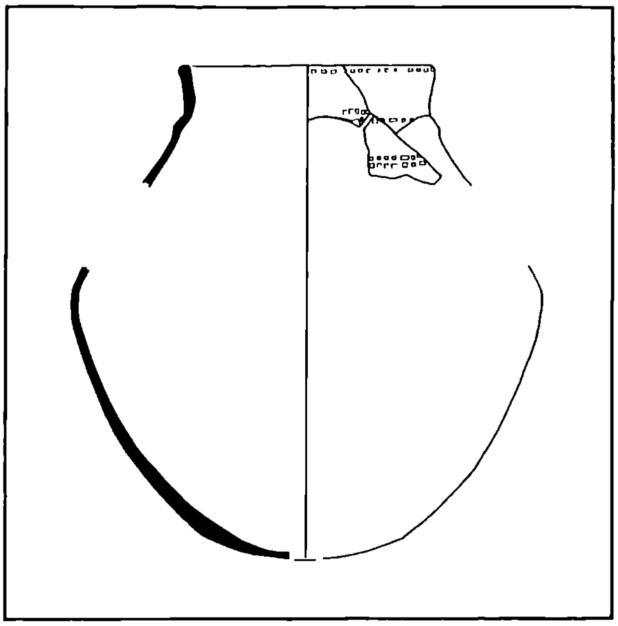


Figure 5,2 Badorf ware pitcher from Brandon (scale 1:4) types (Hodges 1981a:18). Two basic fabric types were identified; the first had an anisotropic, brown clay matrix, with prolific inclusions of sub-angular quartz-sand from 0.01-0.4mm, and occasionally at 1.0mm, with a few specks of muscovite. The second type had a clean, anisotropic brown clay matrix, with sub-angular quartz-sand at c.0.1-0.2mm. Both of the types were the result of the thin-section of one sherd of Badorf ware and one sherd of RBA, so the statistical significance of the groupings is open to question. However, it does appear that the second type is closer to Pingsdorf in appearance and may thus be late in the Badorf sequence.

ii) **Forms.**

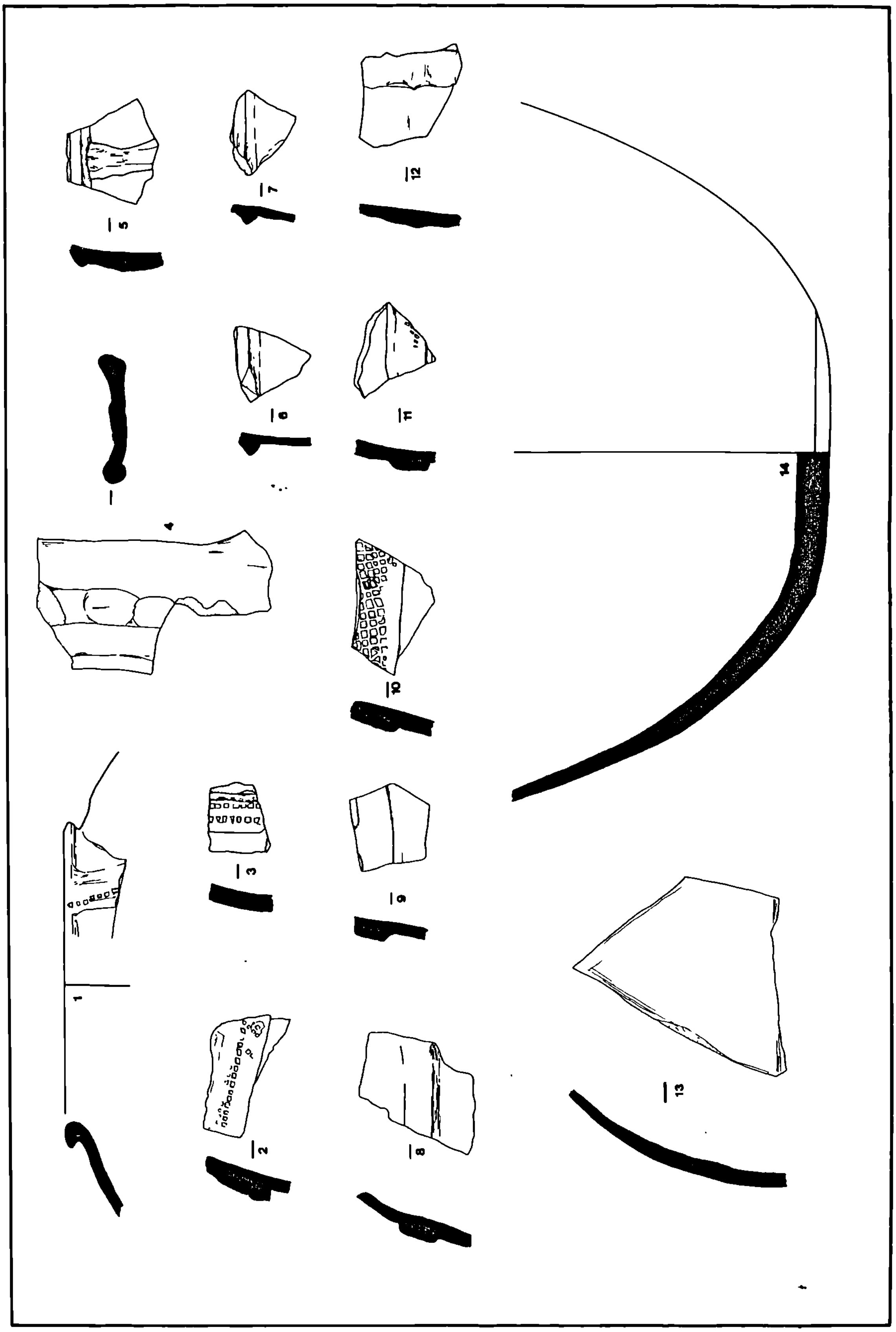
Tischler wrote a typological essay on the ware in 1952. Little more has been written specifically about Badorf ware since the middle of this century, even though the body of data has grown substantially. Badorf is classed as pottery type 1 in Haithabu by Janssen (1987:17-18), where it makes up 19% of the settlement pottery and 5% of the harbour pottery (ibid:71, tab. 4). Redknap suggests that the terminology currently used to describe Badorf ware ignores the variations that occur within the group (Redknap 1986).

Badorf ware forms suggest strong links with the wine trade; the vast majority of the vessels appear to have acted as wine containers. Two of the most common vessel forms are the spouted pitcher and the jar; vessels that would have been used for pouring liquids. These are well illustrated in the Dorestad report (van Es and Verwers 1980), and range in size from 24cm to 32cm high. Most of the pitchers and jars have lenticular bases, and upright, slightly everted rims. The vessels are often in a *sub-biconical* or *globular* shape. Small strap handles are found on the pitchers, with a single handle located on the opposite side of the rim to the spout. Such vessels are typically decorated with repeated bands of roller-stamping (or rouletting), using small squares, rectangles or elongated triangles as their stamp shape; single or double rows are common. The decoration extends from the rim, or base of the neck, to the point of maximum girth on the vessel, which is usually about one third of the way down the vessel wall (see Fig. 5,1). Badorf ware is less commonly patterned with incised 'combed' decoration in wavy lines (eg. Badorf vessel no. 2). Some storage vessels are undecorated.

Relief-band Amphorae.

In addition to the spouted pitcher and jar, the third common form produced in the Badorf area is the amphora. The Badorf amphorae are ovoid or egg-shaped and stand c.0.5m high; larger examples of c.1.00m are also known. The most common sort of decoration on these vessels is in the form of decorated relief-bands, which arch across the shoulder of the vessel (see Fig. 5,3), giving rise to the name by which they are commonly called -

Figure 5,3 Relief-band amphorae from Ipswich (scale 1:4)



relief-band amphora (RBA). These bands are usually rectangular in profile, c.20mm wide and c.5mm high, but the extent of relief varies somewhat. The bands are most frequently decorated with quadruple rows of rouletting, but thumb-impressed decoration is well known on RBA, particularly, it seems, on earlier vessels (see Janssen 1987: taf. 13-18, for an excellent series of illustrations showing the variability that can be found on the relief-bands). Occasional examples of RBA are found with narrow, triangular profiled relief-bands (see Fig. 5,3.5-7), Redknap has suggested that these belong to the beginning of the 8th century (Redknap 1986). The walls of RBA are sometimes surprisingly thin for such large vessels; an example found in Ipswich has walls only 5mm thick.

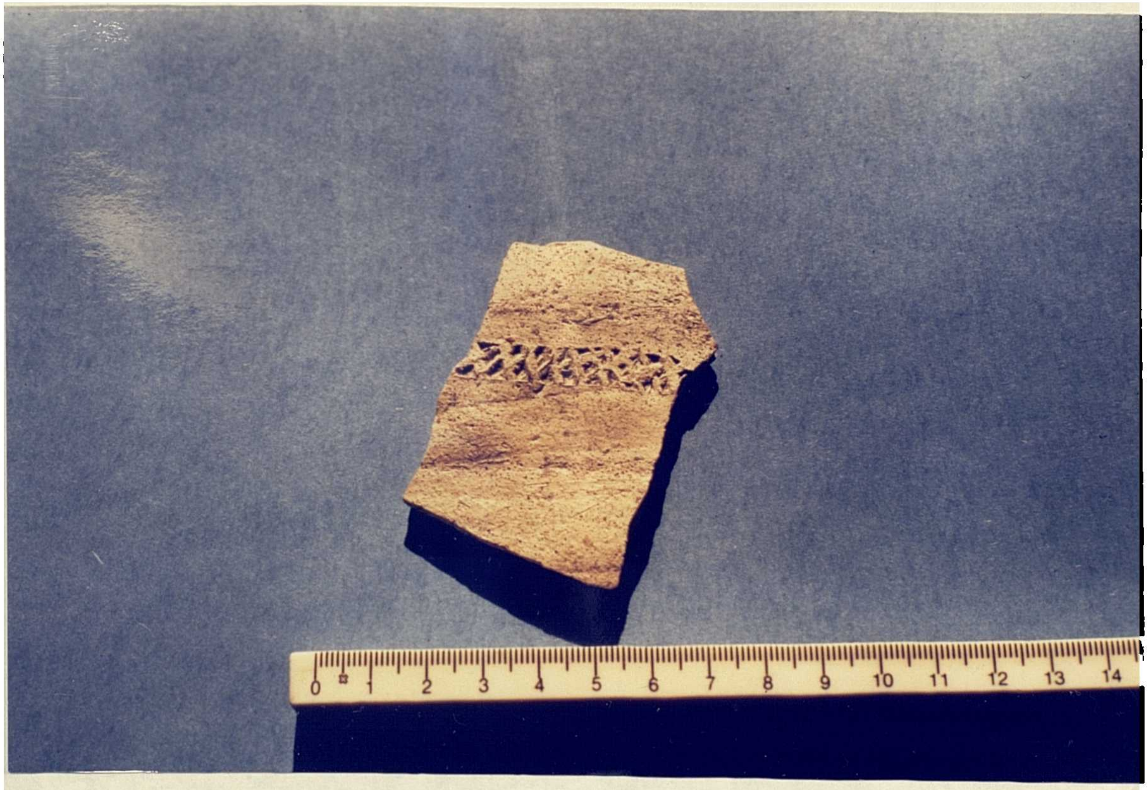


Plate 5,2 Badorf ware sherd from Old Windsor

In the 1940's Frechen published the results of thin-section work on several Badorf vessels, showing the variations that can occur in thin-sections of these central Rhenish types (see Tischler 1944-50:79, 1950:219-20). As Hodges noted in his analysis of the Hamwic and Dorestad pottery, the clays utilised by the Badorf potters were very similar (or indeed the same) to those used by the RBA potters (Hodges 1981a:18). The clays used in the central Rhenish industries changed over time, so that there is a marked degree of difference between the classic Badorf and Pingsdorf fabrics, as well as the clays varying according to the preferences of individual potters and the materials available to them. Broadly speaking, the earliest clays used by the potters in the Central Rhineland have a poorly-sorted temper, whereas the later ones have a much more evenly sorted temper.

iii) Origins and distribution.

As mentioned above, Badorf ware originated in the Rhine valley in an area to the south of Bonn known as the Vorgebirge hills. The pottery, and its contents, was exported to England, the lower Rhineland, Frisia and Scandinavia. In Haithabu it made up an astonishing 85% of the imported pottery assemblage from the harbour area, and 38% of the imported assemblage from the settlement and harbour taken together (Janssen 1987:71, tab. 4). None has so far been found in the excavations at Quentovic, but small quantities do occur on the English south coast at Hamwic. On the basis of current excavations, it seems that the largest quantities of Badorf ware to be found in England are from Ipswich. The geographical proximity of Ipswich and London to the mouth of the Rhine suggests that these were the two emporia most likely to have been favoured by Rhenish traders (Hodges 1984a), although relatively little has so far been found in London.

Badorf ware also occurs in England at Norwich in the form of RBA (Jennings 1981:26-7, Hodges 1981a:42), at Brandon as a fine roller-stamped pitcher (see Fig. 5,2), at Winchester (Dunning 1962, fig. 27,3), at Canterbury as a roller-stamped pitcher (Dunning et al. 1959, fig. 26,2), at London (Dunning *et al.* 1959, Cowie 1987), at Old Windsor in Berkshire (see plate 2), at Quinton in Northamptonshire (Hodges 1981a:43), at Sedgeford in Norfolk in the form of a fragment of roller-stamped pitcher (Hodges 1981a:43), at Jarrow in the form of a Badorf costrel (Cramp 1969:64-5, fig. 25), and at Hamwic. The published Hamwic collection is surprisingly small, comprising a minimum number of four vessels plus three sherds of RBA from the SARC excavations of the 1970s (Hodges 1981a). Most of the trenches excavated between the mid-1970s and the mid-1980s in Ipswich have produced Badorf ware and RBA, giving a minimum number of c.130 vessels.

On the continent, the Dorestad excavations have unearthed enormous amounts of Badorf and RBA pottery. Badorf seems to have been a particularly popular ware in Scandinavia; it has been recovered on the sites of Ribe, Haithabu, Kaupang, Helgo, and Birka (Hodges 1982a). The fact that Ipswich has produced such large quantities in comparison to Hamwic may suggest that the eastern seaboard of England, or East Anglia, formed an integral part of the Frisian/Scandinavian social and economic sphere, whereas the south coast was much more closely tied to Frankish trade networks.

iv) Dating.

Production of this ware probably started in the 7th century, but the ceramic tradition of this area has its roots in the Roman industries. Steur gives the dates for the major production period of Badorf ware as being the century between 780 and 880 (1974:107). Badorf manufacture and export reached its height in the time of Charlemagne, around the end of the 8th century and the beginning of the 9th century. Pingsdorf ware superseded Badorf as the major central Rhenish industry in the mid-late 9th century. Production and export of RBA continued through the 10th century.

1b. Coarse Badorf ware

i) Description.

Some Badorf types are much more obviously gritted with rounded quartz-sand than the classic fabric described above. The coarse type has a hard fabric, usually redder than the classic Badorf (eg. 7.5YR 7/6 reddish yellow), containing common-sparse sub-rounded quartz at up to c.2.0mm across. The clay is often poorly mixed, showing clay pellets of different colours.

Plate 5,3 Relief-band amphora rim from Ipswich

Plate 5,4 Relief-band amphora rim, interior

Thin-sections (14 and 53) reveal an anisotropic clay matrix (colour variable from yellow-grey to orange-brown), containing common, sub-rounded to sub-angular quartz inclusions (sorting is variable), of 0.2-0.6mm across. Iron ore varies between being common and abundant, at 0.05-0.2mm, with occasional lumps at up to c.0.5mm. This coarse fabric also contains minerals such as plagioclase feldspar and muscovite in small quantities, and some thin-sections reveal limestone, and/or volcanic rock fragments.

ii) Vessel forms and decoration.

RBA are the only forms identifiable in this fabric from Ipswich, some of which have undecorated relief bands (see Fig. 5,3.8, plates 3 & 4). A Domburg RBA example in this fabric is decorated with low-relief thumb-impressed bands. It is not possible to say whether this fabric is confined to RBAs, as most of the body sherds could be from smaller jars or pitchers. The pottery is wheel-thrown and well-made.

iii) Origins and distribution.

This fabric type originates in the Badorf area, or perhaps further south in the foothills of the Eifel, in common with Mayen ware pottery. Coarse Badorf ware has been identified at Domburg and Ipswich.

iv) Dating.

An early type of Badorf ware, possibly contemporary with the Mayen industry and dating to the 7th/early 8th century. It has been found in many pre-Ipswich ware contexts in the Greyfriars Lane excavations in Ipswich (trench 5203).

2. Mayen ware

i) Description.

Mayen pottery is characteristically very hard-fired to a dark grey or red-brown colour (see plate 5). Within the clay matrix, streaks and blobs of lighter-coloured (usually yellow or reddish-yellow) clay can frequently be seen. Other visible inclusions are rare. A thin-section (no. 251) sample for this ware was taken from a Mayen rim sherd from the Dorestad excavations and shows an optically isotropic dark red-brown clay matrix, containing abundant inclusions of sub-angular quartz at 0.05-0.2mm across. A single large quartz grain was present in the thin-section, at 1.4mm across. A sparse scatter of plagioclase feldspar was present, with crystals measuring 0.2-0.3mm. One augite crystal at 0.5mm, and two hornblende crystals at 0.2 and 0.3mm across could also be identified. Occasional grog/clay pellets and rock fragments were notable because of their size,

Plate 5,5 Mayen ware rim from Dorestad

which ranged from 0.3-1.6mm across. Other characteristic inclusions in Mayen ware are trachytic lava fragments, sanidine feldspar, sandstone, and magnetite (Redknap 1984:403), also aegirine-augite, biotite, apatite, titanite, and greywackes (Steeger 1948:264). These inclusions do not occur frequently enough to be found in all, or even most, of the Mayen thin-sections. (see Appendix 4, nos. 177-179 for thin-section descriptions of Mayen sherds from Mainz).

Three clay types were identified by van Es *et al.* (1984) as being used by the Mayen industry. One of these was similar to a Walberberg clay.

ii) Vessel forms and decoration.

The most typical form for Mayen pottery is a globular jar with pronounced shoulders and a small everted-beaded rim. Other vessels have high-standing rims, and are transitional between Merovingian biconical vessels and the globular Carolingian *Kügeltopf.* Mayen vessels with everted or lid-seated rims also occur in the early production period. The pots usually have flat or lenticular bases. Decoration can take the form of burnishing, incised lines (straight, lattice or zig-zag), pecking, stamping or indenting (see Redknap 1984). Occasionally vessels have a single incised line around the shoulder. Red-painted Mayen ware is known, possibly dating to the late 7th century. There is only a slight colour contrast between the paint and the vessel fabric, and otherwise the fabric is typical of the Mayen type (Redknap 1986).

iii) Origins and distribution.

The Mayen industry of the early medieval period was based to the south of the town of Mayen (to the east of Koblenz) in the Eifel mountains. Production began in the early 6th century in updraught kilns (Redknap 1986). Ament's excavations of a village near Mayen produced large quantities of this ware (Ament 1974). The volcanic inclusions found in the pottery are unique to this region (cf. Fulford and Bird 1975).

Mayen ware is not commonly found in Britain. The few possible Mayen sherds from Whitby have been largely discredited after thin-section examination (Dunning 1943:80-82, Hurst 1976b:311). Sherds have been found at Hamwic and York, and a single sherd was recovered in Ipswich (in trench 5203, at Greyfriars Road, which was particularly rich in 7th century pottery). It was exported prolifically within Europe. On the continent Mayen ware is found at Birka, Domburg, Dorestad, Haithabu, Katwijk and Kaupang (see Ambrosiani 1981, van Es and Verwers 1980, Hodges 1981a, Janssen 1987, and Kars 1983). It does not appear to have been exported in the same prolific quantities as Badorf or

Pingsdorf, and indeed it is rare to find large quantities of this ware on early medieval sites.

iv) Dating.

There have been some problems with the dating of Mayen pottery; some Mayen black-burnished pottery was previously classified as La Tene pottery (Redknap 1986). The industry was in large-scale production from the late Roman period to the beginning of the 8th century. In the 8th century it was largely replaced by the Badorf industries further north, although it did carry on as a contemporary of Badorf ware, with a poorer hold on the export market. Exportation is rare after the mid-8th century. Certain forms can be closely dated by their rim forms; lid-seated rims are now considered to be 7th century for example, after well-dated finds were made in late Merovingian cemeteries (Ament 1974).

3. Pingsdorf ware

i) Description.

Pingsdorf ware is a very hard-fired proto-stoneware pottery that occurs in a wide variety of colours, which result from the firing temperature and whether the atmosphere in the kiln was reducing or oxidising. The colours range from buff/yellow to grey/brown;

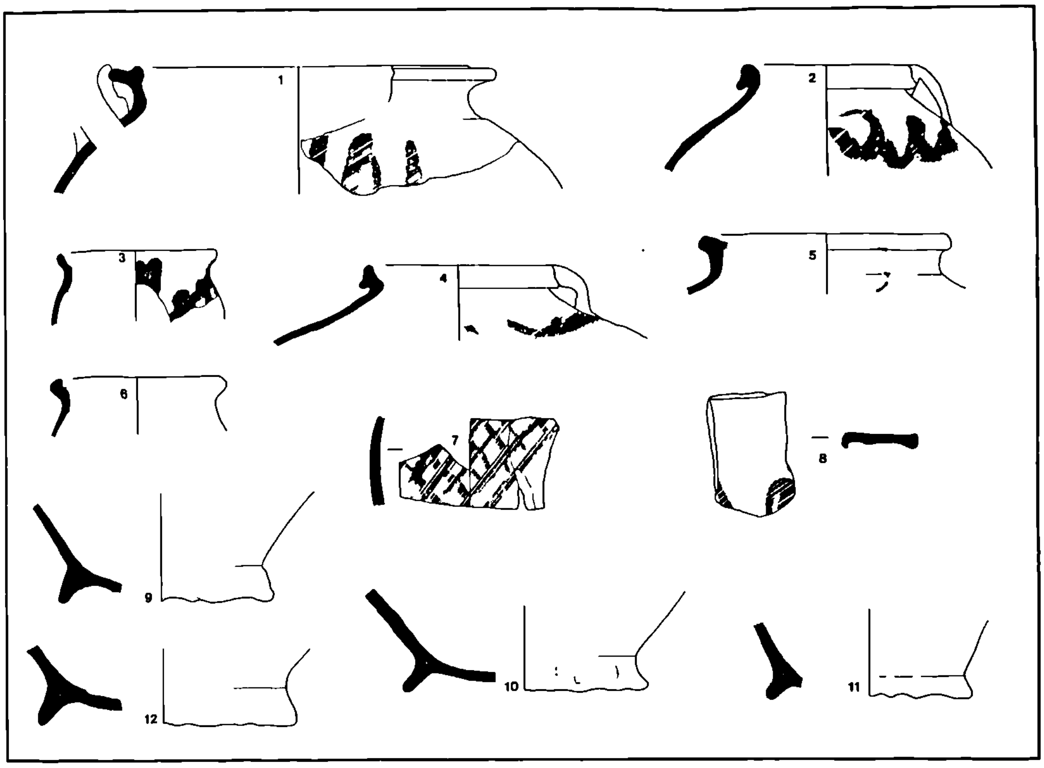


Figure 5,4 Pingsdorf ware and red-painted vessels from Ipswich (scale 1:4) occasionally reddish-yellow variants occur. The sherd surfaces are rough. The core of the sherd walls are frequently a different colour to the surface of the vessel. One of the major differences between Badorf and Pingsdorf pottery lies in the tempering of the fabric; Pingsdorf is more densely tempered, with a well-sorted scatter of quartz sand. A typical thin-section description would reveal a well-sorted, common to abundant, sub-angular scatter of quartz grains at 0.2-0.4mm. Inclusions other than quartz are rarely present, but there may be occasional fragments of iron ore (see Appendix 4, nos. 189-192 and 206-209).

The ware is usually fairly distinctive in thin-section, as well as in the hand specimen, but thin-section analysis can be a useful means of differentiating Pingsdorf from non-Pingsdorf pottery. Thin-section no. 207 is a fairly standard example, and reveals an optically anisotropic brown clay matrix, containing an abundant scatter of quartz at less than 0.05mm, and a well-sorted common-abundant scatter of sub-angular quartz at 0.2-0.4mm. In addition there was sparse iron ore at 0.1-0.2mm.

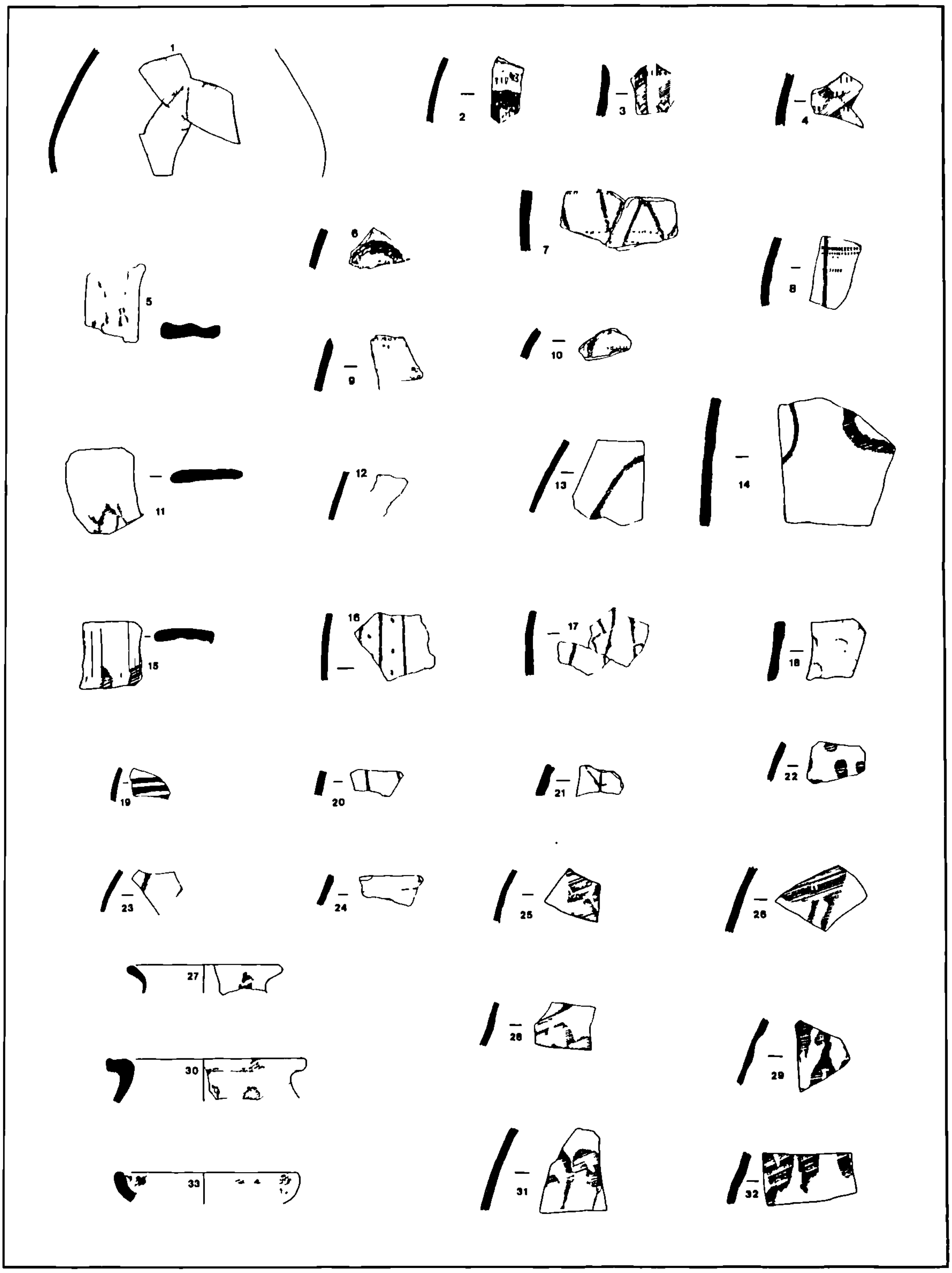
ii) Vessel forms.

The most common Pingsdorf type is the spouted pitcher. This tends to be more egg-shaped and less biconical than the Badorf pitcher, as well as being somewhat taller. A typical size would be 30cm high x 26cm diameter. The bases of these pitchers are sagging, but have a slightly frilled foot-ring attached, which stabilises the vessel when it is standing. The handles are typically short, wide straps, which extend from the rim to the pronounced shoulder (see Figs. 5.4.2 and 4).

Virtually all of the Pingsdorf vessels are decorated with red paint, although this can be difficult to see on heavily-reduced vessels. The most common design consists of painted 'commas' running in ladders from the neck of the pot, diagonally down towards the belly. A variation on this theme is repeated rough spirals of paint; good examples of this come from Domburg. Other Pingsdorf vessels only have a few splashes of paint on their walls. Many of the early red-painted wares such as the Zelzate costrel (dated 870-80, see Naster 1950) have straight painted lines (Verhaeghe 1969:106-8).

The spouted pitcher is only one of many forms produced by the Pingsdorf industry, but it seems to be the most common, at least in England. Their popularity may well relate to their function as wine jars. Other Pingsdorf forms include bowls, small jars, costrels and sagging-based cooking pots (see Fig. 5,4).

Figure 5,5 Red-painted wares and Pingsdorf ware from Ipswich (scale 1:4)



iii) Origins and distribution.

The Pingsdorf kilns are situated in a group of villages to the north of the Badorf area (Fig. 1.2), in the low hills of the Vorgebirge region, to the west of the Rhine. The kiln sites were first discovered at the beginning of this century and a number of kilns are now known, which were excavated in the 1950s. Pingsdorf ware is found on numerous sites in this country and elsewhere in northern Europe, particularly on port sites. It appears to be less prolific in the south of England than in the east, and little is found in Belgium in comparison to the Netherlands and Germany (Verhaeghe 1969:106). Pingsdorf ware has not been found on the excavations at Quentovic, but is common at Haithabu, suggesting a similar Frisian/Scandianavian distribution to Badorf ware. It reaches Scotland slightly later than the south-east of England; six sherds of Pingsdorf pottery were found during excavations in Perth in 1975-7, dating to the 12th to early 13th century (Verhaeghe 1983:5). In Ipswich it is one of the most common imports to be found in early medieval contexts. It does not appear to have been imported into northern France. There, local red-painted pottery industries held sway.

There is an undisputed correlation between the siting of the central Rhenish pottery industries and the proximity of large-scale vineyards. Hodges (1977b:48) has suggested that the Badorf-Pingsdorf industries could have been auxiliary to the Rhenish wine trade, possibly controlled by the Carolingian Emperor. This royal interest could explain the high profile the area enjoyed in the negotiations for the treaty of Verdun in AD 843 (cf. Ennen 1956); it can also be easily explained by the high profile of the wine itself, and its importance to the aristocracy and religious houses alike for ritual and prestige.

iv) Dating.

There have been a number of controversies regarding the dating of Pingsdorf ware (see Hübener 1959:122-7). In the 1960s it was considered doubtful whether Pingsdorf ware was made before AD 900 (Lobbedey 1969:121-3). Vince considers a pre-11th century date for Pingsdorf ware in London to be unlikely (Vince 1984). However, there are securely dated contexts at Ipswich and Hamwic which show that Pingsdorf was being imported into this country as early as the second half of the 9th century, albeit in small quantities. The Pingsdorf industry thus seems to have started up in the middle of the 9th century and reached its zenith between the 11th and 13th centuries (see Böhner 1950, Stamm 1962:157, and Hinz 1965). The majority of Pingsdorf pottery in this country dates to the 11th century and later.

4. Bornheim-Waldorf

i) Description.

Pottery from Bornheim-Waldorf is hard-fired, oxidised to a light red (5YR 7/8), and contains a well-sorted scatter of quartz at less than 0.5mm. Occasional lumps of iron ore are present at up to 3.0mm. Small pellets of lighter coloured clay are occasionally visible within the clay matrix. The surface of the pottery is slightly 'pimpled' and coarse to the touch.

Thin-section (no. 72, from context IAS 3506, pit 6) shows an anisotropic light grey-brown to red-brown clay matrix, containing a well-sorted scatter of abundant sub-angular quartz at 0.05-0.2mm, and a common scatter at 0.4-1.0mm. Iron ore occurred infrequently at 0.2-0.4mm across. Muscovite was sparse, at c.0.2mm across. Thin-section no. 31, also of Bornheim-Waldorf material, was somewhat different. This thin-section had a common scatter of quartz at 0.6-1.3mm, and light scatters at c.0.1mm, and at 0.3-0.5mm. Muscovite was more common, at 0.1-0.5mm. More unusual minerals occurred as individual crystals: microcline at 0.5mm, orthoclase at 1.1mm, and possibly neptheline at 0.5mm. (See Appendix 4 for thin-section descriptions of the material from the Bornheim-Waldorf kiln).

ii) Vessel forms and decoration.

Bornheim-Waldorf produced unremarkable vessel forms, usually jars. Decoration does not appear to have been common. See Fig. 5,6 for illustrations of vessels from the Rhineland.

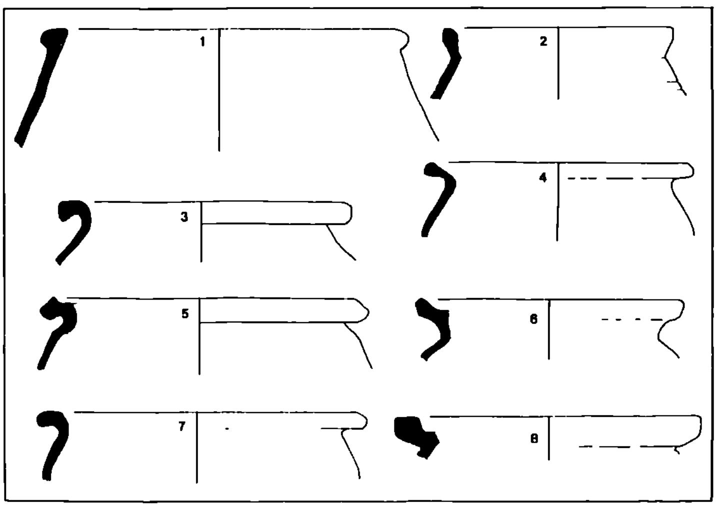


Figure 5,6 Bornhein Walford pottery from Bonn (scale 1:4)

iii) **Origins and distribution.**

A product of a kiln site just to the north-west of Bonn in the Vorgebirge hills, this ware is not particularly distinctive and therefore may have escaped recognition on many British sites. It occurs in small quantities in a number of trenches in Ipswich, and in relatively large quantities in one trench in Greyfriars Road (5203) and has also been found during fieldwalking at Burnham Thorpe in Norfolk (Coutts forthcoming b).

iv) **Dating.**

In Ipswich this type is found in Middle Saxon contexts, many of which are pre-Ipwich ware. In these cases, where imports were found with only local, hand-made pottery, the contexts were considered to belong to the early part of the 7th century. It is generally considered to be a 7th to early 8th century ware (see Böhner 1955, 1958, Jürgens 1976).

5. **Walberberg type.**

i) **Description.**

This is a hard, fine, ware, usually fairly smooth, but often with a slightly blistered surface. The fabric contains a poorly sorted scatter of quartz at up to 0.5mm across; slight streaking is often apparent in the clay matrix from clay pellets. Grog and iron ore inclusions are often apparent. The colour varies from a yellow-orange through to a dull grey. The cores are sometimes light yellow.

ii) **Vessel forms and decoration.**

The forms are similar to those used by the Mayen industry, with both *kochtopfen* and *kugeltopfen* being produced. Relief-band amphorae were also produced. The bases are generally lenticular and the rims beaded and slightly flattened. The example from trench 4601 in Ipswich is decorated with deep, square rouletting. Small jars are common in this fabric, and one was found in trench 5203 in Ipswich (also see Janssen 1987: taf. 2,2), but they do not always display decoration.

iii) **Origins and distribution.**

The ware originates from Walberberg in the central Rhineland, in a kiln site that was discovered in 1952. The kiln site is within the same area as the Badorf and Pingsdorf industries, in the Vorgebirge hills. The pottery was not exported in large quantities; although over a kilogramme of Walberberg sherds was recovered from Haithabu (*ibid*:71). In Briatin it is not a common import (or perhaps not a commonly recognised import, but finds have been made in Ipswich, and Barking Abbey. The finds of material in East Anglia and Haithabu suggest that the Walberberg potters used the same export network as the other central Rhenish manufacturers.

iv) Dating.

Production of this pottery type starts in the 7th century, and continues into the 8th century. The ware occurs in the late 9th century, and production carries on, on a small scale, through to the 13th century (Janssen 1973, Lobbedey 1968).

6. **Hunneschans ware.**

i) **Description.**

Hunneschans ware occurs as a variant of the classic Badorf fabric and is sometimes referred to as red-painted Badorf ware or Badorf-Pingsdorf ware (Hübener 1959:121, Braat 1960:97, Lobbedey 1969:121). The ware described here is the classic type with a fine fabric; other red-painted types will be described later. Examples of this type are very rare, the only one currently known in Britain comes from excavations at St. Nicholas street in Ipswich in 1983, from 9th and 10th century contexts. The fabric is smooth and fine, generally having a pale brown or pinkish colour (7.5YR 7/4), and is hard-fired, with small, sparse quartz inclusions. Thin-section (no. 12) shows an anisotropic light brown clay matrix, containing a well-sorted scatter of common, sub-angular quartz at 0.3-0.4mm. An additional background scatter of quartz can be discerned at c.0.01-0.05mm. Iron ore and muscovite occur in very small quantities at less than 0.3mm across.

ii) **Vessel forms and decoration.**

The ware is transitional between Badorf and Pingsdorf, and contains decorative elements of both industries. The painted decoration normally takes the form of straight lines; wavy lines are not common (Lung 1955a:67-70). The Ipswich vessel is decorated with curving arcs and stripes of red paint that imitate the arches seen on RBA (see Fig. 5,5.1-4, plate 6). Such decoration is also found on Alsatian ware vessels from Strasbourg (Henning 1912). The reddish-yellow (7.5YR 6/8) paint is thickly applied. In addition to painting, the vessels are often decorated with rouletting in the form of elongated triangles/rectangles and individual rosette stamps, or with the square or rectangular rouletting that is commonly found on Badorf pitchers (see plate 7). The vessel form appears to be closest to that of a Badorf jar or pitcher in size and shape (see Janssen 1987:173 taf.3, and Fig. 5,5.1-4).

The mid-9th century was a time when painted pottery was coming into fashion all over Europe. Painted Stamford ware was being produced at this time (Kilmurry 1980), and painted pottery was also becoming popular in northern France, the central and lower Rhineland, and Italy.

Plate 5,6 Hunneschans ware fragments from Ipswich

Plate 5,7 Hunneschans sherd from Ipswich

iii) Origins and distribution.

Hunneschans ware is a product of the last decades of the Badorf industry in the central Rhineland. It appears to have been exported along with Badorf ware during those years.

iv) Dating.

The earliest example of this ware occurred at Vreden in Westphalia, from below the clay pavement of the abbey church, which is dated to AD 839 (Claussen and Winkelmann 1953). The Hunneschans ware in Ipswich was found in Late Saxon contexts of the 9th and 10th century. The pottery type itself is dated to the mid-late 9th century.

7. Tating ware

i) Description.

Tating ware is a hard, black surfaced pottery, which usually shows extensive burnishing. It is occasionally found with brown surfaces, and sometimes without burnishing. It generally has a fine fabric, frequently light grey in colour, with no visible inclusions. Thin-section no. 19 (from Ipswich, context IAS 4301 1571) shows a 'clean' slightly anisotropic, light grey-brown clay matrix containing an abundant scatter of quartz grains at c.0.1-0.2mm across, and a sparse scatter of well-sorted, sub-angular quartz at 0.3-0.4mm across. In addition, there are common fragments of iron ore at 0.05-0.2mm, and a single piece at 0.4mm. One crystal of plagioclase feldspar at 0.2mm and a lump of grog/clay pellet at 3.0mm were also visible.

Hodges analysed Tating ware sherds from the following sites: Ribe, Dorestad, Paderborn, Kaupang, York, Winchester, Brancaster, North Elmham Park and Hamwic. He recognised at least eight fabrics in thin-section, which appeared to fall into five groups (Hodges 1981a:65). He stressed the fact that these five groups did not necessarily correlate to five separate production centres, as a number of fabrics could originate from a single kiln site. This is especially true if the kiln was in production for a long period of time.

ii) Vessel forms and decoration.

The first example of Tating ware was published in 1914 (Arne 1914). Since then the most common form of Tating ware found has undoubtedly been the spouted pitcher. This pitcher was distinctive in shape, quite unlike the fairly short, broad, Badorf pitchers. The body of the vessel is slim and 'tear-drop' shaped, with a long strap handle stretching from the neck to the belly of the pot. The spout is unusual in comparison with the short, tubular spouts found on Badorf and Pingsdorf vessels, generally being long and upright.

Other vessel forms include dishes, beakers and small bowls, but these are 'minority' forms (Fig. 5,7) (see Selling 1955:44-5 for a more detailed discussion of the variety of Tating forms).

Tating ware is probably best known for its unusual decoration, which appears in the form of strips, lattices, lozenges, diamonds, and occasionally circles, of metal-foil (usually tin, but occasionally silver or gold-foil), arranged in patterns all over the vessels. Some gold decorated glass fragments from Helgö bear the same sort of diamond-lattice decoration (Lundstrom 1971:52). This paralleling of decorative techniques on glass and pottery is considered by Lamm (1941), in connection with Oriental glass. The triangles and rhombs that are characteristic of this glass and ceramic decorative technique also occur on the walls of Königshalle in the convent of Lorsch, where they are dated to AD 764 (Lundstrom 1971:61).

When vessels are recovered from excavations, all that is left of the decoration are the residues of glue which attached the metal-foil strips to the vessel (see plate 10). It is not unusual to find Tating vessels decorated from rim to base covered with white residue, suggesting that there was originally more foil than pot visible (eg. a vessel from Birka, illustrated in Selling 1955, fig. 13,9); handles frequently have strips or lozenges running

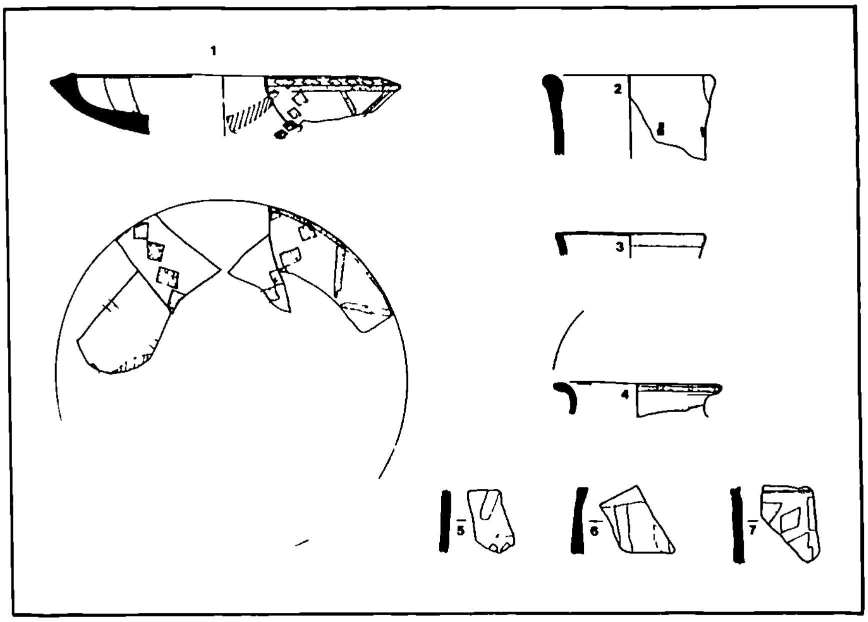


Figure 5,7 Tating ware from Ipswich (scale 1:4)

Plate 5,8 Tating ware dish from Ipswich (base)

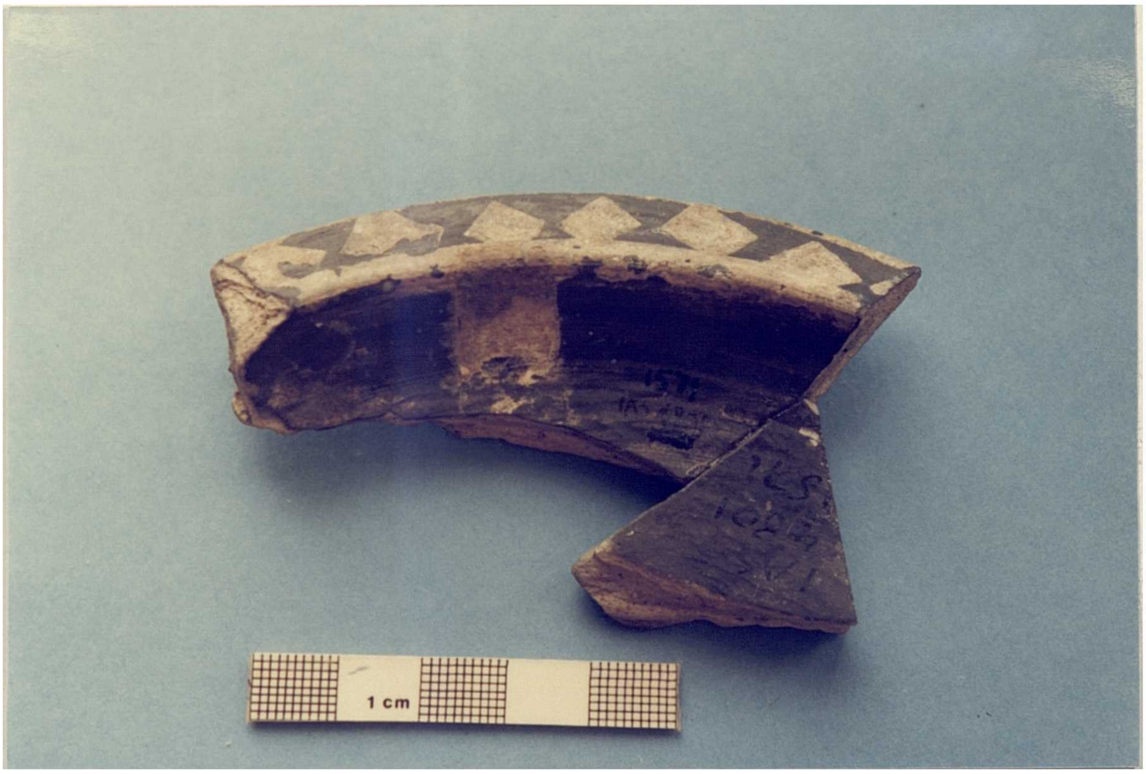


Plate 5,9 Tating ware base from Ipswich (interior) down them, and both the exterior and interior surfaces of bowls are decorated (see Fig. 5,7.1, plates 8 & 9). There are also forms of Tating ware that are decorated with incised lines as well as burnishing and tin-foil; such vessels occur at Hamwic (see Timby 1988: fig. 9,167), and at Trier (Selling 1955, see also Redknap 1984), or with simply burnishing and incised lines (eg. at Haithabu, see Janssen 1987:175, taf. 5). A large cross motif is occasionally found close to the base of such vessels (eg. Selling 1955: figs. 7, 8, 10 and 11), and this is one of the features that has given rise to the suggestion that Tating pottery was made specifically for ecclesiastical use by missionaries (Lundstrom 1971, Selling 1972, Winkelmann 1972). Such a hypothesis can find some support in the monastic connections that many of the find-spots have. Lundstrom in particular argues for a liturgical use of the Tating ware vessels, as well as for glass vessels used as chalices; Ausegeis, the Abbot of Fontanelle *gave a gift of cuppas vitreas auro ornatas duas* (two glass cups decorated with gold) in the early 9th century, strongly suggesting their use as liturgical vessels (Lundstrom 1971:58).

The glue residues that make Tating ware so recognisable sometimes weather, flake, or erode away from the surface of the vessels, leaving apparently 'undecorated' areas. However, complete vessels of genuinely undecorated Tating ware are also known (where the forms and fabric are identical to decorated types). When such sherds are discovered, it can be very easy to confuse the sherds with Black burnished wares, like those from northern France. Given these problems, I have chosen not to refer to any vessel as 'Tating' unless there are visible glue residues, except in those cases where sherds can be grouped through thin-section analysis.

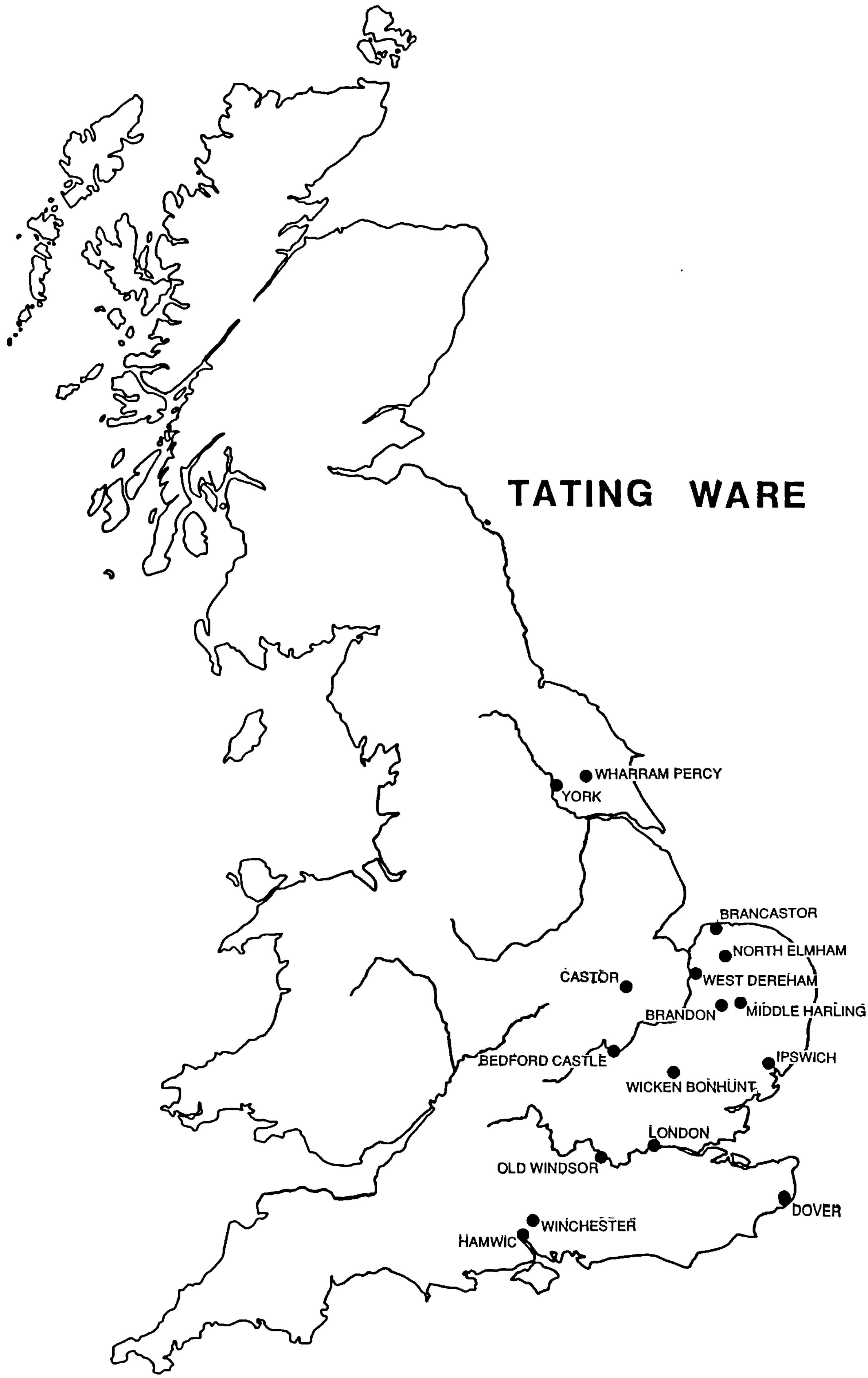
iii) Origins and distribution.

The Tating type is more easily recognisable than some of the other early medieval imports, thus the list of sites at which it has been discovered is quite extensive; however, it is very rare to find evidence for large numbers of these vessels on any one site. In Britain it has so far been recovered from fieldwalking and excavation at Brancaster, Brandon, Ipswich, Middle Harling, North Elmham, West Dereham, and possibly Wicken Bonhunt, all of which are in East Anglia. It has also been found in excavations at Bedford Castle, Hamwic, London, Old Windsor, York, Wharram Percy, and Winchester (see Addyman and Hill 1969: plate X, Carr 1984-5:40, Hodges 1981a:17-18, Hurst and Hodges 1977, Peacock 1985, Selkirk 1975:48, and Wade-Martins 1980:477). Most of these sites are either emporia or ecclesiastical/royal sites, a distribution which is paralleled on the continent, where the pottery is found in large numbers on the sites of Birka, Dorestad, Haithabu, Helgo, Kaupang and Ribe (see Arbman 1937, Blindheim and Tollnes 1972:80, van Es 1969, Hübener 1959:40-1 and 133-8, Janssen 1987:46, Selling 1955:44-59). It is, in fact, on the emporia that these vessels are found in the largest numbers.

Such a continental distribution is closely paralleled by the distribution of Badorf pottery, and implies a similar Rhenish source for much of the material. However, petrological analysis of some Tating vessels indicates that there were a number of production centres (Peacock 1985:6, Hodges 1981a, and see below). The first petrological examinations of this ware were made for Hougen (1969) and Selling (1972) on material from Kaupang and Swedish sites. Both of these analyses showed that the Tating ware in question was Rhenish in origin; however, Hougen's suggested source area was the Lower Rhine valley north of Duisburg, whereas Selling postulated the Lorsch area. The trachytic lava inclusions in the Swedish sherds support the idea of the more southerly source. It has recently been argued that the Mayen region is likely to be a source for some Tating ware, especially after a Hamwic Tating vessel was sourced to the Eifel mountains (Hodges 1981a, Redknap 1984:414). This would appear to be an equally good source area for the Swedish sherds mentioned earlier. There is a similarity between a Tating fragment found at Lorsch and the burnished neck and shoulder design on some Mayen vessels, which could be used to support a Mayen origin for the Lorsch material.

Plate 5,10 Tating ware fragments from Ipswich

Figure 5,8 Distribution of Tating ware in England (drawing by Steve Webster)



iv) **Dating.**

Tating ware is generally dated to the last quarter of the 8th century and the first quarter of the 9th century. This 'tight' dating has been made on the basis of associated coin finds in England, Scandinavia, and Germany and with historically dated strata in Paderborn (Hurst and Hodges 1977:249, Hussong 1936:84, Lundstrom 1971:54, Selling 1955:46, Winkelmann 1972:129).

However, recent finds at Dover indicate that decoration by the use of tin foil may have a much longer history than the two to three generations usually postulated, perhaps as much as 150 years (see below).

8. Grey Gritted ware.

i) **Description.**

A fairly hard fabric, rough to the touch, often with a pimply appearance. It contains a poorly-sorted scatter of sub-angular quartz at c.0.5-4.0mm (average size = 1.0mm). The colour varies from light to dark grey (10YR 7/1 to 10YR 5/1) and the sherds characteristically have a very dark grey inner core (7.5YR 3/0), surrounded by a 'sandwich' of white (7.5YR 8/0) (see plate 11). The sherds frequently display evidence of scorching or sooting.

Plate 5,11 Grey gritted ware, detail of fabric

Plate 5,12 Grey gritted ware rim sherd, from Ipswich

Thin-section analysis (thin-section no. 85, context IAS 7404 0091) shows a poorly mixed, optically anisotropic brown clay matrix, containing a light scatter of sub-angular quartz at between 0.1-0.6mm, sparse muscovite at 0.1-0.2mm and clay pellets at 0.4-1.0mm.

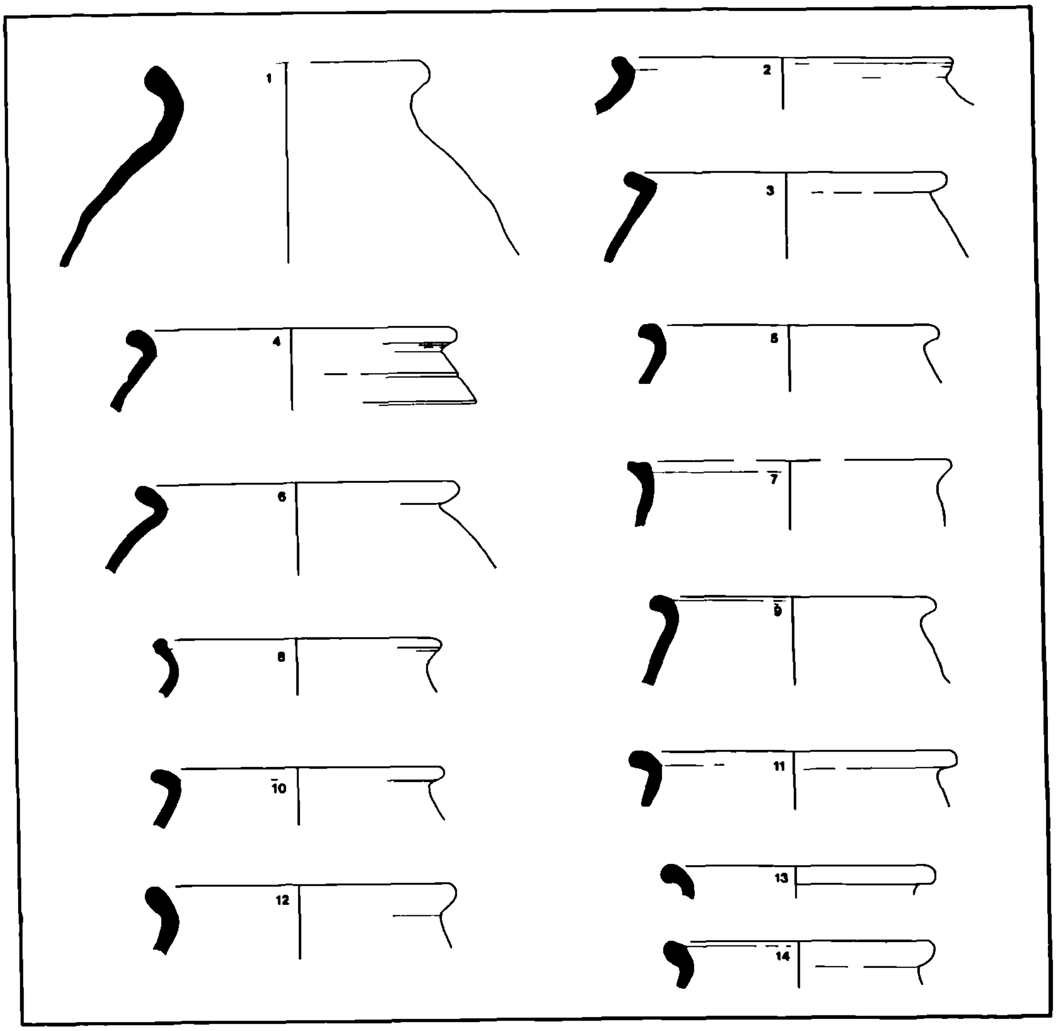
ii) Vessel forms and decoration.

Vessel forms and decoration vary, but one distinctive *Kügeltopf* jar has a hand-made body and a wheel-turned rim (Fig. 5,8.1). The complete profile of a vessel of this type found in trench 3104 in Ipswich (plate 12) shows that the base was fully rounded, which explains why no distintive base sherds have been found in this fabric. The ware is generally undecorated. The relative roughness of this type, and the high frequency of scorching on the sherds suggests that this was a utilitarian type, possibly a class made up entirely of cooking vessels. It is probable that these vessels were not prestigious or prestige-related, but were the personal cooking wares of Frisian traders in the North Sea emporia.

iii) Origins and distribution.

Found at Dorestad - similar to sand-tempered type H1. The *Kügeltopf* form is known from Carolingian Medemblik, and is characteristic of the coastal region of northern

Figure 5,9 Grey gritted rim sherds from Ipswich (scale 1:4)



Holland. It is a fairly common type in Ipswich, where at least 33 vessels have been identified.

iv) Dating.

It is found in Middle Saxon and later contexts in Ipswich. The ware probably begins production in the 8th century, and seems likely to carry on in production through the Late Saxon period.

III Northern French Types.

9a. Black Burnished ware.

i) Description.

Black burnished wares are generally hard-fired, occasionally with a friable and flaky surface. The sherd surfaces are most frequently a black or dark grey (eg. 2.5YR 4/0 to 2.5YR 5/0) with a reddish brown core (2.5YR 4/4). This group corresponds most closely to Hodges class 14.5 (Hodges 1981a:23-24). A typical thin-section description (thin-section no. 12, context IAS 4201 0053) gives an anisotropic, brown clay matrix, containing sub-angular to sub-rounded quartz ranging in size from 0.01-0.4mm, (a bimodal sorting of quartz is not uncommon in this ware, with scatters of abundant grains at c.0.05mm, and less frequently at 0.2-0.4mm). In addition, there is sparse iron ore at 0.1-0.3mm and muscovite at less than 0.3mm. Additional, less frequent, inclusions are sometimes present in the form of limestone fragments, clay pellets, scatters of large lumps of iron ore, occasional microcline and biotite.

ii) Vessel forms and decoration.

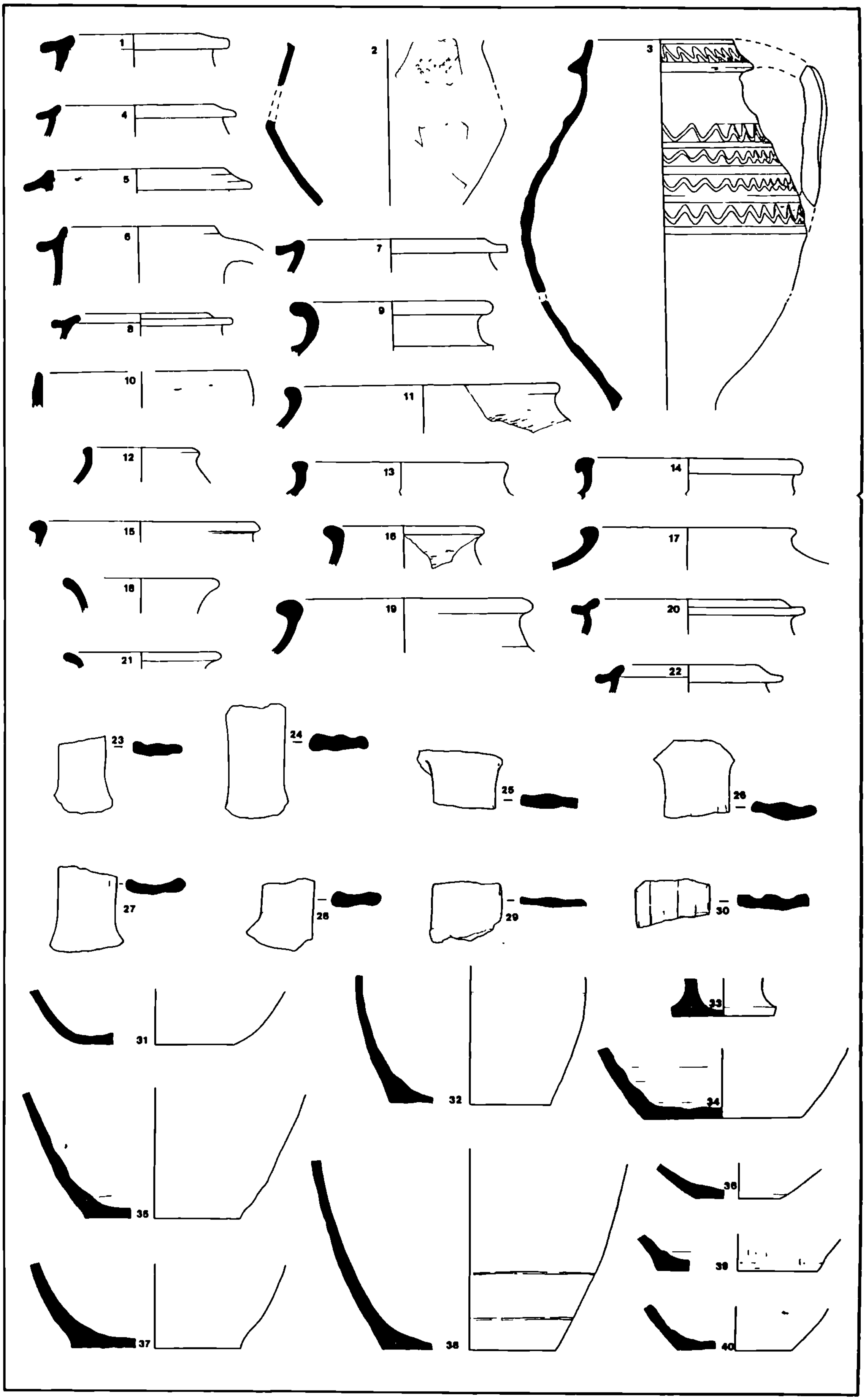
A wide range of vessels were produced in this fabric, including pitchers with tubular spouts and flanged rims, jars, bowls and biconical vessels (see Fig. 5,9). Bases are generally flat, and handles take the form of straps extending from the vessel's rim to the belly/shoulder.

One of the characteristics of this ware is surface burnishing. It can cover the entire external surface of a vessel, or be patchy. Most of the vessels are plain, but decoration sometimes occurs in the form of stamping, particularly on biconical vessels. A Black ware vessel from Quentovic was embellished with low relief bosses, rather like a Merovingian glass vessel. Another Quentovic vessel has an unusual 'bucket handle' (plate 14).

Plate 5,13 Black ware rim sherd from Old Windsor

Plate 5,14 Black ware rim sherd and handle from Quentovic

Figure 5,10 Black wares from Ipswich (scale 1:4)



iii) Origins and distribution.

Examples have been found on numerous sites in England: at Caistor-on-Sea (Hurst 1959:18, 21), at North Elmham, Sandtun in Kent, and Castor (Hurst 1976b), at Wicken Bonhunt (Wade 1974a), at Breedon-on-the-Hill (Dornier 1977, Hodges 1981a), and at Canterbury, Old Windsor (see plate 13), and Dover. Fieldwalking in Norfolk has produced this ware at Bridgham, Wells-next-the-Sea, Wiggenhall St. Mary Virgin and Walpole St. Peter (Coutts forthcoming b). Large quantities have now been recovered from York (A. Mainman pers. comm.), and London (Vince 1990). Hamwic and Ipswich have both produced large amounts of this type (see Hodges 1981a, Timby 1988); Ipswich has produced sherds from over eighty vessels and it is probably the most common Middle Saxon import in Hamwic.

iv) Dating.

The dating of this pottery type is both crucial and problematic. Black burnished pottery was common in Merovingian and Carolingian France, and in the Mayen region of Germany. A wide variety of forms are known. Black wares are found in pre-Ipswich ware levels in Ipswich, suggesting that they were being imported at least as early as the 7th century. They are frequently found in association with later Saxon pottery, so their date range could extend well into the later Saxon period.

9b. Grey burnished ware.

i) Description.

I disagree with Hodges' assertion that his Class 13, a dark grey burnished ware, exists as a fully separate class to his Class 14.5 (see Hodges 1981a:21-25). Hodges believes that the technology that produced the two sorts of pottery was different enough to distinguish them as classes (Hodges pers. comm.). It is more likely that the Grey-burnished vessels are the finer vessels of the same kilns that made the Black ware vessels. The Grey-burnished group is a hard-fired type, with mid-dark grey smooth, burnished surfaces. Many vessels display a characteristic 'sandwich' of a firing core; the sherd will have dark grey surfaces, an oxidised dark red-brown core, and a dark grey inner core. Thin-section analysis (eg. thin-section 39, context IAS 4302 0075) reveals a more well-sorted scatter of quartz than in the Black burnished group. A typical thin-section description reads: an anisotropic dark red-brown clay matrix containing a well-sorted scatter of sub-angular quartz at 0.3-0.6mm, with an additional abundant scatter at 0.05-0.1mm. Iron ore occurs commonly at c.0.05-0.3mm, and muscovite at less than 0.1mm. In some thin-sections more unusual minerals and fragments occur, such as microcline, clay pellets, and chert, as well as large (c.0.6mm) grains of microquartz, quartzite, and sheared quartz.

ii) Vessel forms and decoration.

Spouted pitchers with flanged rims are known in this ware, as are jars, bowls, and small biconical vessels. The range of Grey burnished forms correspond well with those from the Black burnished group, supporting the hypothesis that they form part of the same industry. Burnishing can be comprehensive or partial. Stamped decoration is known.

iii) Origins and distribution.

This is not an eastern Belgian ware, as has previously been presumed (see Hodges 1981a). According to Frans Verhaeghe, such pottery is apparently virtually unknown in Belgium (F. Verhaeghe pers. comm.), although some black and grey-burnished vessels do occur at Lampernisse (Verhaeghe 1988:61), and is far more likely to have a common origin with the group described above, somewhere in the Pas-de-Calais region; indeed a 14th/15th century milk dish from the excavations at Quentovic occurs in this fabric. Hodges' observation (1981a:21) that this ware seems to have a distribution outside of the Rhineland is particularly interesting, and still holds true. Pottery of this type is found in large quantities in Hamwic and Ipswich. The ware has been found at Breedon-on-the-Hill in Leicestershire where Hodges incorrectly identified a flanged jar as a Class 14 type (Hodges 1981a: fig. 4,1 no.9), re-examination has shown the vessel to be a Grey burnished ware, with the characteristic 'sandwich' core). A number of Grey burnished sherds have been found in London and York. (Blackmore and Redknap 1988, Mainman 1990)

iv) Dating.

This ware has Merovingian origins and was found at Douai in a Merovingian form, but the fabric type carries on well into the medieval period, as is attested by a 14th/15th century milk dish at Quentovic. Verhaeghe suggested that it may continue into the 11th century at Lampernisse (Verhaeghe 1988:61). Most of the sherds at Ipswich are from early contexts however, so a 8th/9th century date is likely for the majority of the vessels.

9c. Brown burnished ware.

i) Description.

This is a hard, wheel-thrown ware that is most likely another variant of the Black burnished tradition. The surface colour varies from a greyish brown (10YR 5/2) to a pinkish grey (7.5YR 6/2), the core is sometimes darker (7.5YR 4/4 dark brown). Variants occur in redder colours as well (see Fig. 5,11 and plate 15). The fabric contains a well-sorted scatter of quartz at less than 0.5mm. The fabric of the Ipswich material looks very similar to that of the Black burnished pottery described earlier. Four vessels can be recognised at Ipswich, one of these is almost complete.

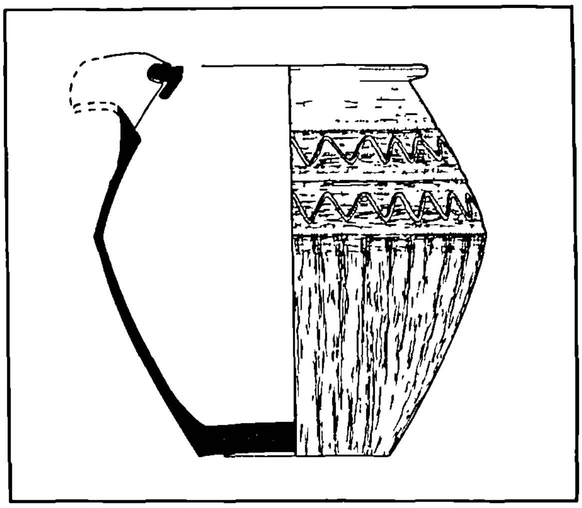


Figure 5,11 Brown burnished pitcher from Ipswich (scale 1:4, drawing by Eddy Moth)

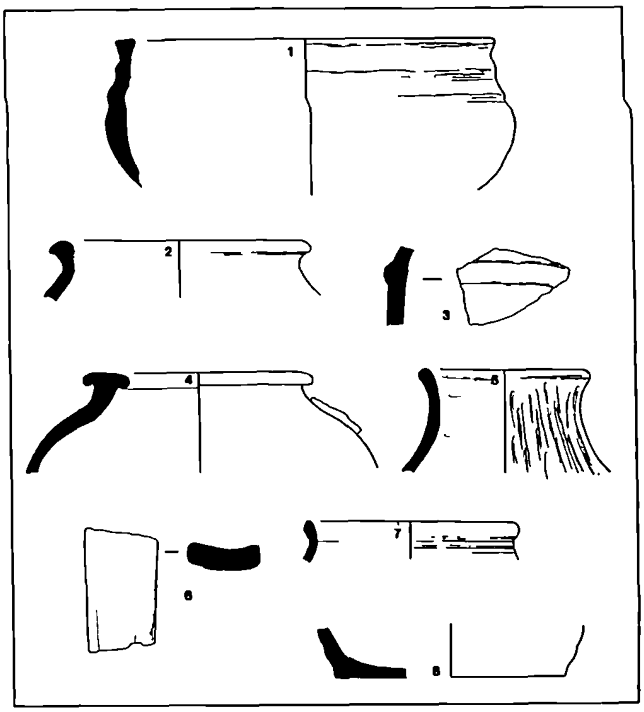


Figure 5,12 Red-burnished pottery from Ipswich (scale 1:4)

Plate 5,15 Red-burnished rim sherd from Humberside

ii) Vessel forms and decoration.

A virtually complete biconical spouted pitcher, with a flanged rim and incised wavy line decoration, was found in this fabric in Ipswich (see Fig. 5,10). As with the grey and black burnished types, burnishing can be comprehensive or partial. A rim and handle sherd found during excavations at Humberside suggests that this fabric might have been used to imitate classic Tating ware forms, such as the spouted pitcher with upright rim common in Scandinavia (see plate 15 for the Humberside rim sherd).

iii) Origins and distribution.

It is assumed that this pottery has northern French origins. It has so far only been identified at Ipswich and Humberside. However, brown-burnished pottery is known to be part of the Tating ware tradition, although these vessels are usually plain, undecorated pitchers, in the traditional Tating ware form. Such vessels have been found and identified at Haithabu (Janssen 1987: Taf. 32,12), and at Flaxengate in Lincoln (P. Miles, pers. comm.). It is possible that much of the Brown burnished pottery found is a Tating variant, but this is impossible to ascertain without a comprehensive programme of thin-section analysis.

iv) **Dating.**

This ware is found in contexts of Middle Saxon date. The Ipswich pitcher described above is an early form, probably dating to the 7th or 8th century. It is likely that Brown burnished pottery spans the same time period as Black burnished ware.

10. **Grey ware 1.**

Many different grey ware fabrics occur in Ipswich which are unfamiliar to the resident pottery specialist. Only a tiny minority of these derive from Middle Saxon, or even later Saxon contexts. Where forms are apparent they most frequently suggest a medieval or post-medieval date (see Fig. 5,12). However, one grey ware did appear to occur with some regularity in Middle Saxon contexts, and this was termed Grey ware 1.

i) **Description.**

This group of pottery possibly combines the output of a number of kilns, but forms a fairly homogeneous group in macroscopic terms. The primary characteristics of this ware are colour and inclusions; the sherds vary from light- through to mid-grey and contain abundant sub-angular to sub-rounded quartz inclusions of c.0.5-1.0mm across.

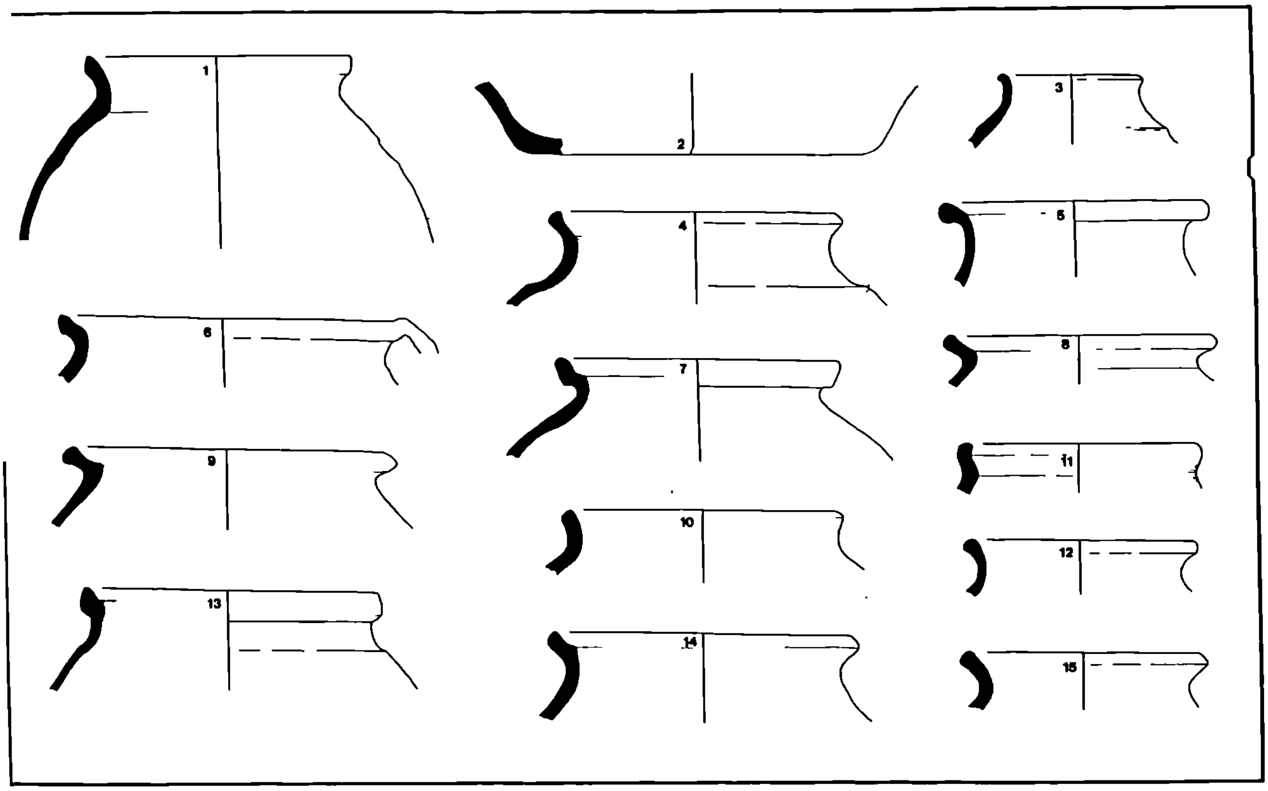
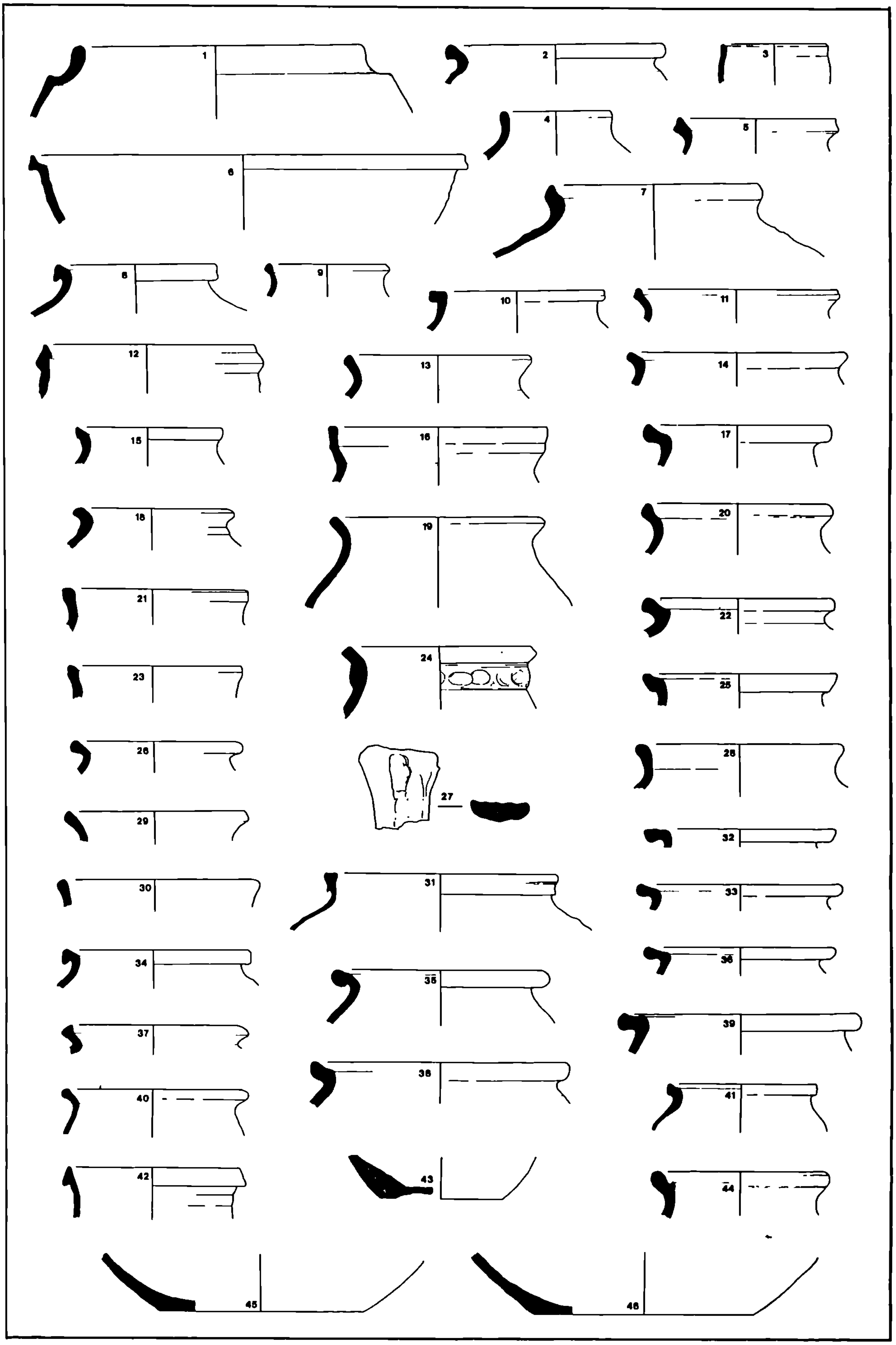


Figure 5,13 Grey ware 1 pottery from Ipswich (scale 1:4)

Figure 5,15 Grey wares from Ipswich (scale 1:4)



The sherd cores are sometimes much lighter (eg. 7.5YR 8/0 white). The pottery is hard-fired and rough and sandy to the touch. A large number of the sherds display evidence of scorching.

ii) Vessel forms and decoration.

There are numerous different vessel forms in this group, but the scorching suggests that many of them, perhaps the majority, were used for cooking. Simple everted rims are common in this fabric, but lid-seated rims and other forms also occur. Cooking pots, jars and storage vessels, with both flat and sagging bases, are found in this ware (see Fig. 5,11). A number of sherds display evidence of knife-trimming. Decoration is rare, but occasionally occurs in the form of incised wavy lines.

iii) Origins and distribution.

Pottery of this type makes up a fairly large proportion of the Quentovic assemblage, indicating that a northern French source is likely. The ware is nondescript, so identification of this group as an imported ware in Britain will not have been as immediate as with Badorf or Tating types, which are far more distinctive.

iv) Dating.

The dating of this ware is undoubtedly broad, probably ranging through from the Merovingian to the medieval period. Individual vessels can occasionally be dated on formal grounds.

11. Beauvais ware

i) Description.

Beauvais ware is a hard-fired type, usually in cream or pale brown coloured fabric (10YR 8/3 very pale brown, 7.5YR 7/4 pink) containing a scatter of quartz at less than 0.5mm. The surfaces tend to be slightly rough to the touch. Thin-section analysis shows an optically anisotropic light brown clay matrix, containing a scatter of sub-rounded quartz at 0.2-0.6mm across, and a few very small grains of iron ore (0.02mm across). Hodges considered that the roundness of the quartz grains in this ware made it particularly distinctive (1981a:19).

ii) Vessel forms and decoration.

The most familiar wares are pitchers, bowls and cooking pots. Until the 10th century the pitchers had flat bases, with sagging bases being introduced later. The pottery is characteristically red-painted in a similar manner to Pingsdorf ware. A common decorative motif is a row of parallel bars in the form of a curving ladder on the shoulder of a vessel (see Jennings 1981: fig. 10, 221). Beauvais ware also occurs as a glazed type; in Ipswich sherds of this ware have been found with a light olive-green glaze on their outer surfaces (identification by Paul Miles of the Trust for Lincolnshire Archaeology).

iii) Origins and distribution.

The Beauvais pottery industry in northern France was one of the largest in Europe. Its pottery was widely exported, particularly to the south and east of England.

iv) Dating.

The Beauvais industry had a long lifespan, from at least the 7th to the 19th century. Red-painted Beauvais pottery began to be produced as early as the 9th century (Bouard and Guibert 1969). The wares dealt with here are from the earlier part of the industry's history, although it is unusual to find Beauvais ware in England prior to the 10th century.

13. La Londe type I.

When Richard Hodges carried out his research on the imported ceramics in Middle Saxon Hamwic, he identified what appeared to be a number of hitherto unidentified pottery groups that he related to a number of hypothetical continental production centres. The particular groups in question were Class 11, Class 12, Class 15, Class 16, Class 17 and Class 25. Classes 11 and 25 were considered to derive from the Seine valley, Class 12 from Trier, and Classes 16 and 17 from the Loire or Normandy region (Hodges 1981). Recent excavations by the Groupe Archeologique du Val de Seine at a kiln site in the Foret de la Londe has shown that all of the ceramic groups originated from these kilns.

Two of Hodges' classes, numbers 11 and 12, have proven to be readily identifiable as imported groups in excavations in Britain over the past ten years, so these have been renamed La Londe I and La Londe II respectively. Class 25 seems to be a very small group, not readily identifiable. Class 15 is a mixed group of grey wares. Classes 16 and 17 both appear to be mixed groups, not readily identifiable.

i) Description.

These are a group of hard-fired, cream-coloured wares, which correspond to Hodges' Class 11. Colour varies somewhat from white to grey (5Y 8/1 to 10YR 6/1), some sherds appear in a very pale brown (10YR 8/3). Heavy scorching of the vessels' external surfaces is characteristic of this ware. The quantity of inclusions varies between vessels; some have few visible inclusions, others have a moderate scatter of sub-rounded quartz inclusions of up to 3.0mm across, usually ranging from less than 0.5mm to c.1.0mm. Black iron ore is occasionally visible. As a result of the different quantities of inclusions, surface texture varies from rough to smooth, but they are most commonly smooth and powdery. Thin-section (no. 38) reveals an optically isotropic light brown clay matrix, containing abundant, sub-angular quartz at 0.1-0.2mm, and occasional iron ore at 0.05-0.1mm, with one piece at 1.0mm.

ii) **Vessel forms and decoration.**

The most common form is the cooking pot, but bowls also occur. The scorched and sooted surfaces that are characteristic of this ware support their identification as cooking pots. Red-painted variants also seem to occur (see Fig. 5,5.33).

iii) **Origins and distribution.**

The precise origins of this ceramic group were difficult to define until the kilns at La Londe were excavated. Macroscopically similar fabrics had been found in many areas of northern France, but particularly between the rivers Eure and Seine, suggesting that this may be the source area (Hodges 1981a:19). This ware is found in large quantities in Hamwic, but outside of this centre it appears to be rare, although sherds from the Graveney boat fit into the class (Evans and Fenwick 1971: fig. 3). Sherds have also been identified from a number of trenches in Ipswich (see Appendix 2).

iv) **Dating.**

Dates for this pottery probably range from the Merovingian period through to the 13th century, thus rendering it an inefficient tool for fine dating. Formal criteria can sometimes be used to refine dates. In Ipswich it occurs primarily in early medieval contexts (11th-12th century), but also in 10th century contexts. A single sherd from trench 7402 was found in a Middle Saxon context. Similarly, it is found in large quantities in later Saxon Hamwic.

13. **La Londe type II**

i) **Description.**

This pottery type is a slightly powdery, fine, hard-fired type. It is usually a neutral off-white or grey colour (2.5YR 8/0 to 2.5YR 7/0), but occasionally comes in a slightly pinker shade (7.5YR 8/2 pinkish white). The ware is characteristically micaceous, with few other inclusions visible, although some sherds contain sparse iron ore and quartz grains. Thin-section analysis (no. 97) shows an optically isotropic light brown clay matrix, containing abundant-common sub-angular quartz at 0.1-0.2mm. In thin-section no. 97 iron ore is sparse at 0.1-0.8mm. Muscovite is fairly common. The thin-section also contains crystals of plagioclase feldspar at c.0.2mm.

ii) Vessel forms and decoration.

The range of forms for this type of pottery is extensive, and includes the following: flanged bowls, cooking pots, pitchers, jars, and roller-stamped mortars. Some of the pitchers are decorated with incised wavy lines. Occasional sherds are decorated with splashes of red-paint.

iii) Origins and distribution.

Vessels are not known from the Dorestad assemblage (Hodges 1981a:21), or from Haithabu (Janssen 1987). The ware is common at Hamwic, but not particularly so at Ipswich. This distribution suggests that the pottery follows the Frankish, rather than the Frisian trade routes.

iv) Dating.

Pottery was being produced and exported from La Londe from the 8th century at least, and production probably carried on into the medieval period. The ware has been found in Ipswich in Middle Saxon levels.

14. Tating type 2.

i) Description.

I am suggesting that this Tating ware type may originate in France on the basis of formal and stylistic grounds. It shares many features in common with the Rhenish Tating ware described earlier (II.7). *It is a hard-fired, smooth ware, with a well-burnished surface and* few visible inclusions. It was not possible to carry out thin-section analysis on this second group of Tating ware.

ii) Vessel forms and decoration.

An unusual vessel from the excavations within Dover has come to light recently (Coutts and Hodges 1990). At first sight, this vessel looks like a northern French, 7th century, or even 6th century, biconical spouted pitcher, heavily decorated with chevron stamps on its upper half. It is highly reminiscent of late Merovingian forms found in southern England and northern France in the late 7th/early 8th century. However, on closer examination, distinct patterns of metal-foil glue residue become apparent (see plates 16 & 17).

Another vessel which probably fits into this class is the pitcher from Old Windsor (illustrated in Dunning 1959 *et al.*, fig. 24). This pitcher is a quite different shape to the typical Tating pitchers that are found in large numbers in Scandinavia. The vessel is rather more squat, with a fairly wide mouth and a tubular spout. The rim is almost horizontal. All of these features contrast markedly with the typical Tating pitchers

Plate 5,16 Tating ware picture from Dover

Plate 5,17 detail of Tating ware decoration described in II.7 (see Fig. 5,7.2 for an example of a typical Tating ware rim sherd). In addition to the formal features, the decoration is somewhat different; on most Tating pitchers, the metal foil decoration runs in horizontal bands around the vessel, whereas on the Old Windsor pitcher the divisions are vertical. The illustration in Dunning is somewhat inaccurate; the band of tinfoil from around the spout is missing, as is the chevron from the vertical stripe on the shoulder of the pot. It is difficult to assess just how unusual this vessel really is; the large number of Tating pots found since the 1950s suggests that there is a much wider range of vessels than was previously supposed. Ipswich, for example, has produced fragments of a shallow dish and two small bowls (Fig. 5,7.1, 5.7.3, & 5.7.4). The decoration on the Ipswich dish is not dissimilar to that on the Old Windsor pitcher.

iii) Origins and distribution.

The suggested origin of this Tating type is northern France. One of its identified destinations is southern England.

iv) Dating.

It is suggested that this ware dates to the early to late 8th century. It is possible that the carinated form (as found on the Dover vessel) continued into the later part of the 8th century, making the form potentially contemporary with the more common pitcher form.

15. Andenne wares.

i) Description.

Andenne pottery is a hard-fired type, usually in an oxidised orange or pink fabric, although reduced vessels are known. The fabric is smooth, with occasional iron ore and limestone inclusions. Thin-section was not carried out on this ware.

ii) Vessel forms and decoration.

Sagging-based pitchers are common in this ware, but there is a very wide variety of forms (Borremans and Warginaire 1966). The pottery is well known for its orange/yellow glazed vessels, but the glazes can vary widely, as is attested from the material recovered from the excavations in Norwich (see Jennings 1981). Some of the Andenne types found in Ipswich are decorated with roller stamping in addition to glaze. The finest vessels are evenly glazed and often have thin strips of clay running in bands on the vessels' surface (see plate 18).

Plate 5,18 Andenne ware sherd from Ipswich

iii) **Origins and distribution.**

Andenne pottery was produced in the Meuse valley, and widely exported around northern Europe. It is found in large quantities in the Netherlands, Belgium, and in the south and east of England, and in small quantities in Scotland (Verhaeghe 1983).

iv) **Dating.**

The industry was in production between the 11th and the 15th century.

16. Loire valley ware.

i) **Description.**

This type is a smooth, very powdery ware that is soft fired. The colour is a uniform pale yellow (5YR 8/3), and the fabric contains occasional small (less than 0.5mm) inclusions of quartz, and sparse inclusions of rock fragments up to 2.0mm across. The fabric is distinctive, but its identification as a Loire valley product is tentative.

ii) **Vessel forms and decoration.**

The Ipswich example is probably a bottle or jar, it has rilling around its shoulder. An interesting feature of this vessel is the small pinched lug. All of the fragments have a heavy residue on their internal surfaces, suggesting the storage of some kind of liquid.

iii) Origins and distribution.

This ware is thought to originate in the Loire valley region. The distribution of this ware is unknown.

iv) Dating.

8th-9th century pottery is not common in the Loire valley. The Ipswich sherds were recovered from 11th-15th century contexts, suggesting that this is a later Saxon or Saxo-Norman period import.

IV Non-Sourced Groups.

17. Limestone tempered.

i) Description.

A single sherd of limestone-tempered pottery was recovered from the Ipswich excavations (from 5502 0059). Thin-section no. 24 shows a dense, optically isotropic grey to red-brown clay matrix, containing common fragments of angular limestone at 0.4-1.0mm across. In addition there were scatters of sub-angular quartz at 0.05-0.1mm, and 0.3mm across. A well-sorted scatter of angular clay pellets/grog at 0.5-1.5mm was also present.

ii) Vessel forms and decoration.

Unidentifiable hand-made form, the sherd wall is 6mm thick.

iii) Origins and distribution.

Unknown, but not, apparently, local, as it was unfamiliar to the Ipswich pottery specialist.

iv) Dating.

The sherd is from a medieval context, but it was presumed by the excavators to be Middle Saxon in date. This has not been possible to ascertain.

18. Early Glazed ware.

i) Description.

This is a fairly hard, smooth type of pottery. The fabric contains poorly-sorted quartz grains up to 2.5mm across. Muscovite was also visible. The fabric colour is usually a very pale brown (10YR 8/4), but occasional examples, such as one from Lincoln, occur in a light red colour (2.5YR 6/8) (plate 19).

Thin-section no. 248 shows a dense, optically isotropic, light grey-brown clay matrix, containing abundant, well-sorted, sub-angular quartz at 0.02-0.1mm, and commonly at 0.1-0.5mm across. A single large quartz grain, 1.6mm across, was also present. Iron ore, muscovite and biotite were sparse at c.0.1mm across. A single clay/grog pellet was visible at 0.8mm.

ii) Vessel forms and decoration.

This is a lavishly decorated type; sherds are decorated with a four-part bisected circle or 'clover-leaf' stamp, often in apparently random patterns. The stamp patterning on some of the Ipswich examples is not dissimilar to the decoration on Michelmersh ware. After stamping had been applied, vessels were sometimes additionally decorated with red paint. Paint strokes are not discernible, and the colour often appears to be a wash, covering large areas of the vessel's surface. On top of the paint, glaze has been applied. The glaze is generally in a yellow-brown colour, and often thickly, but poorly applied (see plate 20).

A sherd of this type has been found in Lincoln which has a flattened everted rim, decorated with stamping and glaze. In Ipswich, an extravagantly decorated lid was found in trench 4601, which was at first considered to be Stamford ware because of the fabric colour and texture (plates 21 & 22). The Ipswich vessel (from which a number of body sherds have been identified) is large, measuring at least 24cm in diameter (plate 20).

iii) Origins and distribution.

The comparatively large quantity of this type of pottery in York suggests that this may be the centre for the industry (Mainman 1990). It is only recently that this ware has been identified, so as yet, it has not been 'discovered' on numerous sites. It has so far been identified in York, Lincoln, Ipswich and London.

iv) Dating.

The contexts in which this ware has been found in both York and Ipswich suggest that it dates to around the 10th century.

Plate 5,19 Early Glazed ware rim sherd from Lincoln

Plate 5,20 Early Glazed ware body sherd from Ipswich

Plate 5,21 Early Glazed ware lid from Ipswich (top view)

Plate 5,22 Early Glazed ware lid from Ipswich (side view)

19. Bubbly ware.

i) Description.

This ware has been temporarily named as Bubbly ware because of its distinctive vessicular fabric. Fragments of at least two vessels of this type have been found in Ipswich (trench 4801). The pottery is fairly hard-fired, in a reddish-yellow colour (7.5YR 6/6). The core of the second vessel is a pinkish-grey (7.5YR 7/2). The surfaces are smooth, slightly powdery, and somewhat pimply, as if bubbling mud has solidified. The fabric contains very little in the way of visible inclusions; a dusting of mica and the occasional clay pellet were all that could be discerned. Scorching is apparent on the exterior of both vessels.

ii) Vessel forms and decoration.

The two Ipswich examples are fairly wide-mouthed jars with everted, flattened rims. They are both decorated with a single band of diagonal roller-stamping around their shoulders (Figs. 5.13.2-4). The base fragments that were found were from a wire-cut, flat bottomed vessel. It is likely that these vessels fit in with the tradition of globular, thin-walled cooking pots of Saxo-Norman date.

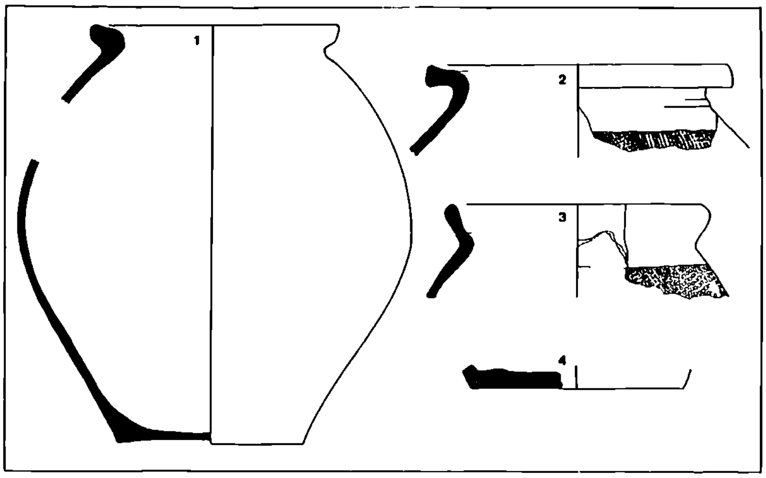


Figure 5,15 10th century Buff-coloured wares from Ipswich (scale 1:4)

iii) Origins and distribution.

This ware has been identified in Ipswich and York, but probably occurs on many other sites. The origins of this type are unknown. It has been examined by numerous members of the Medieval Pottery Research Group, but it could not be identified. It is not a Rhenish type. An English origin cannot be ruled out.

iv) Dating.

On the basis of form and decoration, this type is likely to be 10th/11th century. The majority of the sherds occurred in 10th-12th century contexts.

20. Coarse red-painted.

i) Description.

This is a hard-fired fabric, rough to the touch, containing well-sorted, abundant sub-angular quartz at c.1.0-2.0mm. The surface of the sherds is usually scorched to a brown colour (7.5YR 5/2), but a very pale brown (10YR 7/4) on the inner surface, and light grey in the core (10YR 7/1). Thin-section reveals an optically anisotropic brown clay matrix, containing a scatter of abundant, sub-angular quartz at 0.4-0.9mm across, and an additional common scatter at 0.05-0.1mm.

ii) Vessel forms and decoration.

The external scorching suggests that some of the vessels were used as cooking pots. However, a characteristic of this ware is its decoration with red paint. The paint, a

Plate 5,23 Coarse red-painted sherds from Ipswich reddish yellow colour (7.5YR 6/6) is difficult to discern in some cases, but seems to take the form of rough 'comma' brush strokes (see plate 23).

iii) Origins and distribution.

The ware is very similar to early (c.9th century) St. Denis types - particularly the gritty pre-fine type (A. Mainman pers. comm). So far, its identification is limited to Ipswich, where its distribution is confined to a single trench (4801).

iv) Dating.

All of the Ipswich sherds were recovered from early medieval (11th-12th century) contexts, but they were found in association with small amounts of earlier pottery. A 10th-12th century date is postulated for this ware.

21. Sandy red-painted

i) Description.

A hard, somewhat sandy fabric, containing abundant, sub-angular rose-quartz grains at less than 0.5mm, and occasional lumps of iron ore at up to 2.00mm across. The colour is a light greyish-brown (10YR 6/2) with a very pale brown surface (10YR 7/3). Sherds appear abraded, and perhaps scorched, on their inner walls. The surfaces of some are

Plate 5,24 Sandy red-painted sherds from Ipswich

Plate 5,25 Sandy red-painted sherds from Ipswich

Plate 5,26 Sandy red-painted sherds from Ipswich smooth and could have been slightly burnished. Thin-section (no. 55, context IAS 7404 0009) analysis reveals an optically anisotropic, light yellow-brown clay matrix, containing a scatter of common, well-sorted, sub-angular to sub-rounded quartz at 0.3-0.6mm, and a sparse scatter at 0.1-0.2mm across. Iron ore was common at 0.05mm and sparse 0.1-0.6mm. Plagioclase feldspar was abundant, and a single fragment of volcanic rock appeared at 0.7mm across.

ii) Vessel forms and decoration.

The term red-painted Badorf ware is used by a number of researchers to indicate any red-painted pottery that is also decorated by roller-stamping. The suggestion that all of the pottery with this form of decoration originates in the Badorf kilns is not tenable, given the variety of fabric found in red-painted and roller-stamped pottery. In this case the dissimilarity of the fabric from Rhenish types also argues against any connection with Badorf wares. No forms are discernible, but some of the sherds come from very large vessels. Decoration is in the form of carefully applied red paint, in arcs (or possibly circles) on some vessels, and stripes, zigzags, and dots on others (Figs. 5.5.6, 7, 9, 10, 14, 16 and 17). Many of the sherds have roller stamp decoration (square stamp) as well as red paint (see plates 24-26).

iii) Origins and distribution.

The sourcefor this pottery type is unknown, but it is found at Ipswich, and Flaxengate, Lincoln. In Lincoln, because of the combination of red-paint and roller-stamp decoration, it is referred to as red-painted Badorf (but see 21:ii above).

iv) Dating.

Most of the sherds are from 10th century contexts (mid-Late Saxon period - MLS), but I would suggest that the ware spans from the mid-9th through the 10th century on the basis of the similarity of decorative technique used on this type of pottery, to the well-dated Hunneschans type.

22. Early Rhenish type

i) Description.

Two vessels occur in this fabric. This is a very hard type with a rough, pimply surface, and an uneven fracture. The clay contains large, angular, quartz inclusions, up to 2.0mm in size, and iron ore up to 4mm across. The clay appears to have been unevenly mixed. The surface colour on one vessel varies from grey to dark orange (7.5YR 7/6 reddish yellow), the core is a light grey (7.5YR 7/0). On the second vessel (from 4601) the surface is 10YR 5/3 brown, with a light grey core (2.5YR 6/0).

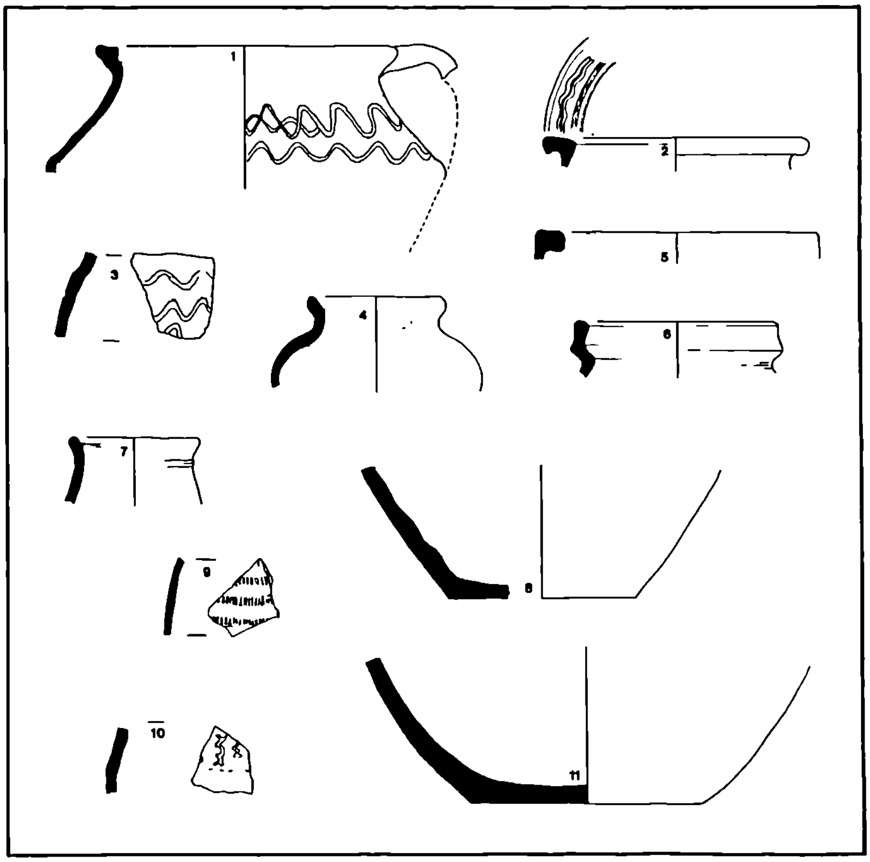


Figure 5,16 Pottery from Middle Saxon contexts in Ipswich (scale 1:4)

ii) Vessel forms and decoration.

A flat base was recovered from Trench 4601 in Ipswich, the internal surface of this base is finger-smoothed (Fig. 5,15.11). The walls from both of the vessels are 8-9mm thick. The large sherd sizes and their thick walls suggest that the sherds come from substantial vessels, possibly some kind of amphorae. One of the sherds from the vessel recovered from trench 4801 in Ipswich was decorated with combed wavy lines and horizontal incising.

iii) Origins and distribution.

This ware is not a Mayen type (M. Redknap pers. comm). van Es suggests that the ware would have been identified as being Rhenish if it had been found in the Netherlands (pers. comm.). Its macroscopic resemblance to the Walberberg products suggests that it could well be an early (7th century) type from this area, or a variant of the Bornheim Waldorf tradition.

iv) Dating.

The ware is found in Ipswich in two late 9th (early-Late Saxon - ELS) and two 10th century (mid-Late Saxon - MLS) contexts in trench 4801, whereas in trench 4601 adjoining base sherds were found from Middle Saxon, through to early medieval (11th-12th century) contexts. I would suggest that the date of this type is early in the Middle Saxon period, perhaps 7th century.

23. Oxidised gritty 1.

i) Description.

This oxidised ware is represented by sherds from a single vessel recovered from trench 4601 in Ipswich. The type is moderately hard-fired, with a slightly powdery surface. The colour is a reddish-yellow (7.5YR 6/6). The fabric contains a fairly profuse scatter of quartz at up to 3.0mm. The interior walls of the vessel are rougher than the exterior walls.

Thin-section (no. 244, context IAS 4601 0690c) reveals an optically anisotropic, red-brown clay matrix, containing abundant quartz at 0.02-0.1mm, and a scatter of common, fairly well-sorted, sub-angular to sub-rounded quartz at 0.3-1.6mm across. In addition two grains of anorthoclase were present at 0.3mm and 1.6mm across.

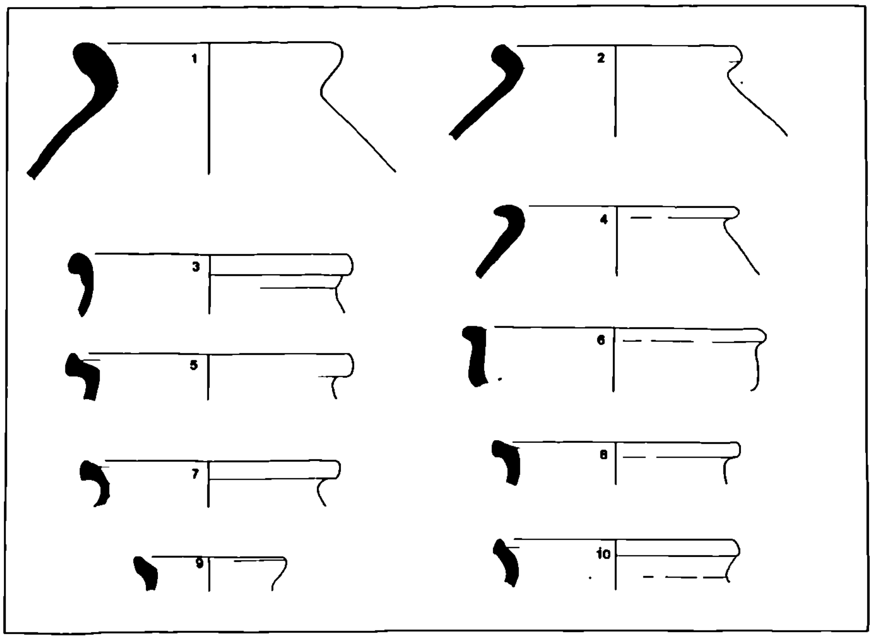


Figure 5,17 Pottery from early Late Saxon and mid-Late Saxon contexts in Ipswich (scale 1:4)

ii) Vessel forms and decoration.

The vessel has a thick, everted, rounded rim, resting on fairly pronounced shoulders (see Fig. 5,16.1). Areas of slight discolouration suggest that the vessel may once have been decorated with red paint, but this may be illusory. The size of the rim suggests that these sherds come from a substantial vessel, possibly an amphora.

iii) Origins and distribution.

The fabric of this vessel is distinctive, but a parallel cannot be found. A similar fabric was noted by the author in the pottery assemblage from excavations in Dublin, from a 7th century context, but the Dublin vessel was also unsourced. Suggestions for a source have ranged from Mediterranean Spain to Roman Britain. A south-west European source remains a strong possibility for this ware, based on Spanish parallels.

iv) Dating.

Sherds in this type date from the later 9th century to the early medieval period in Ipswich.

24. Oxidised gritty 2.

i) Description.

This ware seems to be represented by a single vessel. It is a hard, oxidised type, containing large, evenly-sorted, sub-rounded quartz grains, ranging from 0.5-1.5mm across, and a moderate amount of iron ore at up to 4.0mm across. The surface colour is an even reddish-yellow (5YR 7/6). The core is grey. One characteristic of the sherds of this vessel is that the inner surfaces are often missing.

ii) Vessel forms and decoration.

The vessel walls measure c.4mm thick, and have a minimal curvature, indicating that the vessel from which they derived was very large. The rim diameter is c.15cm, and there is a slight cordon around the neck. A narrow strap handle springs from the rim. The vessel is decorated with double-row rouletting, with horizontally-aligned rectangular stamps. There is also evidence of slight rilling or banding on some sherds.

iii) Origins and distribution.

Possible Rhenish source, found in Ipswich.

iv) Dating.

Most of the sherds in this fabric come from 11th-12th century early medieval contexts, but one is from a 10th century (MLS) context, suggesting that the type is as least 10th century in date.

V Ipswich ware.

Ipswich ware is included in this chapter, because although it was obviously not an import in Ipswich, it was produced in Ipswich and vessels were exported to many places, particularly to sites in the east of England.

i) Description.

Ipswich ware is usually a hard grey-coloured pottery, although brown-orange variants do occasionally occur. It is hand-made and slow-wheel turned, and fired, with a high degree of technical expertise, in a bonfire kiln. The surface texture tends to be rough. There are two basic types: sandy and pimply; the pimply type contains much larger quartz inclusions than the sandy. These have been further subdivided into the following:

a) hard, well-fired, sandy and grey, with a smooth or burnished surface.
b) hard, well-fired, sandy and grey without a smooth surface.
c) hard, well-fired, sandy and grey, with additional larger grits, giving a rough surface.
d) hard, well-fired, grey gritty ware.

In the 'pimply' type the contraction of the clay has caused grits to stick out, giving a pimply surface (Hurst 1976b:229). In reality, (a) and (b) constitute the same fabric, differing only in their surface treatments, as was shown by point-counting analysis (see Appendix 5). It should also be pointed out that burnishing is not confined to the sandy variant, but can be found on the pimply-gritty types as well.

Thin-section analysis reveals an optically isotropic brown or grey clay matrix, containing (in a sandy example) a scatter of moderately well-sorted sub-angular quartz grains at 0.05-0.1 (abundant), and 0.2-0.6 (common-moderate). A pimply example will contain common sub-rounded to sub-angular quartz, between 0.2 and 2.0mm across. In addition, Ipswich ware contains sparse limestone at 0.4-0.9mm, common iron ore at 0.1-1.0mm, moderate amounts of muscovite at less than 0.1mm, sparse grog/clay pellets at up to 3.0mm. One thin-section showed a crystals of olivine at 0.1mm, and one of plagioclase feldspar at 0.1mm.

ii) Vessel forms and decoration.

Most of the Ipswich ware vessels are in the form of globular cooking pots and spouted pitchers. Wide-mouthed jars with upright pierced lugs, and bowls are also known. Bottles and lamps are rare; an oxidised bottle, in a virtually complete state, was found in trench 4801 and thought to be an imported Frankish bottle, on closer examination it was shown to be Ipswich ware (Fig. 5,17, plate 27). The fact that it was mistaken for an imported ware is not at all surprising. An almost identical so-called 'Frankish' bottle from a grave at Sibertswold, in Kent, is illustrated in Evison (1979:131, fig. 19,j). The Sibertswold pot is now lost, but was described as being a coarse earth-reddish colour; this vessel could conceivably be Ipswich ware as well.

Ipswich ware bases are usually sagging and knife-trimmed, although occasional concave examples have been found. Forms seem to be well-standardised; the everted rim type is easily recognisable. The walls of Ipswich ware vessels are considerably thicker than contemporary thrown continental pots; an Ipswich pitcher might have walls that are 8mm thick in comparison to a Badorf pitcher with walls 4mm thick. Most of the Ipswich ware vessels are undecorated, but where decoration exists, it is generally in the form of stamps, or incised lines. Vessels occasionally occur with unusual decorational elements such as face masks (Smedley and Owles 1967).

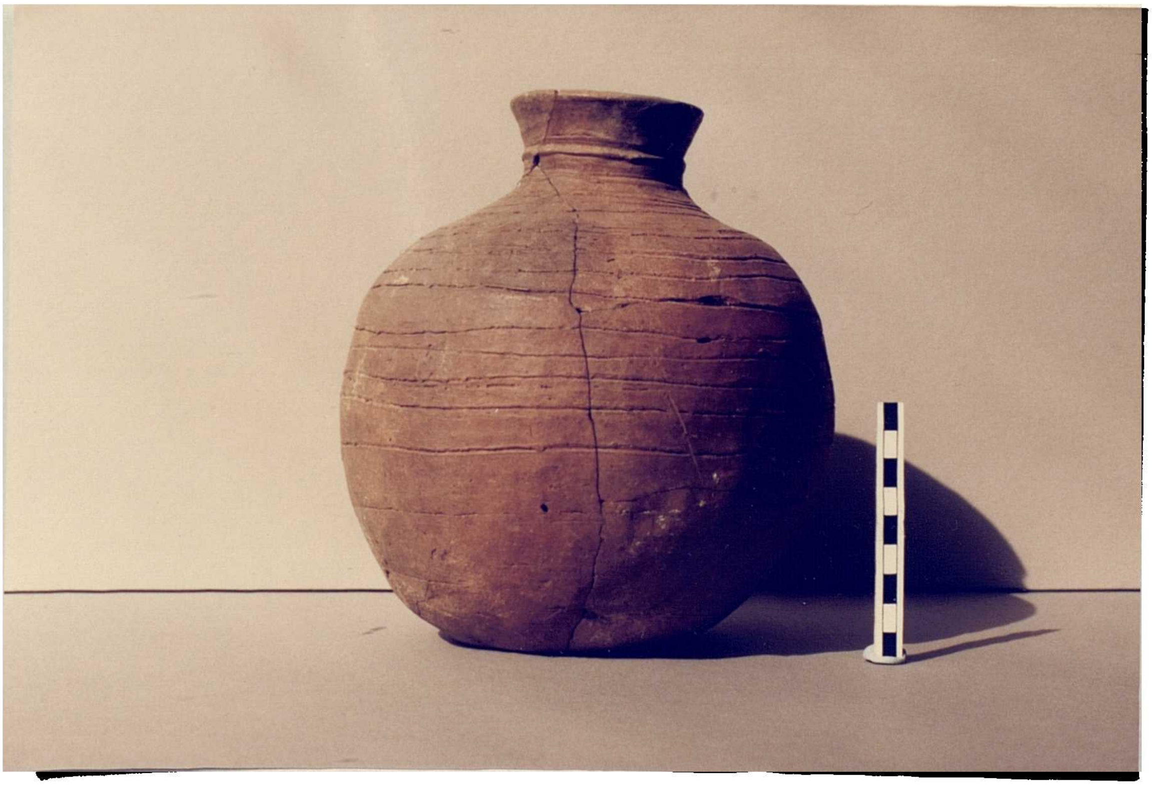


Plate 5,27 Oxidised Ipswich bottle from Ipswich

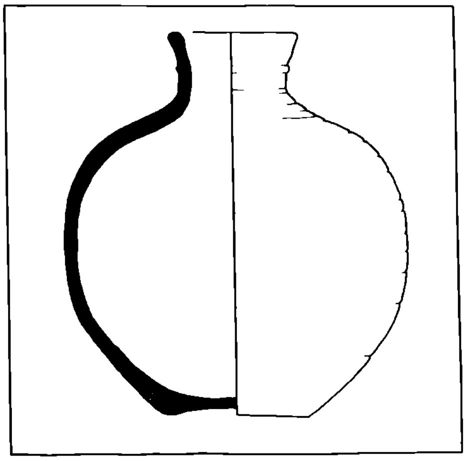


Figure 5,18 Oxidised Ipswich ware bottle from Ipswich (scale 1:4)

iii) Origins and distribution.

Ipswich ware was first recognised in 1957. Kilns producing Ipswich ware have been found within the centre of the Middle Saxon town (Hurst and West 1957:32, Smedley and Owles 1963). Very recently a new Ipswich ware kiln has been discovered in the centre of the Middle Saxon town (see *Planning*, page 7, July 29th 1988 and *British Archaeological News* 3 (6):62). The most recent kiln is located to the east of the earlier ones, and has produced some decorated bottles. Fabric variability has given rise to the term Ipswich-type ware, but kilns have not yet been discovered outside of Ipswich.

It can now be seen that Ipswich ware is distributed throughout England, albeit unevenly; and this changed picture is largely due to excavations over the past ten years. A sherd of Ipswich-type ware has been recovered from excavations in the Dark Age Hall in Carlisle (McCarthy 1979:271, McCarthy, Caruana and Keevill 1989). Northamptonshire has produced it in some quantities. There is a scarcity of Ipswich ware on Middle Saxon sites in the Fens (Hayes 1988:325), but it occurs all over East Anglia (see Appendix 1). Recent excavations in both York and London have produced large quantities of the ware. It is found as far south as Dover and Hamwic. East Anglia can still be seen as the primary market for the ware, with a much higher density within this Anglo-Saxon kingdom than elsewhere. More Middle Saxon sites have been identified in East Anglia than in all the rest of England, and this skewed distribution of sites is entirely due to the fact that Ipswich ware is widespread in East Anglia, and easily identifiable. To my knowledge it has not been found on the continent.

iv) **Dating.**

The dating of Ipswich ware is generally accepted to be c.650-850 AD. It may well have been in production from around 625, but this is difficult to ascertain (Hurst 1965:216-17). An early starting date has been suggested because of sherds of Ipswich ware having been found at Sutton Hoo (C. Green 1963) and at West Stow (West 1969b:18, 1985). The latter site was abandoned around the middle of the 7th century.

At around the middle of the 9th century, Ipswich ware ceases production, and Thetford ware, thrown on a fast wheel, is introduced. Thetford ware was produced in Ipswich, where kilns have been found (West 1963), as well as at Thetford. and other centres.

VI **Conclusion.**

The Middle Saxon period displays massive variability in ceramic evidence across Britain. Many areas, having no readily identifiable Middle Saxon pottery, have no identified Middle Saxon sites. In these areas, any imported pottery of Carolingian or Merovingian date that has been recovered from a site, even if the site can be identified as 'Early Medieval', will be labelled residual Roman, or perhaps intrusive medieval. Counties with little recognised Saxon archaeology will be unlikely to employ a Saxon specialist, and thus the situation will be perpetuated. This state of affairs was brought to my attention very sharply when I was compiling Appendix 1; the Sites and Monuments Records of Hertfordshire show us that there are no Middle Saxon sites in the county. Was the area that is now administered as Hertfordshire really unpopulated in the Middle Saxon period? Or is it more likely that settlements have not yet been identified?

In those areas where Saxon pottery is recognisable, it may not have been differentiated into Early, Middle and Late Saxon. This is frequently because such fine compartmentalisation is simply not possible for pottery dating from the 5th through to the 11th century AD. Indeed, the Saxon and Iron Age pottery may also be indistinguishable, which will further obfuscate the identification of pottery from the middle part of the Saxon period. Many of the early records for Saxon finds simply record the pottery as 'Saxon', even though it is apparent that the site is a cemetery and the vessel in question is a pagan funerary urn.

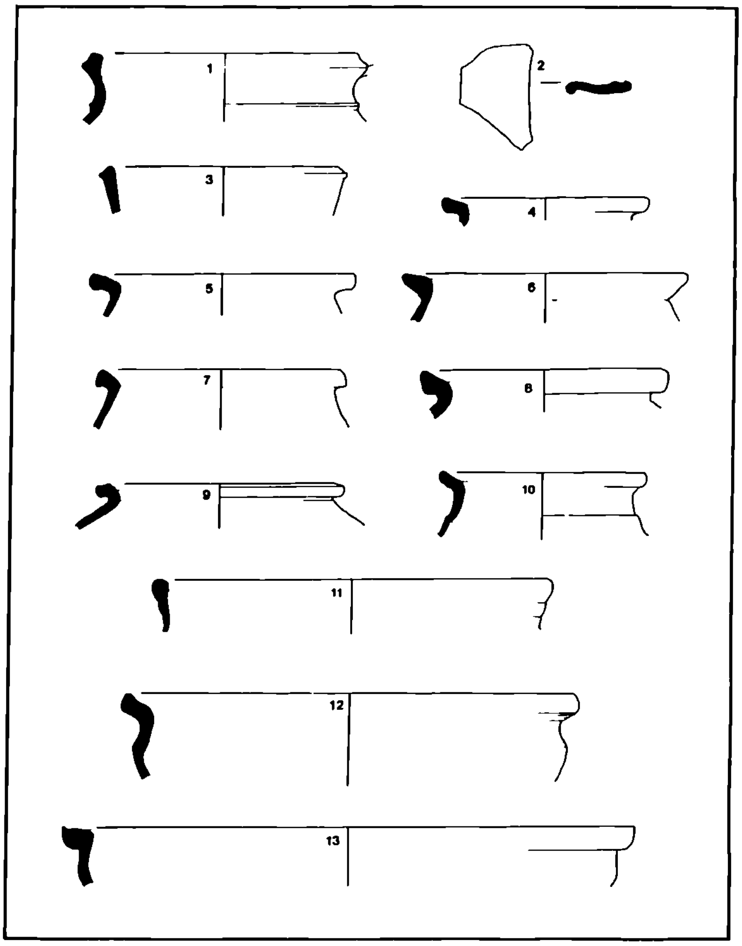
Figure 5,19 The distribution of Ipswich ware in England (drawing by Steve Webster)

In view of all of these factors limiting the identification and study of pottery of the Middle Saxon period, imports or otherwise, it could be suggested that we are waging an impossible battle. Our body of data is composed of pottery that the relevant (usually non-specialist) archaeologist cannot recognise in many instances. The insubstantial nature of the pits and postholes that represent the archaeological residue of Saxon structures makes the sites themselves difficult to recognise, thus compounding the problem of site identification.

The situation is slowly changing though. Major fieldwalking surveys in much of eastern England are identifying large numbers of Middle Saxon sites. Archaeological survey and excavation techniques are being refined, so that more sites are being recognised and dealt with adequately. Carbon 14 dating and dendrochronology are being used with much greater frequency than in the past, and may eventually allow us to differentiate between many of the blurred late prehistoric/Saxon sites, particularly in the west of England.

Plate 5,28 Stamped 7th century sherd from Ipswich

Figure 5,20 Oxidised wares from early medieval and later contexts in Ipswich (scale 1:4)



PART IV

CONCLUSIONS

Chapter 6

THE IMPLICATIONS OF THE IPSWICH IMPORTED POTTERY

CHAPTER 6

The implications of the Ipswich imported pottery

I Introduction

In Chapter 2, I described the archaeological sequence in Ipswich and in other English trading sites of the Middle Saxon period. Chapter 3 covered a number of the continental emporia. In Chapter 5 the types of pottery found in Middle Saxon Ipswich were described and discussed, with reference to similar ceramics found on other British and continental sites. This chapter will provide a summary of the sequence of ceramic types found, particularly in Ipswich and East Anglia, and attempt to assess their implications for the study of trade in the Middle Saxon period.

Two lines of approach can be taken here. One is to look at the types of pottery found, and study the density and distribution of the different types. The other is to look at ceramic changes and patterning through time. Combining the two will allow us a reasonable perspective on the patterning of early medieval pottery in Britain, although it must be borne in mind that our perspective on this is constantly changing, and thus the chances of painting a definitive picture are very limited.

Two initial problems appear immediately in this context, namely, problems of identification, and the large body of unpublished data relating to early medieval sites. Appendix 1 is a clear example of this; a substantial proportion of sites with Middle Saxon pottery in them are unpublished field-walking sites, and are thus only available by consultation with the SMR (assuming that the county records are up to date). Other sites are not recorded on the SMR, even though they are published. New finds appear constantly, and although few occur in new places surprises still turn up, eg. the Ipswich-type ware sherd in Carlisle (McCarthy *et al.* 1989).

Figures 1,1 and 1,2 show the distribution of Middle Saxon pottery found in England (without any attempt to differentiate between single sherds and assemblages), and the distribution of imported pottery of the same date found in England. Both show concentrations of pottery in East Anglia, although given the number of sherds involved we would be more accurate in referring to these patterns as evenly dispersed scatters of material within a defined area, rather than concentrations *per se*. The distributions of Tating ware and Ipswich ware show much the same patterning, although here it must be borne in mind that most of the East Anglian sherd-finds are of Ipswich ware (Fig. 5,8 & 5,19). Hodges' map of the character of the Middle Saxon pottery industry gives an entirely different impression of the distribution of Middle Saxon pottery (see Hodges 1982a:169, fig. 42). This shows the following areas as having pottery industries in the Middle Saxon period: East Anglia and the Fens, Essex, the Thames valley, the eastern half of Kent, Hampshire (centred on Hamwic), Cornwall, the Oxford area, Lincolnshire, the Whitby area, and a large area in the north-east of England between Sunderland and Alnwick, going inland to Hexham. Of the remaining part of the country, approximately one-third was seen to use pottery infrequently, whilst England west of the Pennines, Devon, and Wales were seen as aceramic. In some of these cases the mapping was more of an attempt to be predictive than an assessment of the distribution of pottery in the early 1980s. The few sherds of pottery found at Jarrow and Monkwearmouth are surely not enough to use as a base for extrapolating a 'Middle Saxon pottery industry' in the north-east of England, particularly when the pottery found at those sites are not likely to be local (although Hurst believes that the Ipswich-type ware found in the north-east is a local imitaion and not imported from East Anglia - Hurst 1976b:304). Regarding the pottery industry centred on Whitby; surely this cannot be based on the finds of Whitby-type ware there? Hodges shows the whole of the Yorkshire Wolds as being served by this industry, yet no sites are known, with the exception of Whitby, in this area. The same can be said of the Oxford area, yet within the area illustrated by Hodges there are only a few known sites, with scant handfuls of hand-made pottery; there is no evidence for a pottery industry there.

What follows here is a brief summary of the distribution of sites in Britain with Middle Saxon pottery known to date. Some of the sites included here have pottery that is thought to be 'early to mid-Saxon', or 'possibly Middle Saxon', or 7th century, in all of these cases an earlier date could be postulated.

II County summary

Avon: one possible sherd found in Congresbury.

Bedfordshire: 7 sites, mostly with hand-made pottery and some Ipswich ware. Tating ware rim from Bedford Castle.

Berkshire: 7 sites, mostly with hand-made pottery, with the exception of Old Windsor which has imports and Ipswich ware.

Buckinghamshire: 5 sites, mostly with Ipswich ware, some Maxey ware. Small amounts.

Cambridgeshire: 16 sites, mostly hand-made pottery, a little Ipswich ware and Maxey ware.

Cheshire: 2 imported sherds found in Chester.

Cleveland: No recorded pottery except for Hartlepool.

Cornwall: No data known.

Cumbria: Carlisle only, with Ipswich-type ware.

Derbyshire: Repton only.

Devon: No records of pottery.

Dorset: 2 sites, hand-made pottery, imports at Wareham.

Durham: No records of pottery.

Essex: 34 sites, hand-made and Ipswich ware pottery, mostly in small quantities. Imports and large amounts of Ipswich ware at Wicken Bonhunt.

Gloucestershire: 1 site, pottery thought to be Middle Saxon.

Hampshire: 16 sites, mostly hand-made pottery, imports at Hamwic, Winchester and Portchester Castle.

Hereford and Worcester: 5 sites, hand-made pottery.

Hertfordshire: 1 site, hand-made pottery.

Humberside: 8 sites, hand-made pottery, some Ipswich ware and Maxey ware, some imports.

Kent: 8 sites (no SMR information available, so more are likely), Ipswich ware, hand-made pottery and imports.

Leicestershire: 6 sites, small amounts of Ipswich ware and Maxey ware, some imports, mostly hand-made.

Lincolnshire: 17 sites (probably more), hand-made pottery, some Ipswich ware, some Maxey ware, some imports from Lincoln.

London: Large amount of Ipswich ware, hand-made pottery and imports in the Strand area.

Greater London: 5 sites, hand-made pottery.

Greater Manchester: No records of pottery.

Norfolk: 147 sites or parishes produced pottery, almost all Ipswich ware from field-walking, also local pottery imports at 18 of these sites.

Northamptonshire: 7 sites, Ipswich ware, Maxey ware, some imports. Large amounts of pottery at Raunds.

Northumberland: 1 site, hand-made pot.

North Yorkshire: 4 sites, Ipswich-type ware, Whitby-type ware, possibly Maxey ware, and imports. Large assemblage at York.

Oxfordshire: 6 sites, hand-made pottery, possible Maxey-type ware at Sutton Courtenay.

Shropshire: No records of pottery.

Somerset: 4 sites, a few hand-made sherds.

South Yorkshire: 1 site, 6 sherds at Doncaster.

Staffordshire: 2 sites, hand-made pottery, possible imports.

Suffolk: 56 sites, mostly Ipswich ware, some hand-made pottery, large amounts of imported pottery in Ipswich.

Surrey: 5 sites, hand-made pottery.
Sussex (East): 3 sites, small amount of hand-made pottery.
Sussex (West): 6 sites, hand-made pottery, some imports.
Tyne and Wear: 3 sites, Ipswich-type ware and Whitby-type ware.
Warwickshire: 2 sites, hand-made pottery and possible imports.
West Midlands: No records of pottery.
West Yorkshire: 1 site, Otley-type ware.
Wiltshire: 4 sites, hand-made pottery.

The distribution maps produced by Hodges (1982a:169) and myself (Fig. 1,1) are misleading in that they do not show the amount of pottery found at each of these sites. However, it might be sufficient to say that a large proportion of the sites shown on Fig. 1,1 have yielded less than 5 sherds of Middle Saxon pottery, and most of the other sites have yielded only small assemblages of pottery. It is rare for a site of Middle Saxon date to produce a large assemblage of pottery.

The picture produced by the imported pottery is somewhat similar, if even more sketchy. Imported pots dating to the Middle Saxon period occur on c.50 sites in England, of which almost half are in East Anglia. Many of these are single sherd occurrences. Assemblages of imported pottery are rare. Large assemblages occur at Hamwic, Ipswich, London and York. Other sites, such as Old Windsor, Norwich, Canterbury, Wicken Bonhunt, Waltham Abbey, Winchester, Lincoln and North Elmham have produced small, but significant assemblages of imported sherds.

What does this imply for the patterning of trade and exchange, and the mechanisms used to distribute imported pottery outside of the emporia? Firstly, the patterning emphasises how different the emporia are to other sites of the period in terms of their ceramics. Secondly, it implies that mechanisms exist for the distribution of imported pottery over wide areas, but in small quantities.

One question that immediately arises is whether there is any correlation between the distribution of Ipswich ware and the distribution of continental imported pottery within England. The answer appears to be a qualified yes. Of 51 sites with imported pottery, at least 33 also have Ipswich ware. Some of these sites, like London, have relatively large quantities of Ipswich ware. Of the remaining 18 sites, some, like Bolton Percy, are very close to sites with large amounts of Ipswich ware (York). Others such as Wareham and Portchester Castle are near Hamwic, and are most likely to be receiving their imports via that emporia. It is unusual for imports to be found both without Ipswich ware, or far from emporia. The exceptions to this are Chester, Barrow upon Humber, Sandtun and the Graveney boat in Kent, Breedon on the Hill in Leicestershire, Brancastor, Wells-next-the-Sea, and Wiggenhall St. Mary the Virgin in Norfolk, Quinton in Northamptonshire, Whitby, and Tamworth.

How do we explain the occurrences of imports at these sites? Some may have received pottery directly from the continent, others via Ipswich or other emporia. Barrow on Humber lies on the Humber on a shipping route to York, and could therefore have been a stop-off point on the way to or from York or Flixborough. The recently excavated site at Flixborough has produced imported pottery, and the fact that a quarter of the site's pottery is Ipswich ware suggests close links with East Anglia (Whitwell 1991:126). The Kentish sites could have been operating under a system of direct imports from the continent. Whitby, on the coast, with an Anglo-Saxon monastery, may have been receiving pottery directly, or through York or Ipswich. The Norfolk sites without Ipswich ware would almost certainly have been within the same system as those with Ipswich ware; all of these find-spots of imports are from field-walking, and so Ipswich ware may well have existed on the sites, but has not been recovered yet.

III Patterns of imported pottery through the Middle Saxon period

As was mentioned earlier, some of the identifications of pottery in the catalogue are tentative, and sherds may belong to the early Saxon period. Some may even belong to the Iron Age! Middle Saxon pottery types such as Ipswich ware are dated only to the broad period itself, and cannot be more finely dated within the 200 years or so between AD 650 and 850. However, it is usually possible to date imported pottery more closely.

The earliest imported pottery types that can be dated in the Middle Saxon period are Merovingian vessels, usually deposited as grave-goods. However, these rarely occur in Middle Saxon contexts, but are noted in London, Ipswich and Colchester. It is possible that these 5th-7th century vessels date to the early part of the Middle Saxon period and could therefore indicate early settlement at these sites; on the other hand they could be residual material. The next group to be considered are early Rhenish pottery types that are well-dated, such as Bornheim Waldorf pottery, Mayen ware, and Walberberg ware. These are found at only a few sites. Mayen ware has been identified at Southampton, York and possibly Whitby. Walberberg ware occurs at Ipswich. Bornheim Waldorf pottery occurs at Ipswich and Burnham Thorpe in Norfolk. In ceramic terms then, the east coast of England appears to be the main target for early Rhenish pottery, and to extrapolate from that, the main target for Rhenish trade generally.

The other main early types are the Black wares of northern France. These are somewhat more problematic, as they are more difficult to date. We can be fairly sure that some of them are early, possibly even that a large proportion of them are. Black wares are found in pre-Ipswich ware contexts (first half of the 7th century) in Ipswich, and a 7th century Black ware was found at Caistor-on-Sea. However the tradition does appear to span the 8th and 9th centuries. They are common finds in later Saxon contexts in Ipswich, which could suggest they continue into the late 9th century, although it could equally well imply residuality.

Black wares occur in large quantities at Hamwic, Ipswich, London, York, on a number of sites in Norfolk and on the east and south coasts of England. The distribution is extensive and the number of finds large. The dating of these finds is not so simple. Most of the finds occur on sites that have late 8th/early 9th century pottery such as Badorf ware and Tating ware. The Black wares could represent the whole of the period AD 600 - 900, or they could fall into the 7th and the 8th centuries. All we can say at the present time is that we know they appear before AD 650, and occur for some of the period between AD 700 and 850 (as evidenced at Hamwic). At the moment it is impossible to say if the pitchers with flanged rims, so common at Ipswich, and relatively uncommon at Hamwic, are more typical of the 7th century or not, although it is tempting to see them as such.

Badorf ware is a little easier to date. Most of the Badorf ware found in England dates to the late 8th/early 9th century. Although a small amount of early, coarse Badorf ware occurs at Ipswich. Classic Badorf ware is found at the emporia of Ipswich, London and York, and in particularly large quantities at Ipswich, but rarely at Hamwic. It occurs in small quantities on East Anglian sites, and at sites such as Lincoln, Norwich, Winchester, and Old Windsor, where it probably represents 9th century occupation. It is virtually non-existent on sites on the south coast, probably offering more insights into Frisian distribution networks of the late 8th/early 9th century than about the phasing of southern English sites. It seems that, like the earlier Rhenish pottery types, Badorf ware found its main outlets on the east coast of England.

Tating ware, as discussed in Chapter 5, is usually dated to the late/8th early 9th century, although the stylistic problems thrown up by the Tating ware vessel at Dover suggest that some of the vessels date to an earlier period. The distribution of Tating ware is surprisingly broad. It has been recognised at least sixteen sites in England, on the south coast, the east coast, and inland (see Fig. 5,8). Of those sites with Tating ware, 13 also have Ipswich ware. The ones that do not are Hamwic, Winchester, and Bedford Castle. Does this suggest that a significant amount of Tating ware was distributed from Ipswich along with Ipswich ware? It is a possibility, but it leaves open the question of how sites such as Hamwic received their Tating ware, and when. We know that Hamwic was occupied from c.700 onwards, and that current archaeological evidence suggests that there was no decline there in the last quarter of the 8th century (Brisbane 1988), so the date of the Hamwic Tating could lie in the 8th or 9th century. The Hamwic Tating ware vessels are classic examples of the ceramic type, comparable to Scandinavian finds, which suggests that they originate in the Rhineland rather than in France. However, the paucity of Rhenish finds of this date in Hamwic suggests sporadic contact with the Rhineland rather than a close trade network. The evidence seems to be mounting that Hamwic had little contact with the Rhineland during the Middle Saxon period.

The suggested dating of the Dover Tating vessel as late 7th or 8th century is not problematic in terms of the model proposed above, if we take the view that this vessel was outside of the Rhenish tradition, and perhaps originated in France, although it does of course throw more questions into the problems of the time span and place of origin of the ware.

Pottery types such as Pingsdorf wares and other red-painted wares, which start production in the middle of the 9th century, show a different distribution pattern. Although most of the Pingsdorf pottery found in Britain dates to the 10th and 11th centuries, a small, but significant amount is found in 9th century contexts. The same can be said of Beauvais red-painted pottery, which was found in a pre AD 850 dated context at Winchester. The identification of mid-9th century Pingsdorf ware, and red-painted types such as Hunneschans ware, at Ipswich, strengthens the argument for continuity of trade links with the Rhineland throughout the 9th century. The Beauvais pottery, by contrast, seems to be distributed primarily in the south of England in the 9th century.

After the 9th century, or perhaps as early as the second half of the 9th century, the patterning changes once more. The distribution of later Saxon imported pottery in Britain is much wider than that in the Middle Saxon period. Rhenish types such as Pingsdorf ware and relief-band amphorae appear to be distributed as widely in the south of England as in the east, although the number of fragments of relief-band amphorae remains low.

Other pottery types such as Hodges' Class 15, the Grey wares, have become more problematic with time. These are amongst the most common wares in Hamwic, and are found in small quantities on other sites such as Wareham, Portchester Castle, Canterbury and North Elmham. Ipswich has large amount of grey pottery, that we presume is imported, but the variability within Hodges' Grey ware class make it difficult to say whether we are really referring to the same class of pottery. Indeed, it is not common to find grey wares in Middle Saxon contexts in Ipswich. It is not even particularly common to find them in Late Saxon contexts. The earliest contexts in which they appear in large numbers are early medieval (from the 11th century). This suggests that the Middle Saxon/Late Saxon Grey wares found at Hamwic are not being distributed to Ipswich.

This is particularly interesting when one considers the fact that recent excavations in France have suggested that the kiln site at La Londe is responsible for producing much of the Hamwic Grey wares (see Chapter 5). Two distinctive La Londe pottery types occur in Hamwic and Ipswich in large quantities, one of which is micaceous. Their predominant period of use is probably in the later Saxon period, but they do occur in Middle Saxon contexts. This may suggest that certain types (the finer types?) of pottery were being exported from La Londe to the east of England during the Middle Saxon period, whereas Hamwic had a wide range of types from the kiln site during both the Middle and Late Saxon periods.

Other types of pottery occur in small numbers in Middle Saxon contexts, some of which are still unidentifiable as to their provenance.

Imports and Ipswich ware in East Anglia

Ipswich ware, although it was made in quantity in Ipswich itself, is also thought to have been made in other places. This is the reason for so much of the material being referred to as Ipswich ware. In this text, I have generally referred to the pottery as *Ipswich ware* unless there are indications that the pottery does not originate from Ipswich. This may be the case at Jarrow, Newcastle and Monkwearmouth, where Ipswich-type ware, almost identical to Ipswich ware proper, was thought to be of local manufacture. It has even been suggested that its similarity with Ipswich ware might be coincidental (Hurst 1976b:307). In all probability, it seems that we are actually seeing a distribution of Ipswich ware, made in East Anglia, in the North of England, rather than local northern imitations. The amount of Ipswich ware discovered at York in recent years, both in plain and decorated styles, implies that Ipswich ware was being exported into the north of England in some quantity; it seems unlikely that imitations would have been so close in fabric and form to the original.

In Ipswich itself, the tradition of pottery making appears to have taken off after the emporia has been set up. The small, but not insignificant amounts of imported Rhenish and northern French pottery to be found in pre-Ipswich ware contexts attests to this. The fact that imported pottery occurs before locally manufactured pottery adds weight to the suggestion that the Ipswich potters were strongly influenced by the continental vessels. It seems unlikely that the early Ipswich potters were professional from the continent, in that they did not make use of a proper throwing wheel, but simply used a turn-table. The styles appear to be more of a development of indigenous traditions than attempts at copying continental forms, though in a way that befitted domestic rather than funerary wares; decoration was used less frequently and less extensively over the body of a vessel.

The patterning of the imports through time at Ipswich is unusual compared to the other English emporia. The imports begin, in (to date) small, but significant numbers, in the form of northern French Black wares and Rhenish imports, before the development of Ipswich ware, in the early 7th century. These imports carry on throughout the 7th and 8th centuries, until Badorf ware begins to be imported in large quantities; at least 131 vessels are represented in the assemblage analysed. Tating ware occurs in small quantities, with at least eleven vessels represented. Sherds from grey-gritted Frisian *Kugeltopfen* are quite common, with at least 33 vessels represented. Later pottery types: Pingsdorf and other red-painted types, and La Londe types, are also well represented.

The pottery sequence does not indicate fluctuations in long-distance trade, but appears to show a gradual expansion over the Middle Saxon period. To some extent this might be a result of our inability to finely date 8th century wares, but it is interesting to note that recent analyses of the archaeological evidence from Hamwic suggest that the previously observed economic fluctuations in that emporia (see Hodges and Whitehouse 1983:98) are no longer apparent. This turnabout in view has been facilitated by a re-analysis of the numismatic evidence by Andrews and Metcalf (1984); the coin evidence for Anglo-Saxon England will be briefly reviewed in Chapter 7.

The end of the Middle Saxon period in Ipswich, unlike in London, Hamwic and York, does not coincide with cessation of trading and a move to a different, more easily defensible site. Instead, Ipswich grew and prospered as a Danelaw settlement, with its first defences being built in the early 10th century, possibly by East Anglian Danes (Wade 1988:97). The development from the Middle Saxon period to the Late Saxon period is indicated more by the development of the local pottery, from Ipswich ware to Ipswich-Thetford ware in the middle of the 9th century, rather than by cataclysmic change.

CHAPTER 7

CONCLUSIONS

CHAPTER 7

Conclusion

> 'Production creates the objects which correspond to the given social needs; distribution divides them up according to social laws; exchange further parcels out the already divided shares in accord with individual needs; and finally, in consumption, the product steps outside this social monument and becomes a direct object and servant of individual need, and satisfies it in being consumed' (Marx 1973:89).

1. Definitions

The past twenty years has seen dramatic changes in the archaeology of early medieval Europe. The amount of material that has been excavated and published for the Middle Saxon period in Britain, and the Carolingian period on the continent, has been staggering. It has given us the opportunity to look at the data for the early medieval period with new eyes.

To some extent, the increase in data has been, by necessity, parallelled by an increase in the number of models put forward to explain the emergence, existence, and demise of the emporia, and social and economic change within and across Europe. Whether the emporia could be classed as urban centres has been a question of debate for some time, and is closely linked with the arguments for and against continuity between Roman Britain and the development of medieval towns. One of the recent changes has been a move away from looking *for* urbanism in early medieval Europe, to looking at hierarchies and relationships between settlements. This seems to be an altogether more amenable model to that of the 'bundle of criteria' (*Kriterienbündel*) of Childe's (1950) which was used to define, as opposed to understand, the early urban centres. On the basis of his work in the Near East, Childe put forward a list of attributes that he considered essential that a settlement fulfil before we could consider it to be urban. These were as follows:

1. Population
2. Craft specialisation
3. Central authority
4. Monumental architecture
5. Developed social stratification
6. Writing
7. Exact and predictive science
8. Naturalistic art
9. Residence rather than kinship based communities

These definitions are now widely discredited, and certainly have little relevance to the settlement systems of early medieval Europe. However, still in this check-list approach, Biddle put forward a list of attributes somewhat more relevant to the early medieval period:

1. Defences
2. A relatively large and dense population
3. A market
4. A mint
5. Legal autonomy
6. A planned street system
7. A diversified economic base
8. Plots and houses of urban type
9. Social differentiation
10. Complex religion
11. A role as a central organisation place
12. A judicial centre

Interesting though these exercises in definition are, they impose otiose restrictions on our attempts at understanding the settlements. The emporia, for example, would probably score two out of nine on Childe's list, and three or four out of 12 on Biddle's. Part of the problem of using check-lists of attributes to look at a settlement is that the settlement is taken out of its larger social and geographical context. We should instead seek to value and understand the differences between settlements, whether alike or not. To do this we need to understand the context of the settlements, rather than attempting to impose definitions upon them.

2 Modelling the emporia

Hodges' use of anthropological and geographic modelling was an interesting new development in the study of early medieval settlements. His work draws heavily on the work of the geographer Carol Smith, and her analysis of regional exchange systems (1974, 1976). Smith's model was based on a spatial analysis of pre-capitalist societies, and focussed on ranking, and production and distribution. Her analysis put forward five types of production and distribution systems:

1. An extended network system where exchange is direct and wholly uncommercialised (independent tribal societies).
2. A bounded system where exchange is direct and uncommercialised and where a few scarce resources exist (feudal or chiefdom societies).
3. A solar central-place system with partially commercialised exchange through an administered market (incipient states).
4. A dendritic central-place system, partially commercialised through monopolistic markets, on the periphery of a modern economic system.
5. Interlocking central-place system, with a fully commercialised, competitive market.
(see Hodges 1982a:16-17).

Hodges employed her model to look at early medieval settlement hierarchies, using, in particular, the concepts of dendritic central-place systems, solar central-place systems, and competitive market systems. For the Middle Saxon period, Hodges argues, the emporia acted as dendritic central-places, with some of them becoming solar central places (1982a:25). Competitive markets emerged after the middle of the 9th century.

It is worth reiterating the argument made by Hodges for the development of the emporia, if only because the definitions made by him in 1982 appear to be becoming used fairly extensively.

Phase 1

After the collapse of the Roman empire, during the 5th and 6th centuries, settlements within England had only a limited settlement hierarchy. Settlements were largely self-sufficient, with an emphasis on the domestic mode of production. Prestigious objects for funerary rites had a limited circulation. Exchange would have largely been in the form of gift-exchange, with the purpose of creating and establishing social and political ties.

Phase 2

In the late 6th and early 7th century the first emporia were established. These took the form of periodic market places like Ipswich (Hodges refers to these as type A emporia). Throughout the 7th century this coincided with a massive expansion of power within the Church, and a flurry of church and monastery building. The Church began to exact tribute from its people. Palaces *were also built, and we see the last of the monumental* Anglo-Saxon burials such as Sutton Hoo.

Phase 3

In the late 7th and early 8th century the system changed once more. Permanent trading sites (what Hodges refers to as type B emporia) were planned and set up, such as that at Hamwic. (Hodges actually maintains that a periodic market was precursory to the permanent settlement, but recent excavations strongly indicate that this is not the case, rather that the site was meant for permanent occupation from its instigation at about AD 700). These permanent sites would have had large populations, and engaged in large scale production of a wide variety of commodities, as well as being the 'gateway' through which imported goods came into the region. Coinage appears to have been used within these sites in a controlled way, that is, not as money proper, but as tokens for use solely (or primarily) within the settlement.

Phase 4

In the late 8th and early 9th century the emporia appear to go through another period of expansion. Permanent trading sites probably existed at Ipswich, London and York, as well as Hamwic. Planned villages appear and production of commodities increases.

Phase 5

In the middle of the 9th century the emporia system breaks down over most of the country. Part of this must have been due to the Viking attacks on the vulnerable coastal sites, but it seems likely that settlements such as Hamwic were declining **before** the Viking attacks. Other sites, such as Ipswich, continued to flourish.

3 Modes of production, means of exchange

Hodges more recent work has drawn back somewhat from Smith's model, with a concomitant disillusionment with Marxist analysis of pre-capitalist societies (see Hodges 1988a, 1988b, 1989). Instead, he draws on the models for pre-capitalist modes of production put forward in Wolf's *Europe and the People without History*, namely the tributary mode of production and the kin-based mode of production (Wolf 1982). During the Middle Saxon period we can see the rise and development of the tributary mode of production, with the division of the population into surplus producers and surplus takers. Society starts to become administered in a more controlled*, coerced, state-like* fashion (Wolf 1982:99). However, much of the country would have maintained strong elements of the kin-based mode of production, under the rule of charismatic chiefs, and restricted control of the population by the elite. Rather than class replacing kinship, as Hodges (1988:4) maintains, a social division based on status and wealth becomes part of the dominant ideology, whilst maintaining a kin-based system within the social strata.

Between the collapse of the Roman empire and the end of the first millenium AD, we see a shift from a social order based on gift-exchange, to one in which gift-exchange is subsumed under a system that uses restricted commodity exchange. Gift-exchange is still a strongly embedded part of the social system, but we also see an increase in goods entering the system via alienated mechanisms. As stressed in Chapter 1, gift-exchange strengthens and maintains social ties, most commonly within kin-groups, but also between non-kin social equals (who once the gift-exchange pattern has been established, are likely to become kin through marriage or adoption). As the social distance between the exchange partners increases, or, as Sahlins terms it 'kinship distance' increases, so the shift comes from the exchange of gifts to the exchange of commodities (Sahlins 1974:185-276).

The theoretical problems of analysing gift-exchange and commodity exchange have been lucidly addressed by Gregory, who carried out his research into the complex and variable economics of Papua New Guinea (1982). Competitive gift-exchange is only one of the social mechanisms employed to establish political authority in Papua New Guinea, but it is the one to which we shall address ourselves here. Gregory draws on the Marxist precept that 'commodity exchange is an exchange of alienable things between transactors who are in a state of reciprocal independence.' (Gregory 1982:12). The theory of gift-exchange owes much to seminal works such as Mauss's *The Gift* (1925), which arose out of detailed analysis of anthropological data. Mauss came to the conclusion that 'it appears that there has never existed, either in the past or in modern primitive societies, anything like a 'natural' economy.', that is, one which produces solely for subsistence and not for exchange (Mauss 1925:3). Mauss stressed the inalienability of things exchanged in a gift-economy, whereby 'the indissoluble bond of a thing with its original owner' means that 'the alliance contracted is not temporary, and the contracting parties are bound in perpetual interdependence' (Mauss 1925:62). The giving of gifts creates debts, which have to be returned by the reciprocation of gifts. The aim of the gift-giver is to amass as many debtors as possible in order to maintain a superior social position in relation to the other individuals. This could occur in instances between individuals, such as Offa or Charlemagne and lesser kings, or between communities, such as between Han China and the northern barbarians (Curtin 1984:92-3). In either case, an unpayable debt is created by the gift-giving, that reinforces the giver in the superior social position.

The contrasting elements of gifts and commodities

Gift-exchange	**Commodity exchange**
inalienable gifts	alienable commodities
reciprocal dependence	reciprocal independence
values	prices
social returns	financial profit

Godelier was one of the first to point out the crucial factor that a single object may be exchanged as a gift within a tribal community and as a commodity outside of it (1977). The corollary of this is that commodities can arrive from outside of a community, and then be exchanged as gifts within it. Such a transformation may have been apparent in dealings in and out of the emporia. Bohannan further made the point that the gift-economy operates on many spheres of exchange, whereas commodity exchange only operates on one (1959).

One of the ways to restrict the source of gifts is to control trade, and this has been suggested a number of times as an important function of the emporia. As Gosden has pointed out 'People with privileged access to gifts coming in from outside the group can impose debt through giving gifts which cannot be repaid in kind.' (1989:362). These traded gifts may be useful, or even necessary, for socially important occasions, such as marriages, or for ceremonial purposes. Another means by which social debt could be created would be to restrict access to the means of producing prestigious goods. This would include all forms of metal-working, glass-making, and perhaps bone-working. It would include, if not utilitarian cloth-production, then fine textile work, embroidery, lace-making, and other decorative-cloth arts. The materials for much of these crafts would be restricted by natural scarcity or the necessity to import them, and the skills needed to learn and pass on the crafts would be closely guarded and treasured. Theophilus tells us, for example, that glass-making was considered to be a supreme skill, and was held in the highest esteem in early medieval Europe. Certainly the scarcity of evidence for glass-production in this period would bear this out.

The high level of craft production that is apparent at the emporia, and on certain other 'industrial' sites such as Ramsbury (Haslam 1980), Millbrook (Tebbutt 1982), Catholme (Losco-Bradley 1973, 1977), Burrow Hill (Fenwick 1984), and on monastic sites like Brandon and Flixborough (Carr *et al.* 1988, Whitwell 1991), suggests that production was controlled. Historical accounts suggest that the production of fine clerical garments, in rich cloths with ornate embroidery, was carried out by noble women, frequently from within monasteries, and these garments, along with altar cloths and other sumptuous items, would be given as gifts to the church or church leaders (Riché 1978:163-4).

'Division of labour could be used by those in charge of craft production to maintain people without direct access to production in a state of subordination and indebtedness' (Veyne 1990:5).

In the early medieval period, gift-giving was a prominent means of establishing social hierarchy and with it the relations of dominance and control. Treasures were sought after and accumulated by the elite.

> 'The aristocracy did not accumulate these luxurious objects in their treasuries for aesthetic pleasure alone. They were acquired ultimately to enable noblemen to make gifts. Generosity was deemed to be a quality of nobility as, inversely, avarice was, along with cowardice, considered to be an aristocrat's most grievous fault. To celebrate births, marriages, and political alliances, a man would open his treasury and

> await the reciprocal generosity of his counterpart.' (Riché 1978:73).

The establishment of the emporia, as stressed in Chapter 1, created settlements whose primary role was to produce goods and control trade; they were settlements that were outside of the normal social run of things. These 'socially neutral' settlements were liminal, that is, they acted as the threshold where gifts became commodities, where the inalienable became the alienable, and vice versa.

4 Levels of production and exchange

Three spheres of exchange can be postulated for Middle Saxon England. The first is long-distance trade, which we have dealt with in some detail. The second is regional exchange, and the third is local exchange. Some of the goods would have been transferable between the spheres. Others would change their meaning, between commodity and gift, as they passed from one to another. The three spheres would have largely dealt with different goods, and different levels of production.

Let us take the first level as that which involves prestige goods. Not all of these goods would have been the product of long-distance trade, but a significant proportion of them would have. This would have been the smallest percentage of goods exchanged, but it would have been of high social importance. It can be seen to form the top 5% of exchanged goods, if the imported ceramics can be taken as an indicator of relative volume. This group of materials would have included fine jewellery, exotic objects such as cowrie shells, spices, rich textiles, wines, armoury such as swords, glass vessels and enamelled objects, and fine ceramic vessels. Much of these would have been produced by skilled craftsmen and women in Anglo-Saxon England and Carolingian Europe, as well as from further afield. The group might also be taken to include the labour of these craftspeople; glaziers, sculptors, painters, and jewellery makers would have had valuable skills that could be 'given' as gifts. It might also have included archaeologically undetectable groups such as bards, musicians, linguists, and scribes. The control of production and exchange would have been of critical importance here, to ensure the propagation and maintenance of power structures.

The second level of exchange would have included the more utilitarian items that were being produced in the emporia and elsewhere. This would have included leather-work, cloth, pottery such as Ipswich ware, metalwork such as belt-buckles, keys and other fittings, quernstones and hones, stone-carvings, bone-work, carved wood, basketry, and so on. The archaeological evidence for these activities abounds in the emporia, and to a lesser extent on monastic sites. These goods might be seen as being produced both for long-distance exchange and for exchange at a regional level. English wool and textiles would have been bound for overseas markets, as well as to those within the region, whereas Ipswich ware, although it travelled long distances within England, was essentially serving its region.

The third level of exchange would have been that involving bulky, agrarian produce. This would, for the main part, not have travelled long distances. Although animals such as sheep and cattle may have travelled on-the-hoof for some distances to be exchanged. It is impossible to ascertain archaeologically the extent of a trade/exchange system in subsistence materials, and the documentary sources fail to shed much light over the problem. Riché mentions that salt, wheat, iron and wine were *primary commodities* within the Carolingian empire (1978:113). In Hamwic, the archaeology suggests that foodstuffs were being brought in from outside of the settlement, whereas the evidence from some other emporia indicates on-site production. Ipswich is presumed to have been a consumer rather than a producer of food (Wade 1988:97).

Whatever the extent of the three levels of trade, we can be certain that they all took place within the emporia. The rich archaeology of these sites has upturned traditional historical thinking about the Middle Saxon period. The most noted evidence until recently has been that of the imported material. in part this has been due to the rarity value that is placed on such materials archaeologically, but it is also a factor of the small, and therefore quickly analysed, nature of the assemblages. The stories that can be told by the animal bones and the local pottery are much slower in the telling, but potentially of greater importance. Research and analyses of material from the English emporia, in conjunction with interpretations of the building remains and changing settlement patterns, reveal that, first and foremost, the sites were production centres.

5 The problem of coinage

The use of coinage within some of the emporia is documented by large numbers of sceattas. But quite how the coins were used is very much open to debate. As Vince points out 'Trade can take place without coins and coins can be minted for non-economic purposes...' (1988:85). There are three basic proposals to explain the use of coins in Middle Saxon England; the first is that the emporia, and the whole of the area that the coins have been found in, were operating under a monetary economy, with the attendant alienation of goods described above. The second argument is that the coins were used as money within the emporia, but not outside of them. The third argument is that coins were a medium for long-distance exchange within the emporia, and were also used in major transactions such as the payment of bridewealth or *wergeld* outside of the emporia.

Coins are found outside of the emporia (see Hodges 1989:75, fig. 21), but either in much smaller numbers or in what appear to be hoards. It is difficult to assess quite what the distribution of sceattas is across the country; metal detector users are recovering large numbers of coins from arable land in, for example, Lincolnshire, which never come to the attention of archaeologists. Thus the archaeological assessment of sceatta distribution might be rather inaccurate.

David Metcalf regards the presence of sceattas on sites of this period as incontrovertible evidence of a monetary economy (Metcalf 1974, 1977, 1984, 1986). He believes that coinage use in the 7th, and particularly the 8th century, was no different to that in the 10th and 11th centuries; he bases this hypothesis on the similarity in distribution patterns of 8th century coins and 10th/11th century coins (Metcalf 1984). Metcalf has also argued that by looking at the distribution of sceattas across Europe we can chart the balance of trade between countries. He suggests that the analysis of early medieval coinage in Europe is of particular interest, as it shows 'the principle direction of cross channel trade, or more precisely as showing those regions on the Continent with which England had a balance of trade surplus.' (Metcalf 1984:28). He suggests that during the earliest period of sceatta use, England was running at a balance of payments deficit, with more English sceattas ending up on the continent than vice versa (*ibid*:30).

It is a little difficult to come to terms with the idea of an 8th century monetary economy when one considers that the total (known) number of sceattas recovered in Britain amounts to only a few thousand coins, and only one denomination of coin appears to have existed. Given that the sceattas were made of silver, it is unlikely that they would have been used for anything other than important transactions (as special-purpose money in Polanyi's terms), which suggests that the majority of transactions did not utilise coins. It would therefore seem unlikely that the 7th to 9th century Anglo-Saxon economy worked with a monetary economy in the modern sense.

Different areas of the country produce different pictures of sceatta use. The various series of sceattas have markedly different distributions, some being widespread, others being confined to kingdoms or individual emporia. As has already been mentioned, Hamwic's series H type rarely occurs outside of that emporium. Northumbrian sceattas appear to be confined to Northumbria and the adjacent kingdom of Lindsey. East Anglian (series R) sceattas do not appear to circulate outside of that kingdom (Metcalf 1984, 1988).

Precisely how they were used is difficult to assess. Their relative abundance in the emporia indicates that they were part of the long-distance trade system. One suggestion might be that they acted as credit slips, or tokens, in much the same way as chips act in a casino. Traded goods being brought in would be exchanged for coins in the emporium, with the king or the king's representative being directly responsible for these transactions. The coins would then be exchanged for other goods within the emporium. The emporium would act as a company shop, where goods were produced and sold to people, and where a high degree of control could be exercised over all transactions. Any surplus coins being taken away could be seen as signifying the subordinant position of the coin-taker, as they were carrying away the symbols, and the proclamation of control over an area, of that king or region. If this were the case, it would reverse Metcalf's hypothesis about the relative positions of England and the continent; if English coins were moving onto the continent in numbers in excess of those that are found here, the visible power of the English kings could be seen to be more apparent abroad.

That they are found on sites all over northern Europe reinforces the view that their primary function was as a medium for long-distance trade. English sceattas are found in the Rhineland, at Dorestad and Domburg, Frisian sceattas are found at virtually every emporium, Dorestad sceattas are found at Ribe and York. The close links between the various Merovingian mints is shown by the standardisation in the gold content in the 7th century, a trend which crosses the channel to England (Vince 1990:111).

Law codes indicate that coins were also used in the payments of fines, or, at least, that fines were measured in coin. It might be that this was a measure of equivalent worth that could be applied to all manner of goods, property or livestock. The Sutton Hoo hoard of gold coins exemplifies the peculiar nature of coins and their symbolic value in the early Middle Saxon period, with selected coins from mints all over France making up the assemblage, presumably attesting to cross-channel connection between the dead king and individuals or groups in 7th century Gaul.

The earliest Anglo-Saxon coins were imitations of Frankish tremisses, and these fine gold coins appeared to have ceased production at c.650, followed by a debased gold coinage in the third quarter of the 7th century. The first sceatta mintings appear to date to the last quarter of the 7th century, with a limited distribution around Kent and the south-east of England, with a more important secondary series being minted in the 720s. Sceattas went out of use in southern England in about 750. In c.760 in East Anglia, Beonna started to mint coins, apparently based on the Carolingian *denier*, suggesting close connections with the Carolingian world. In the 780s Offa began minting coins (pennies) in large numbers.

In the third quarter of the 8th century there may have been a lull in coin use in England. Richard Hodges believes that there was a trading peak in Ipswich in the early 7th century, followed by a decline in the 630s, and a concomitant revival in trade in the secondary sceatta phase during the 8th century (Wade 1988:97). The paucity of sceattas at Ipswich does not allow us to corroborate this; coins *appear* to have two 'peaks' in usage, in the mid-8th century and at c.900, but the number of coins involved means that economic extrapolations are invalid.

Recent work has suggested that the time period between sceatta use and penny use was in fact shorter than originally assumed, and that coins were in continuous use throughout the 8th century in East Anglia (Archibald 1985). The quantity in circulation appears to change through time, but again, this is something that is difficult to assess properly. At any given time, large numbers may have been re-hammered or melted down for use as the raw material for new coins or silver jewellery, thus passing out of the their original coinage system. Sceattas may well have been only part of the economic system used in the emporia. It could be hypothesised that coins were used for only for exchanges of long-distance goods, or even for certain types of long-distance exchanges, whereas the majority of transactions that took place did not involve coins. Given the apparent low level of sceatta use it seems most likely that this was the case, with expansions and contractions of coin use, and changes in the spheres in which they could be used, through time.

How does the economic picture suggested by coinage during the Middle Saxon period compare with that for imported finds and other aspects of the archaeological record? To some extent this hinges upon the dateability of the finds. Imported pottery of the late 8th or early 9th century is readily recognised and dated. Pottery dating to, say, AD 750, the time of the supposed sceatta decline, is not. The majority of the Ipswich glass fragments are thought to date to the 8th century and later, on the basis of similarities with material in Scandinavia and the Rhineland, but dating it more finely is fraught with difficulties.

Ipswich, it appears, began as a trading centre about a century before the other English emporia. Hamwic was established during the period of sceatta use, but Ipswich well before that. Ipswich is generally dismissed from discussions as being a periodic market or fair until the late 8th century, because of the lack of structural evidence so far uncovered by excavation. However, even if trade was carried out only periodically we still have the problem of how trade/exchange was carried out. If coins were not readily available as a trading medium until the 8th century, what was used in Ipswich and other periodic markets beforehand? Rigold has defined a phase of gold coin use at the very end of the 6th and the first quarter of the 7th century, as being the 'Sutton Hoo' phase (Rigold 1975:658). At this time East Anglia and the Thames valley, as well as east Kent, had a limited number of gold coins in circulation. Most of these were continental, but Anglo-Saxon coins were being produced. These coins were frequently made into jewellery, so it is clear that their use was not restricted to exchange. However, the question must arise as to whether they were being used as mediums of exchange in early Ipswich, and if so, would this explain their occurrence in East Anglia? We might be able to postulate a gradual shift in the emphasis of coin use from the gold coins of the early 7th century as primitive valuables, to the late 7th/8th century sceattas as primitive money, to late 8th/9th century pennies as early cash, to use Dalton's terminology (1977). Such a model concurs well with the archaeological evidence for the development of the emporia. The beginnings of the emporium at Ipswich, as at other periodic markets, was embedded in gift-exchange. This developed into a more regulated system through the 7th century, perhaps spurring on the development of sceatta coinage for increasing long-distance trade. The late 7th and early 8th centuries, saw the development of permanent market sites, and probably an increase in the number of periodic markets. The late 8th and early 9th century saw increasing regulation of the emporia, with a possible boom in trade at around this period, coinciding, perhaps, with an increasing use of coins for market transactions.

Looking at the coinage, the patterning of imported goods, and the development of Ipswich is a tantalising exercise. Perhaps most importantly it exemplifies the range of contacts between groups and individuals in the early medieval world. As Bakka so succinctly put it, trade is part of the concept of contact (1971:37). This contact is documented by the artefacts that passed to and fro across Europe, and further afield. The artefacts can be seen as the primary indicator of the passage of knowledge and ideology across Europe, as a precursor to more concrete evidence in the form of architecture and settlement change.

The archaeology of the early medieval period is thus helping us to fill-in and reassess the skeleton outline presented to us by the documentary evidence of the period. The unwritten history of Anglo-Saxon England and Carolingian Europe is slowly being uncovered by the spade.

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APPENDICES

Appendix 1: SITES AND THEIR POTS IN SAXON BRITAIN

Catalogue of Middle Saxon sites with pottery in England.

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Key:
ES = Early Saxon
MS = Middle Saxon
LS = Late Saxon
MA = Medieval Archaeology (journal)
SFB = Sunken floored building
HM = Hand-made
WM = Wheel-made
SMR = Sites and Monuments Record number

This gazeteer was originally based on the gazeteer of Anglo-Saxon domestic sites provided by Philip Rahtz in *The Archaeology of Anglo-Saxon England* (Rahtz 1976), and much of the information is gained from there. Much of the other material has been gleaned from the 'Medieval Britain and Ireland in 19XX', compiled by the staff of *Medieval Archaeology*, this is represented by the initials MA, the year and the page number. I have analysed a number of the pottery assemblages myself, and further, unpublished, information has been passed on by friends and colleagues. Additional work was carried out between 1989 and 1991 on the Sites and Monuments Record of most of the counties of England. Although this gazeteer is by no means fully comprehensive (I do not consider the western British types such as E ware for example (see Thomas 1954, 1959, 1981, for information on the Mediterranean imports into western Britain), it provides an indication of the distribution of Middle Saxon sites that have produced pottery, particularly in the past 20 years.

Counties covered: (* indicates that the county SMR records have been checked, information from the other county SMRs was requested but never received).

*Avon
*Bedfordshire
*Berkshire
*Buckinghamshire
*Cambridgeshire
*Cheshire
*Cleveland
Cumbria
*Derbyshire
*Devon
*Dorset
*Durham
*Essex
*Gloucestershire
Hampshire
*Hereford and Worcester
*Hertfordshire
*Humberside
Kent
Lancashire
*Leicestershire
Lincolnshire
London
*Greater Manchester
*Norfolk
Northamptonshire
*Northumberland
*North Yorkshire
*Nottinghamshire
*Oxfordshire
*Shropshire
*Somerset
*South Yorkshire
*Staffordshire
*Suffolk
*Surrey
East Sussex
*West Sussex
*Tyne and Wear
Warwickshire
*West Midlands
*West Yorkshire
Wiltshire

It should be pointed out that the county boundaries used are those created in 1973, which were in use until the Conservative abolition of the Metropolitan County Councils in the late 1980s.

Avon

Congresbury ST 43 34
One possible MS sherd found (Rahtz 1974:113).

Bedfordshire

Bedford TL 04 49
Peacock's Lane and Salvation Army sites - residual MS pottery found. (Hassal 1983b:37). Empire Cinema - 6 HM MS sherds found, earliest C14 date = 850+80 (Hassal 1983a). Bedford Castle - Tating ware rim sherd found, originally identified as medieval (Author's identification, originally published in Beds. Arch. 13, (1979) as Type 48). 14 sherds of Ipswich ware found in Bedford, mostly from the castle site (Anna Slowikowski pers.comm.).

Elstow Abbey TL 049 474
MS pottery found during excavations (SMR no. 262).

Harrold SP 953 573
AS cemetery 7th-9th century date producing pottery including some Ipswich-type ware (SMR no. 64, Eagles & Evison 1970).

Harrold Pit SP 956 568
Odell - Five wells of late 7th-8th century date found during excavation of multi-period site, produced HM MS pottery in a black gritty fabric (SMR no. 543, Dix 1980:18).

Leighton Buzzard, Grove Priory SP 923 226
Saxon ditches, concentration of MS pottery, some decorated (MA 1985:163).

Newton Bromswold TL 002 661
MS pottery found during fieldwalking (SMR no. 4422).

Ravensden TL 072 566
1 sherd MS pottery found during fieldwalking (SMR no. 1827).

Berkshire

Bradley's Pit, Brimpton SU 564 652
Twenty 8th century sherds (grass-tempered) found (SMR no. 1234.01800).

Coley Park Farm SU 7066 7199
ES-MS pottery found in organic layer (SMR no. 2539.02502).

Lambourne SU 328 791
2 sherds of (?) MS pottery found during watching brief (SMR no. 2709.1200).

Old Windsor SU 991 746
M-L Saxon palace estate, with houses, SFB's, mill, huge ditch. Tating ware, Pingsdorf ware, Badorf ware, Ipswich ware, HM grass-tempered. (SMR no's. 347.30001, 347.40001, 347.40002, Coutts & Hodges typescript, Dunning et al. 1959, fig.4, Hodges 1981a:40, Hope-Taylor 1958, Hope-Taylor 1962, Wilson & Hurst 1958:183-5).

Riverdene, Cookham SU 897 856
ES-MS vessel found in trench C of excavation (SMR no. 520.03201).

Wraysbury TQ 009 739
Variety of fabrics, local clay sources, 8th, 9th & 10th centuries (SMR no. 36.01410, Astill & Lobb 1982).

Maidenhead SU 8918 7903
8th century grass tempered pottery found (SMR no. SU 1807 9030).

Buckinghamshire

Chicheley SP 90 46
MS pottery found in excavation, including Maxey ware (Farley 1980:92-104).

Great Linford SP 862 411
'Pennyland' Saxon settlement (mostly ES, some MS), MS pottery assemblage includes large storage jar and bowl with upright pierced lugs. Shelly fabrics, some Ipswich ware (MA 1982, MA 1982:166, Bob Williams pers. comm.).

Prebendal Aylesbury SP 82 14
Ipswich ware recovered from excavations, wheat found in Saxon contexts (Moffett 1989).

Walton Lodge SP 82 13
Ipswich ware recovered from excavations (Farley 1976, 1987:35).

Wolverton Turn SP 81 41
Excavation of Roman enclosure produced ES and MS material, including decorated Ipswich ware (Bob Williams pers. comm.).

Cambridgeshire

Cottenham TL 467 698
Bullock's Haste - AS flint-tempered pottery found (SMR no. 05503a).

Castor *TL 137 999*
Finds scatter covering 30 acres, abundance of pottery (SMR no. 00916).
TL 12 98 area north of churchyard produced evidence of MS occupation, timber buildings, hut and pit, Ipswich ware and continental pottery (SMR no. 01870b).
Elmlea (TL 125 986) - MS cess pit and ditch with Ipswich ware, Maxey group III, Stamford ware. Two SFBs, over 80 MS sherds dated to AD 655-870 (SMR no.s 01873c, 00646).
Old Rectory - MS ditch (MA 1983:167-8).
SFB, suggested site of nunnery of St Kyneburgha at TL 125 984. 8 Black ware sherds found associated with Ipswich-type ware, organic-tempered material and shell-tempered pottery. Probable Tating base fragment, rim sherd of La Londe type (originally identified as Trier type by Hodges). (MA 1972:158, Addyman 1964:22, Hodges 1981a:43).

Conygeare TL 181 597
A ?7th century bottle-vase found at the site of a late pagan cemetery (SMR no. 00392).

Elton TL 0835 9385
Ramsey Abbey Manor - a little possible MS pottery found, predominantly ES and Saxo-Norman (SMR no. 05577b).

Foxton TL 4072 4884
Excavation in 1921 revealed inhumations burials and a WM food vessel (SMR no. 03989).

Glinton TF 147 060
Three concentrations of AS sherds.
Peakirk road (TF 156 057) - 45 AS sherds, suggesting a MS site near the village (SMR no.s 02182a, 02179b).

Haddenham TL 4697 7557
Hinton Hall - excavation found two fragments of Ipswich ware amongst later Saxon material (MA 1979:189, SMR no. 05795a).

Holywell cum Needworth TL 345 722
Scatter of MS pottery including rims and bases, all HM, much shelly ware, some flint-tempered (SMR no. 03711a).

Huntingdon TL 238 718
AS pot of 8th/9th century date found (SMR no. 02606).
High Street (TL 236 719) - excavations produced 8th/9th century pottery (SMR no. 02605).

Maxey TF 124 081
E-MS village/estate covering large area. Postholes, SFBs, pits, framed buildings, latrines, cellars, querns. Distinctive HM pottery, 7 fabrics recognised (Maxey ware) (Addyman 1964).

Old Weston TL 093 770
Field walking produced early MS pottery (SMR no. 00361).

Orton Hall Farm TL 16 96
Saxon settlement, ES pottery (Walker 1978).

St. Neots TL 182 602
Barclays Bank/Boots/Woolworths area - many skeletons, 7th/8th century sceatta and contemporary pot found in a ditch under foundations of a 10th/11th century wooden building (SMR no. 00551).

St. Neots Priory TL 181 603
AS pottery and a 7th/8th century sceatta found under monastic foundations (SMR no. 005488).

Stonea Grange TL 449 937
Roman-Saxon site, 5th-7th century pottery, 2 kilns, posthole structures (MA 1983:170, MA 1984:174, SMR no. 06057c).

Stretham TL 5337 7265
Dimmock's Cote - pre-conquest hut site with ?8th/9th century pottery (SMR no. 06927).

Werrington TF 177 039
MS site discovered with pits, postholes, hearths. Maxey Group 3 pottery. (SMR no. 00498).

Cheshire

SMR indicates that virtually all Cheshire Saxon ceramics are LS Chester ware.

Chester SJ 40 66
Lower Bridge Street - 2 Carolingian red-burnished sherds (Hodges 1981a:43, Mason 1985)

Cleveland

SMR has no record of MS pottery in this county.

Hartlepool NZ 526 338
MS monastic site with gritty MS pottery (Cramp & Daniels 1987, Hurst 1976b:306).

Cumbria

Carlisle NY 401 560
Blackfriars Street - Timber building, MS well, 1 sherd of Ipswich ware, 3 Stycas (MA 1984:178-9, SMR 05067, McCarthy 1979:271, McCarthy *et al*. 1989).

Derbyshire

Repton School SK 303 272
Viking mass burial, 9th century coins, Eifel querns, rich collection of MS material (MA 1983:172-3, MA 1985:168).

Devon

SMR has no record of MS pottery in this county.

Dorset

Cranbourne SU 058 132
Penny's Head Mead - MS occupation debris found during excavation (MA 1988:240).

Wareham SY 923 877
Some MS and LS pottery, Grey ware rim (Hinton & Hodges 1977, Hodges 1981a, RCHM 1959).

Durham

The SMR give no indication that there is any Middle Saxon pottery in County Durham.

Essex

Arkesden TL 4643 3541
Four grass tempered sherds and one Ipswich ware sherd found in field survey (SMR no. 6633).

Beaumont-cum-Moze TM 190 247
Lower Barn farm - EM site - pottery from surface collections included one sherd of Ipswich ware and some Thetford ware wasters (SMR no. 7406).

Beaumont Quay TM 1900 2385
Pottery collected from field survey included Ipswich ware and HM pottery (SMR no. 7410).

Bradwell TL 80 23
Ipswich ware dated to after c.654 (West 1969b).

Bradwell-on-Sea TM 031 083
Shell-tempered sherds, Ipswich ware, grass-tempered pottery and Stamford ware found (SMR no. 0035).

Braintree TL 7528 2278
Hunnables Gravel pit - Possible MS pottery found in the 1920s - veg-tempered and sand/veg-tempered (SMR no. 6307).

Bridge Green TL 4595 3670
One possible sherd of Ipswich ware found in field survey (SMR no. 6650).

Chelmsford TL 709 070
E-MS pottery found in a ditch fill (MA 1990:173).

Chignall TL 675 109
EM or earlier sherd found in fieldwalking (SMR no. 1063).

Clacton TM 1568 1311
Saxon pottery found that could be ES or MS (SMR no. 2868).

Colchester TL 995 251
SFBs, bone comb, substantial quantities of 5th-8th century pottery (MA 1982:182, Crummy 1980).
Old Heath - 5th-7th century Merovingian Biconical vessel found (Evison 1981:21, Evison 1979:40).
Cups Hotel Site - Ipswich ware found (John Cotter pers. comm).

Danbury Camp TL 779 052
E-MS site with a small amount of pottery. (SMR no. 5610, Morris & Buckley 1978:27).

Elmdon TL 4629 3630
Grass-tempered pottery, sand-tempered pottery and two sherds of Ipswich ware found in field survey (SMR no. 6660).
TL 4690 3645 - Rim of Saxon vessel found (SMR no. 3891).
Wendon Lofts (TL 4359 3671) spread of Saxon pottery similar to that at Waltham Abbey found (SMR no. 3979).

Great Wakering TQ 94 87
Spouted vessel with lug and lattice/stamped decoration, thought to be MS (SMR no. 11002).

Great Waltham TL 6980 1320
Dickeymoors - Excavation has produced a pottery sequence from the 5th to the 9th/10th century (SMR no. 1115, Eddy 1981:52).

Harlow TL 470 125
Goulds Timberyards - A-S pottery of 6th/7th century date found (SMR no. 6566).

Littlebury TL 4850 3945
Three E-MS grass-tempered sherds found (SMR no. 3984).
TL 4951 3952 - 7 sherds grass-tempered, 1 sherd Ipswich ware, 4 sherds sand-tempered, from fieldwalking (SMR no. 6686).

Little Totham/Goldhanger TL 880 081
Chigborough Farm - Cropmark complex with Saxon buildings, timber-framed buildings and 8 MS loom weights (SMR no. 7869).

Little Waltham TL 711 124
Possible A-S site with pottery (SMR no. 6065).

Nazeing TL 3858 0658
MS sherds found in grave fills (SMR no. 3427, W. T. Jones 1980:91).

North Weald Bassett TL 479 049
Saxon pottery recorded from a medieval ditch. (SMR no. 3818, Robertson 1975:82).

Orsett TQ 653 806
EM complex with late 7th/early 8th century pottery (SMR no. 5162, Hedges & Buckley 1985).

Saffron Waldon TL 5342 3829
HM body sherds in a grass-tempered fabric found in 5th-11th century contexts thought to be residual MS. (SMR no. 0421, Bassett 1982:92).
Cinema Maltings (TL 5381 3819) - one sherd of E-MS pottery, Orton type ware found (SMR no. 0445, Bassett 1982:80, 85).

Stanford le Hope-Dobson and Ellis Pit TQ 688 827
Fragments of nearly black pottery with impressed decoration found, thought to be Saxon (SMR no. 5185).

Stifford Clays TQ 610 804
E-MS grass-tempered pottery, post-built structures, cemetery (SMR no. 5284, MA 1981:167-8).

St Osyth TM 1254 1555
Sherd of Ipswich ware found (SMR no. 2902, Dunning 1964).

Stansted TL 5225 2241
Airport Social Club - excavations produced Saxon pottery (SMR no. 7287, MA 1988:242).

Strethall TL 4839 3978
Grass-tempered sherds and one sherd of Ipswich ware found in field survey (SMR no. 6675).
TL 4885 3949 - E-MS grass-tempered *sherd found (SMR. no. 3981).*

Theydon Bois; Theydon Garnon TQ 473 977
Hills Farm - Stray finds of Saxon grass-tempered pottery found of ?8th century date. (SMR no. 0136, Brooks 1977:54).

Ugley, Henham TL 530 282
Bedwell Common - possible Saxon pottery found (SMR no. 4680).

Waltham Abbey TL 381 007
M-LS settlement and cemetery site. RBA sherds associated with Ipswich ware, grass-tempered and shelly pottery (SMR no.s 0041, 0050, 0066, 0067, 0069 0105, Hodges 1981a:41, Huggins 1976:103, Williams 1976).

Wicken Bonhunt TL 511 335
MS village site with at least 28 structures and with Tating ware, Beauvaisis ware, Black wares, red-burnished ware, large amounts of Ipswich ware (SMR no.s 0185, 0186, Hodges 1981a:40-41, Wade 1974a, Wade 1980b).

Woodham Walter TL 8163 0819
Manor Farm - Saxon pottery found in gravel pit (SMR no. 7769).

Wix TM 155 286
Possible Saxon pottery found (SMR no. 3049).

Gloucestershire

Tewkesbury SO 8946 3307
Sabrina Cinema - Excavation of a large post-Roman ditch produced pottery thought to be MS (Hannan 1973, SMR no. 7728).

Whittington SP 01 20
Few sherds of MS pottery (Hodges 1981a:60).

Hampshire

Andover SU 395 460
Old Down Farm - MS settlement with grass-tempered pottery (Davies 1980, Hughes 1984:77).

Bishops Waltham SU 58 17
Middle Saxon pottery found (Hodges 1981a:56)

Boarhunt SU 607 082
M-LS pottery found in fieldwalking around surviving LS church (Hughes 1984:70).

Chalton SU 730 160
Excavation of Saxon village produced crude grass-tempered MS (8th century) pottery (Addyman, Leigh & Hughes 1972, Addyman & Leigh 1973, Champion 1977, Cunliffe 1972, Davies 1985, Hodges 1977, Hodges 1981a:56, Hughes 1984).

Cowdery's Down SU 656 534
Saxon rural settlement, late 5th - early 8th century (MA 1981:168, MA 1982:183, Hughes 1984:76, Millett 1980, 1981).

Emsworth SU 74 06
Middle Saxon pottery found, similar to that at Hamwic (Bradley 1973, Hodges 1981a:56).

Fareham SU 5820 0648
M-LS settlement, rubbish pits contain MS pottery, 9 fabrics (Holmes 1978, Hughes 1984:69).

Gunard SZ 48 96
One sherd of Middle Saxon pottery found similar to that at Hamwic (Hodges 1981a:56).

Hayling Island SU 72 01
MS occupation site, grog-tempered pottery of 8th-9th century found in same area in 1898, and LS sherds more recently (Cunliffe 1974:129, Hughes 1980:11, Hughes 1984:70).

Hucklesbrook SU 15 10
SFBs with Saxon pottery (Graham 1984).

Meonstoke SU 618 209
Shavards Farm - Grass-tempered pottery of 8th-9th century date, post-hole and pit features (MA 1985:181).

Rowner SU 584 016
Rescue excavation produced 8th/9th century seasonal occupation evidence (Lewis & Martin 1973).

Portchester Castle SU 625 046
E-LS site, with MS framed building, well, cess pit, rubbish pits, ditches. Grass tempered pot found (8th century), late 8th-9th century = grit-tempered pottery, possible 9th century Frankish Grey ware import. Black wares also found (Cunliffe 1970, 1974, 1976, Hodges 1981a:37).

Southampton (Hamwic) SU 42 12
Six Dials - 4200 square metres excavated by 1982. Roads, buildings, iron production, lime production, bronze working, pits, wells, coins, wide range of artefacts, including large amounts of pottery (MA 1981:168, MA 1982:184, MA 1983:178-9, Addyman 1973, Brisbane 1988, Hodges 1981a, Holdsworth 1976, Timby 1988).
St. Mary's Street - 8th-9th century rubbish pits and post holes. Beauvais ware found. (MA 1983:177-8, MA 1986:146-7)
The Deanery - MS occupation, with rubbish and cess pits, post and stake holes (MA 1985:182).
Kingsland Market - MS occupation across the site, with MS streets (MA 1986:146-7).
Old Co-op site (TQ 334 793) - MS rubbish pits and pottery (MA 1989:186).

Westbourne SU 75 08
Middle Saxon pottery found similar to that at Hamwic (Hodges 1981a:56).

Winchester SY 48 29
St. Mary's Street - Iron smithing, black soil dated to AD 800. Badorf, RBA, Black ware and 7th century oxidised bottle fragments among the pottery imports (MA 1984:221, Dunning 1962, Hodges 1981a:37)
Staple Gardens - Pit containing sherds of red-painted vessel, probably Beauvaisis, also associated cooking pots, all dating to pre- AD 850 (MA 1985:183-4).

Hereford and Worcester

Droitwich SO 901 635
Upwich - Stone and wooden structural remains, salt-burning furnaces, fences, large quantities of MS pottery (MA 1984:222, Price 1984:61-2).

Fladbury SO 996 464
M-LS palace site or monastic centre. Lava quern found, buildings, SFB, possible MS pottery found (MA 1968:162, Peacock 1967c).

Kemerton SO 96 37
Aston Mill - MS pottery found during excavation of cropmark site (Hilary White pers. comm.). Thin-sectioning of a Saxon sherd suggests it may be related to MS pottery from Upwich (Williams 1989).

Sedgeberrow SP 020 387
Surface finds of M-LS pottery and an 8th century sceatta found, close to village. Village nucleated between 750 and 1066 (Price 1983:145-7, Rowley 1978:102).

Worcester SO 85 55
1 sherd of possible MS pottery identified from current excavations (Hilary White pers. comm.).

Hertfordshire

The County Archaeology Record for Hertfordshire suggests that there are no known Middle Saxon sites in the county. Those few sites with Saxon pottery date to the Early Saxon period.

Letchworth TL 230 340
Early medieval settlement with pits and postholes - pottery datine from AD 650-1200 (MA 1989:196-7)

Humberside

Barrow upon Humber TA 07 21
Cherry Lane - red-burnished imported pottery (Author's identification).

Barton-on-Humber TA 03 21
Castledyke South - Cemetery with Frankish buckle, and pitcher in coarse, sandy, oxidised fabric. Grave goods suggest 6th-7th century date (MA 1983:184).
East Acridge (TA 037 221) - Hard HM gritty MS pottery found (Addyman & Whitwell 1970).
St. Peter's Church - MS enclosure ditch and occupation levels, LS cemetery with timber coffins (MA 1983:184, MA 1984:224).

Beverley TA 0379 3913
Lurk Lane - M-LS occupation, ditch, structures, decorated Ipswich ware and Maxey ware, shell-tempered pottery, coins. Occupation began in 8th century (MA 1981:171, MA 1982:187, Armstrong *et al.* 1991).

East Leys TA 144 713
MS rimsherd of bowl found (SMR no. 7592).

Flixborough SE 87 15
Middle Saxon finds from excavation of monastic site, with imported pottery and Ipswich ware (Whitwell 1991).

Horkstow SE 986 183
MS sherd found. Chance find (SMR no. 1649).

Thwing TA 05 70
HM pottery associated with 8th century coins in a midden. Saxon cemetery, structures, enclosure, 9th-10th century WM pottery (Manby 1985).

West Halton SE 905 209
Trial excavation located E-MS pottery, bank dated AD 600-800 (MA 1983:186).

Kent

Barham TR 20 50
MS material found in fields, ES and LS (Thetford ware) found in ditch (MA 1982:187).

Canterbury TR 15 57
SFBs, glass and amber beads of 6th-7th century date. Local sand/chalk/organic tempered pottery, and imported Badorf ware, Grey wares, Black wares and Pingsdorf ware in small quantities (MA 1981:171, Dunning et al. 1959:84, fig. 26, Dunning 1983:310, Hodges 1981a:39-40, Mainman 1982, 1983, Wilson 1983:230-1).
St. Augustines Abbey and St. Martins Hill - pits with Ipswich ware (MA 1985:190). E-LS pottery sequence from c.AD 450-1025 (Tatton-Brown & Macpherson-Grant 1985:91-3)
St. Radegund's St - ES and MS pottery assemblages found, 2 7th century SFBs (MA 1988:259).

Dover TR 318 414
Town centre excavations in 1970s produced stratified MS pottery, including Ipswich ware, Black wares, Red-burnished ware and Tating ware, also Thetford ware (Philp pers. comm).

Eastry TR 311 548
Postulated A-S royal palace site, with single sherd of grass-tempered pottery (MA 1982:189).

Folkestone TR 208 379
Trial trenching found 7th-12th century pottery (MA 1989:199).

Graveney Boat TR 055 625
8 sherds of a Hodges Class 11 cooking pot found (Fenwick 1978, Hodges 1981a:40).

Richborough TR 32 59
Ipswich ware found (Hurst 1976b:302).

Sandtun TR 120 340
M-LS occupation layers, midden site, pottery includes Black wares and Grey wares (MA 1959:21, Hodges 1976:70, Hodges 1981a:38, Hurst 1959:21).

Leicestershire

Blaston SP 80 95
Top Mill field - A scatter of Saxon pottery and slag discovered during fieldwalking. Millfield (SP 801 987) - more Saxon pottery found (MA 1988:259-60).

Breedon-on-the-Hill SK 406 233
Saxon Minster site, 7th-8th century monastic remains. Pottery includes Black ware pitcher (MA 1976:165, Dornier 1977:164-6, Hodges 1981a).

Harston SK 83 31
ES or MS pottery similar to Maxey type found (Addyman 1964:49).

Nether Hambledon
Author identified Ipswich-type ware with pierced lug found in excavations. Excavation produced a few sherds of Ipswich ware and Pingsdorf ware (Peter Liddle pers. comm.).

Huncote SP 51 97
Terry Pearson has identified pottery recovered from fieldwalking at Elms Farm as being Middle Saxon (Peter Liddle pers. comm.).

Kirby Bellars SK 71 17
A reasonably good group of Middle Saxon pottery produced from excavations (Peter Liddle pers. comm.).

Lincolnshire

Caistor TA 112 008
Cemetery, pottery amongst finds (MA 1981:171-2).

Cherry Willingham TF 032 724
Fieldwalking located Saxon and early medieval settlement. Pottery of 6th to 12th century date (MA 1981:173).

Goltho TF 113 777
Manor site with MS phase, rich sequence of pottery, including Maxey-type ware (Beresford 1987).

Goxhill TA 118 241
Ploughing uncovered MS pottery (Addyman & Whitwell 1970).

Hall Hill TF 36 63
West Keal - Ipswich ware found associated with a cemetery site (Hurst 1976b:301).

Horncastle TF 26 69
335 vessels from 8th/9th century, mostly LS (Coppack 1980, Hayfield 1983:69-72).

Humberston Abbey TA 311 052
Excavations produced Ipswich ware and MS shell-tempered pottery (Addyman & Whitwell 1970).

Kirmington TA 093 112
Single find of a shell-tempered, pierced rim lug (Addyman & Whitwell 1970).

Lincoln SK 97 71
Lawn Hospital - 8th/9th century pottery found (MA 1986:157).
Flaxengate - excavations have produced c.100,000 pot sherds, including Carolingian vessels similar to those at Dorestad, Badorf, red-painted wares, Pingsdorf, Andenne, Beauvaisis, Early Glazed ware, Maxey ware.
The Lawn Hospital - trial investigations produced c.40 sherds of 8th-9th century pottery (MA 1988:261).

Normanby-le-Wold TF 126 941
Excavations produced large quantities of shell-tempered MS pottery (Addyman & Whitwell 1970).

Old Sleaford TF 06 45
Pottery dating to 6th/7th century found (Simmons 1985).

Osbournby TF 065 384
Site located during fieldwalking, produced MS pottery of Maxey tradition (Robinson 1985).

Stixwould TF 159 650
A stamped sherd found, probably of MS date, similar to those at Maxey (Simpson 1964:71-2).

Tattershall College TF 212 576
Single stamped sherd of Ipswich ware found (Addyman & Whitwell 1970).

Thornton-le-Moor TF 051 963
Ploughing uncovered MS pottery (Addyman & Whitwell 1970).

Willoughton SK 934 927
Flat topped rims, similar to Maxey type (Addyman & Whitwell 1970).

Worlaby TA 016 141
Ploughing uncovered MS pottery (Addyman & Whitwell 1970).

<u>London</u>

City of London

Garlick Hill - kiln of 850-1100.
Billingsgate - 9th century occupation. (Rhodes 1980b)
Old Bailey/Ludgate Hill - Saxon ditch(es).
Upper Thames Street - LS pottery. (MA 1984).
Ironmonger Lane - 2 SFBs filled with 9th century debris (MA 1981:173).
Battersea - Black wares.
New Fresh Wharf - Black wares (Hodges 1981a:40).
Treasury, Whitehall - 9th century occupation, domestic HM pottery, Badorf ware, Black wares, Tating ware (H. J. M. Green 1963), RBA (Dunning et al. 1959 fig.27,2).
Covent Garden (Jubilee Hall) - Dark earth, buildings, Ipswich ware, N. French imports (Whytehead 1985), Iron slag, ceramic crucibles for copper alloy working (Heyworth 1989).
Savoy - 1 Ipswich ware sherd, 1 ES HM vessel, frags of 3 pots (Hurst 1959:23).
Arundel House - 17 sherds Ipswich ware, 1 sherd chaff-tempered, 1 sherd Tating, 1 sherd Pingsdorf (Haslam 1975).
Kingsway - 1 Ipswich ware sherd.
National Gallery extension, Trafalgar square - gravel quarry *pits of ?MS date, with* Rhenish quernstones, Ipswich ware and an early 8th century sceatta (MA 1988:252).
Westminster several trenches in this area show MS occupation, with Ipswich ware, shell-tempered wares and imported pottery (MA 1990:185).

Greater London

Barking TQ 43 84
Saxon Abbey, activity from 7th century, M-LS pottery found, mainly Ipswich ware, also Mayen, Black ware, Pingsdorf, Walberberg ware, pottery from Urbar (near Koblenz), along with imported glass (MA 1986:136-7, Redknap 1986).

Camden TQ 301 811
MS period occupation with Ipswich ware being recovered in large quantities, including large numbers of stamped sherds. loom-weights, querns, glass fragments, bone combs. 3 sceattas found (MA 1990:185).

Hillingdon TQ 060 783
West Drayton - Saxon features, 2 SFBs, grass tempered pottery (MA 1985:177).

Clapham TQ 292 758
Rectory Grove - ES pits with 697 sherds of 5th-7th century grass-tempered pottery and 2 spindle whorls (MA 1982:194, Densem & Seeley 1982).

Northolt Manor TQ 12 85
4 fabrics in the 8th-9th century: grass-tempered, sandy, rough gritty and shelly (Hurst 1961).

Southwark TQ 334 794
Isolated finds of chaff-tempered pottery, Thetford ware, Late Saxon Shelly ware, loom weight and sceatta (MA 1986:142-3, Dyson 1980, Sheldon 1974).
Abbey buildings (TQ 3340 7935) - further MS activity represented by a sceatta and MS pottery (MA 1988:252).

<u>Greater Manchester</u>

SMR records show no sites with MS pottery in the Greater Manchester area.

<u>Norfolk</u>

Alburgh TM 263 875
Ipswich ware sherd (SMR no. 12135).

Ashill TF 8718 0364, TF 9085 0575
Ipswich ware sherds (SMR no. 4709, 8712).

Attleborough TM 045 954
Ipswich ware site (SMR no. 9096)

Bagthorpe/Barmer TF 808 336
Ipswich ware sherds (SMR no. 6075).

Barton Bendish TF 7121 0471, TF 7118 0559, TF 704 408, TF 7131 0615, TF 707 054, TF 720 069, TF 727 055
Ipswich ware, primarily from fieldwalking, but two sherds from excavation. One import from fieldwalking at TF 7075 0565 (SMR no's. 2596, 4499, 4499, 4514, 13553, 13604, 17212, 17600, 17605, 18838, 18844, 18845, 19092, 19093, 19094, 19098, 19099, 20386, 20389, 20390, 20392, 20396, 21047, 21066, 21461, 21777, 22080, 23911, 23916, 23928, 234936, 23937, 23941, 23945, 23954, 25037, Dallas 1987:40).

Bawsey TF 6610 2079, TF 6620 2078
Ipswich ware from fieldwalking (SMR no's. 3326, 12364, 21078).

Belaugh TG 287 179
Possible Ipswich ware sherd (SMR no. 20183).

Beechamwell TF 763 067,
TF 7470 0535, TF 7435 0580, TF 7575 0515
Ipswich ware sherds (SMR no's. 4530, 11964, 12153, 23536, 25035, 25045).

Beachwell TF 7485 0462
Ipswich ware from fieldwalking (SMR no. 2635).

Beeston TF 9084 1619
Ipswich ware sherd (SMR no. 19547).

Beetley TF 9736 1860
Ipswich ware site (SMR no's. 2812, 2815).

Billingford TG 007 203
Ipswich ware sherds (SMR no. 7206).

Binham TF 9806 3970
Ipswich ware sherd (SMR no. 24150).

Blo Norton TM 012 796
Ipswich ware sherds (SMR no. 20038).

Brampton TG 2181 2497, TG 2181 2497
Ipswich ware sites (SMR no's. 7590, 7601).

Brancastor TF 777 439
Possible Tating ware found whilst fieldwalking within Saxon shore fort (SMR no. 1002, Hodges 1981a:42).

Bridgham TL 9586 8598, TL 9580 8575
Fieldwalking produced Black ware sherds and Ipswich ware (SMR no. 17183, 18066, Coutts forthcoming b).

Broomehill TL 777 878
Ipswich ware sherd (SMR no. 5636).

Bunwell TM 1380 9170, TM 1264 9264, TM 1255 9265
Ipswich ware sherds (SMR no's. 17244, 25418-9).

Burgh Castle TG 4745 0460
Large amount of Ipswich ware from excavations,1 possible import (SMR no. 10471, Dallas 1983).

Burgh & Tuttington TG 2280 2700
Ipswich ware sherd (SMR no. 23835).

Burnham Market/Burnham Overy TF 8420 4220, TF 8407 4264
Fieldwalking produced 1 fragment of Black ware handle and Ipswich ware (SMR no's. 12787, 18496).

Burnham Norton TF 2181 2497, TF 8369 4274, TF 838 426
Ipswich ware from fieldwalking (SMR no's. 1736, 1756).

Burnham Thorpe TF 8429 4234
Fieldwalking produced Bornheim-Waldorf sherd and Ipswich ware (SMR no's. 1020, 21820, Coutts forthcoming b).

Caistor-on-Sea TG 517 1232
SFBs, much Ipswich ware, possible 7th century Black ware (SMR no. 8675, Hodges 1981a:41, Hurst 1959:18, 21).

Caistor St. Edmunds TG 228 039
Ipswich ware and local pottery found at cemetery site of Markshall (SMR no. 9788, Hurst 1973).

Castle Acre TF 815 148
Ipswich ware found in excavation (SMR no. 4096).

Clenchwarton TF 5949 1815, TF 5977 1798
Ipswich ware sherds (SMR no's. 20882, 21384).

Congham TF 7185 2329
TF 7150 2355, TF 7140 2360, TF 712 370
Ipswich ware sites (SMR no's. 3560, 3565, 3569, 13059, 13174, 16778, 22210).

Costessy TG 172 096
Ipswich ware sherd (SMR no. 20909).

Cranwich TL 7870 9425
Ipswich ware sherd (SMR no. 24530).

Denver TF 6085 0210
Ipswich ware and local pottery (SMR no. 21474-5).

Dersingham TF 6962 3030, TF 699 302
Ipswich ware and local sherds (SMR no's. 14353, 20341).

Dilham TG 326 260
Ipswich ware sherds (SMR no's. 19542, 19543).

Diss TM 1255 8343
Ipswich ware sherds (SMR no. 21047).

East Tuddenham TG 0856 1148
Ipswich sherd found (SMR no. 14686).

East Walton TF 744 159, TF 7382 1755, TF 749 155
Ipswich ware and local sherds (SMR no's. 12365, 19109, 19639).

Eaton TG 2110 0600
Ipswich ware sherd (SMR no. 9549).

Erpingham TG 1981 3122, TG 1984 3117
Ipswich ware sherd and local pottery (SMR no's. 24231, 24329).

Felmingham TG 2500 2900
Ipswich ware sherds (SMR no. 24243).

Field Dalling TG 014 378, TG 0120 3830
Ipswich ware and local pottery (SMR no's. 21317, 22442, 24566-7, 24569, 24571).

Fincham TF 6913 0635
Ipswich ware sherds (SMR no. 14530).

Flitcham TF 7140 2765
Ipswich ware found during excavation (SMR no. 3481).

Forncett TM 1485 9380
Ipswich ware sherd (SMR no. 20494).

Fring TF 7367 3465
Ipswich ware sherds (SMR no. 23001).

Fulmodeston TF 9926 3004
Ipswich ware site (SMR no 1069).

Gooderstone TF 7745 0280, TF 7672 0187
1 possible Ipswich sherd (SMR no's. 18179, 20940).

Great Bircham TF 769 326
MS occupation, including Ipswich ware and 1 possible import, frags of Rhenish lava quernstone (SMR no. 6062, Rogerson & Adams 1978).

Great Cressingham TF 8670 0050
Ipswich ware sherd (SMR no. 24703).

Great Dunham TF 8746 1471
Ipswich ware sites (SMR no. 4178, 4196).

Great Fransham TF 8995 1310, TF 9008 1318
Ipswich ware sherds and local MS pottery found during fieldwalking (SMR no's. 4193, 15875, 20508, 20510, 20524, 20542, 20578, 20590, 20604, 20645-9, 20651, 20653, 20755, 20759, 20760, 20766, 20792, 20818, 23073, 23075-6, 24784).

Great Hockham TL 9525 9230
Ipswich ware and local sherds (SMR no. 24709).

Great Melton TG 147 090, TG 124 072, TG 1419 1608
Ipswich ware sherds (SMR no's. 9257, 9264, 13846, 17551).

Great Ryburgh TF 9602 2748, TF 7635 2723
Ipswich ware sherds (SMR no's. 7154, 11784).

Great Walsingham TF 893 373
Ipswich ware sherd found in fieldwalking (SMR no. 1955).

Grimston TF 719 217
Ipswich ware from fieldwalking (SMR no's. 3579, 19110, 19965).

Gunthorpe TG 0168 37522
Ipswich ware sherds (SMR no. 21490).

Hardingham TG 0342 0516
Ipswich ware site (SMR no's. 1046, 8850).

Heacham TF 8629 3850
Ipswich ware site (SMR no. 16297).

Heckingham TM 381 982, TM 3854 9890, TM 3893 9897
Ipswich ware and local sherds (SMR no's. 10510, 20581, 20724, 22655, 22661-3, 22666-7, 22679-81).

Helhoughton TF 871 264
1 sherd of Ipswich ware (SMR no. 15517).

Hempnall TM 240 936, TM 2352 9490
Ipswich ware sherds found (SMR no's. 19361, 22239).

Hempton TF 902 296
Ipswich ware sherd (SMR no. 7109).

Hilborough TL 825 999, TL 8298 9875
Ipswich ware sherds (SMR no's. 5019, 5044).

Hilgay TL 6368 9822
Possible Ipswich ware sherds (SMR no's. 23368, 24255).

Hindringham TF 9850 3637, TF 9841 3650, TF 9936 3559
Ipswich ware and local pottery (SMR no's. 25071, 25271, 25157, 25474).

Hockwold cum Wilton TL 734 848
Ipswich ware sherd (SMR no. 17102).

Honingham TG 1165 1178
Possible Ipswich ware sherd (SMR no. 17937).

Horning TG 357 164
Ipswich ware sherd (SMR no. 8446).

Horningtoft TF 9360 2308, TF 9366 2310
Ipswich ware sites. (SMR no. 7177)

Howe TG 2760 0013
Ipswich ware sherds (SMR no's. 19927, 20352).

Hunstanton TF 6880 4265, TF 6880 4255, TF 6856 4236, TF 694 432, TF 691 425
Ipswich ware sites (SMR no. 1271, 1275, 1287, 11226, 11227, 12841, 19409).

Ingoldisthorpe TF 6770 3296
Ipswich ware from fieldwalking (SMR no. 1555).

Kelling TG 0916 4184
Ipswich ware from excavation (SMR no. 6230).

Kempstone TF 8803 1601
Ipswich ware sherd (SMR no. 4083).

Kimberley TG 0798 0600
Ipswich ware sherd (SMR no. 17031).

Kirby Cone TM 373 933
Ipswich ware sherds (SMR no. 12380).

Little Cessingham TF 8670 0050
Ipswich ware sherds (SMR no's. 24703, 24707).

Little Dunham TF 8652 1274
Ipswich ware site (SMR no. 4199).

Little Fransham TF 899 123
Ipswich ware and local sherds (SMR no's. 23081-2, 23084, 23901, 23763).

Little Hockham TF 9495 9083
Ipswich ware sherds (SMR no. 191612).

Little Melton TG 1532 0685
Ipswich ware sherds (SMR no. 19771).

Loddon TM 365 970, TM 3660 9725, *TM 359 980, TM 3785 9900*
Ipswich ware sherds (SMR no's. 17977, 17982, 20386, 21512, 21537-44).

Longham TG 9325 1610
Ipswich ware site (SMR no. 7269).

Lyng TF 0785 1730
Ipswich ware from fieldwalking (SMR no. 3048).

Martham TG 4523 1899, TG 4505 1815
Ipswich ware sherds (SMR no's. 11798, 24405).

Methwold TL 7238 9606, TL 7210 9613
Ipswich ware sherds (SMR no's. 23120, 23670).

Middle Harling TL 979 851
DMV, 50 8th century Beonna coins, few MS features, Ipswich ware, Thetford ware, MS Rhenish import and Tating ware (SMR no's. 6033, 18454, 20040, 21025, Coutts forthcoming a, MA 1984:234).

Mileham TF 921 196, TF 9220 1956, TF 9220 1977, TF 9230 1973
Ipswich ware sites (SMR no's. 7257, 7268, 7270, 17883).

Narford TF 768 143
Ipswich ware sherds found (SMR no. 3974).

Newton Flotman TM 205 974
Ipswich ware sherd (SMR no.10088).

North Elmham TF 987 215
M-LS episcopal centre, 7th-12th century sequence, significant import assemblage - 26 imports, Black wares, Tating ware, Ipswich ware, Grey ware and others (SMR no's. 1013, 2917, Brisbane 1984, Hodges 1980b, 1981a:42, Wade-Martins 1970, 1972, 1980, Wade 1980a).

North Tuddenham TG 0548 1345
Ipswich ware and local pottery (SMR no. 20466).

Norwich TG 23 09
Fishergate - large amount of MS material. Pingsdorf, Andenne, Badorf, RBA, Black ware, Ipswich ware (Hodges 1981a:42, 1981b, Jennings 1981, MA 1986:159).

Old Hunstanton TF 6865 400, TF 6868 4025, TF 6888 4176
Ipswich ware sites (SMR no's. 1270, 1271, 21714).

Oxborough TF 7445 0345
Ipswich ware site (SMR no. 1021).

Paston TG 3233 3433
Ipswich ware site (SMR no. 6895).

Pentney TF 722 137
Ipswich ware site (SMR no. 3922).

Quidenham TM 0523 8768, TM 0200 8930
Ipswich ware sherds found (SMR no's. 10810, 2400-1).

Ringstead TF 704 408
Ipswich ware found (SMR no. 13067).

Roudham TL 9874 8968, TL 9525 8748
Ipswich ware sherds (SMR no's. 6000, 15907).

Rougham TF 824 214, TF 8812 2431
Ipswich ware sherd found at both of above sites (SMR no. 3671, 3715).

Saham Toney TF 915 039
Ipswich ware sherd (SMR no. 8747).

Sandringham TF 669 262
Ipswich ware from fieldwalking (SMR no's. 3257, 22147).

Saxlingham Nethergate TM 232 973, TM 2307 96643
Ipswich sherds found (SMR no's. 13174, 19309).

Sedgeford TF 711 363, TF 6982 3595, TF 7047 3639
Ipswich ware, Classic Badorf pitcher rim found in fieldwalking of MS village site (SMR no's. 1079, 1472, 1603-9, 13952, Hodges 1981a:43).

Shropham TL 9850 9255
Ipswich ware from fieldwalking (SMR no. 17722).

Shouldham TF 6830 0857, TF 684 086
Ipswich ware sherds (SMR no. 4290, 14177).

Skeyton TG 2460 2560, TG 2500 2565
Ipswich ware sherds (SMR no's 22226, 23248, 23833).

Snettisham TF 700 328, TF 682 349, TF 6855 3476, TF 699 328, TF 6910 3355
Ipswich ware sites from fieldwalking (SMR no's. 1487, 1490, 1518, 1528, 1691, 12547, 12950, 22010, 24584).

Somerton TG 4720 1996
2 sherds Ipswich ware (SMR no. 16781).

Southery TL 6215 9458, TL 6163 9445
Ipswich ware and Black ware sherd found (SMR no's. 13904, 14057, 17316).

South Walsham
Ipswich ware sherd (SMR no. 8524). TG 384 124

Stow Bedon
Ipswich ware sherd (SMR no.9064). TL 9583 9458

Stratton Strawless
Possible Ipswich ware sherd (SMR no. 23783). TG 2217 2103

Surlington
Ipswich ware sherd (SMR no. 22460). TG 3110 0649

Swarfield
Ipswich ware sherds (SMR no. 4250). TG 2862 3303

Tasburgh TM 2015 9590, TM 2010 9586
Ipswich ware from excavation and fieldwalking (SMR no. 2258, 10104).

Terrington St. Clements TF 536 185
Over 1000 Ipswich ware sherds and 1 import (SMR no's. 15547, 17132, 21935, 22100, 22101, 22159, 22274-6, 22576-7, 22647-8, 23356, Rogerson & Silvester 1986).

Terrington St. John TF 5280 1677
Ipswich ware sherd (SMR no. 20839).

Thetford TL 8609 8306, TL 875 828, TL 8607 8298, TL 8658 8314
Ipswich ware found in excavations and fieldwalking (SMR no's. 5746, 5747, 5886, 11521, 24822, 24849).

Thornage TG 048 362
Ipswich ware from fieldwalking (SMR no. 17319).

Thorpe St. Andrew TG 2540 0878
Ipswich ware sherd (SMR no. 9628).

Tibenham TM 1268 9027
1 possible Ipswich ware sherd (SMR no. 17869).

Tilney St. Lawrence TF 577 159
A large concentration of Ipswich ware spreading over 300m (SMR no's. 2187, 20313, 21377, 22055, Silvester 1983-4).

Tittleshall TF 8960 2065, TF 8954 2126, TF 905 198
Ipswich ware sites , excavation and fieldwalking (SMR no's. 3706, 3708, 7225).

Walpole St. Peter TF 510 165, TF 5173 1713, TF 4878 1566
Concentration of LS pottery, site has MS origins. Fieldwalking produced Black ware sherd and Ipswich ware (SMR no's. 19863, 21325, 21341, 22145, Coutts forthcoming b, Silvester 1983-4:18).

Walsoten TF 4764 1228
Ipswich ware sherds (SMR no. 19047).

Watton TF 9225 0125
A concentration of find-spots around the NGR. (SMR no.s 6926, 6949, 6950, 6945, 6956, 6969, 6977, 6979, 6993, 6938, 7005, 7013, 7017).

Weasenham All Saints TF 8995 2165, TF 8515 2162
Ipswich ware sites (SMR no's. 3675).

Weasenham Saint Peter TF 8559 2336
Ipswich ware sherd found (SMR no. 3718).

Wellingham TF 8705 2220
Ipswich ware site (SMR no. 3710).

Wells-next-the-Sea TF 9164 4314
Fieldwalking produced Black ware sherd (SMR no. 18177, Coutts forthcoming b).

West Bilney TF 716 154
Ipswich ware site, crop marks (SMR no. 3734).

West Caister TG 510 115
Ipswich ware sherd (SMR no. 12872).

West Dereham TF 655 010
Ipswich ware, Tating ware rim sherd found during fieldwalking (SMR no. 1070, Hodges 1981a:43).

West Harling TL 978 849, TL 9600 8513
Ipswich ware sherd (SMR no's. 16957, 25339).

West Walton TF 475 133, TF 4662 1328, TF 4718 1315,
MS site located by pottery scatters (SMR no's. 18645, 18647, 18951, 18952, 18947, 18943, 18958, 19041, Silvester 1983-4:18).

Wicklewood TG 0885 0290
1 local MS sherd (SMR no. 8897).

Wiggenhall St. Mary the Virgin TF 5852 1560
Fieldwalking produced Black ware sherd (SMR no's. 21391, 21940, 23146, Coutts forthcoming b).

Winterton TG 50 20
MS sherd (SMR no. 8407).

Witton TG 3355 3196
Ipswich ware sites consisting of 1-3 sherds (SMR no's. 1009, 1031).

Wormegay TF 6754 1206, TF 6691 1173, TF 6567 1158
Ipswich ware sherds (SMR no's. 3453, 17286, 19167, 23630, 24088).

Wretham TL 9264 9264
Ipswich ware sherds (SMR no. 25354).

Wymondham TM 1110 97252
Ipswich ware sherds (SMR no. 12313).

Yaxham TG 0060 1070
Ipswich ware and local sherds (SMR no. 19812).

<u>Northamptonshire</u>

Brixworth SP 747 713
E-MS pottery found at the Vicarage Gardens. Ipswich-type wares and some burnished material. A watching brief (at SP 751 698) turned up E-MS pottery (MA 1990:203-4, Williams 1977).

Northampton SP 750 604
St. Peters Church - 7th/8th century stone church, stone hall (palace?), MS structures, timber phases, 5 mortar mixers. Grey ware sherds found, over 200 sherds of E-MS pottery, Ipswich ware found (MA 1982:199, Hodges 1981a:43, Denham 1983, Williams 1982, 1984, Gryspeerdt 1981).
Woolmonger Street (SP 7528 6034) - MS pottery found at this site, 250m to west of St. Peter's church area (MA 1988:265).

Raunds SP 99 73
Extensive Saxon and medieval village site, occupied from late 6th-15th century, full pottery sequence, well over 100,000 pot sherds for the period late 7th - mid 8th century, mould-made globular pots in mid 7th - mid 9th century, MS Maxey ware, Ipswich ware (MA 1988:265, Cadman 1983, Power 1983).

Quinton SP 775 543
Badorf type sherd found on moated site in post-conquest context (Hodges 1981a:43).

Thrapston SP 99 78
Stray finds of Ipswich ware (Hurst 1969b:303).

Wakerley SP 95 99

Decorated Ipswich ware pitcher found (Hurst 1976b:302, who refers to the site, erroneously, as being in Essex).

Northumberland

West Whelpington NY 974 834
Possible 8th century HM globular jar, found at excavation of DMV, similar fabric to that found at Whitby (SMR no. not noted on SMR printout. Jarrett 1970:267-8).

North Yorkshire

Bolton Percy SE 53 41
Badorf and Pingsdorf pottery found associated with 1700 coins dating to c.AD 866 (Hodges 1981a:43).

Wharram Percy SE 85 64
DMV with SFBs, smithy, MS phase and pottery. Ipswich-type ware, Whitby-type ware, Tating ware found. (MA 1982:213-4, MA 1984:249, MA 1985: 206, Coutts & Hodges 1990, Hurst 1976b, Hurst & Hodges 1977, Stamper 1982).

Whitby NZ 89 11
MS pottery similar to Maxey assemblage found, Whitby-type ware, also Black ware vessel, possible Mayen sherds (Addyman 1964:49, Dunning 1943, Peers & Radford 1943, White 1984).

York SE 60 52
Pits, postholes, palisades, timber buildings, ditches, glass, organic material, industry, nould for trefoil brooch, cowrie shell from Persia (Buckland *et al.* 1974, Hall 1978, 1984, 1988, Hall *et al.* 1983, Kemp 1986/7).
Coppergate - AD 850-950, sporadic Anglian finds, 8th century helmet, timber buildings, Badorf, Pingsdorf, Tating-type ware, Ipswich ware, Maxey ware, shelly wares, red-painted wares, hand-made wares (Mainman 1990).
Skeldergate - 2 sherds of Tating ware found.
Fishergate, Redfearns Glass factory - much 8th-9th century pottery found. Ipswich ware, Black ware, Early Glazed ware, Maxey types, Maastricht red-painted type, Mayen rim sherd, Badorf, Bubbly ware, Rouen, (Hodges 1981a, Holdsworth 1978, Mainman 1985).
Kent Street - further 8th-9th century remains (MA 1988:291).

Oxfordshire

Bampton SP 3210 0345
AS pottery, possibly MS (SMR no. 13880).

Bicester SP 5833 2242
2 sherds HM MS (7th century) pottery found (SMR no. 11878).

Eynsham SP 432 108
New Wintles Farm - Excavation of 6th-8th century settlement, with pottery (SMR no's. 3256, 5949).

Great Chesterton SP 563 214
Manor House - MS ditch, 6th-8th century, c.130 MS sherds found (MA 1984 235).

Oxford SP 53 05
Late MS and LS pottery found (Addyman 1964:49).

Sutton Courtenay SU 50 93
E-MS pottery found similar to Maxey assemblage (Addyman 1964:49, Leeds 1923, 1927).

Shropshire

The SMR for Shropshire records no finds of Middle Saxon pottery in the county.

Somerset

Beckery ST 48 38
One sherd of possible MS pottery found (Rahtz 1974:113).

Cannington ST 25 39
Grass-tempered sherds found of 4th-8th century date (Peacock 1970b:67).

Cheddar ST 45 53
A few HM MS sherds from the Saxon palace excavations (Rahtz 1974, 1979).

Glastonbury ST 50 39
Two sherds of grass-tempered sherds found, possibly MS in date (Harden & Ralegh-Radford 1955-60, Peacock 1970b:67).

South Yorkshire

Doncaster
6 sherds of MS pottery found (Bob Sydes pers. comm.).

Staffordshire

Catholme SK 20 15
5th-10th century settlement, SFBs, iron smelting (Losco-Bradley 1973, 1977).

Tamworth SK 207 041
M-LS water-mill and structures, possible Carolingian imports (MA 1971:133, Hodges 1981a:44, Rahtz & Sheridan 1971).

Suffolk

Barham TM 137 511
E-MS, possible structure, HM pottery, Ipswich ware, Saxon coin (SMR no.s 04428, 11998. MA 1984:240).

Barking TM 0959 5278
Stray find of Ipswich ware (SMR no. 11129).

Barnham TL 87- 79-
Finds scatter of Ipswich ware (SMR no. 09924).

Blythburgh TM 451 755
Finds scatters of MS pottery, including Ipswich ware (SMR no.s 01879, 12051).

Boyton TM 35 47
Stray find and finds scatter of MS pottery found, including Ipswich ware (SMR no.s 00307, 11158).

Brandon TL 777 868
MS settlement with structures, cemetery, coins, glass, fine metal work, fabric production and cloth dyeing, Ipswich ware, Tating ware, Badorf ware (SMR no.s 09826, 10651. MA 1982:208, MA 1984:240, MA 1985:199, MA 1986:162, Carr 1984-5, Carr. Tester & Murphy 1988).

Bromeswell TM 29 50
Stray find and finds scatters of MS pottery, including Ipswich ware (SMR no.s 00292, 00295, 03032).

Bury St. Edmunds TL 85 64
A few sherds of Ipswich ware recovered from excavations within the monastic site (West 1985:169).

Butley TM 390 485
MS cemetery and settlement with posthole structures, pits and boundary ditch. Ipswich ware, grass-tempered pottery, northern French imports, kiln found dated to AD 830. Finds scatter with Ipswich ware found at TM 3677 4998 (SMR no.s 00357, 02582. Fenwick 1984, 1985, Ward Perkins 1937).

Clopton Corner TM 22 53
Finds scatters of MS pottery, including Ipswich ware (SMR no.s 09491, 09494, 10464, 10480).

Corton TM 5370 9745
Finds scatter of MS pottery including Ipswich ware (SMR no. 01583).

Covehithe TM 530 823
Stray find of Ipswich ware (SMR no. 01304).

Culpho TM 2107 4913, TM 2100 4916
Finds scatters of MS pottery (SMR no.s 00302, 10542).

Dunwich TM 478 704
Bishop's palace with Ipswich ware (SMR no. 10880).

Exning TL 6220 6523
MS pottery found in a feature during excavation (SMR no. 06397).

Flempton TL 8117 7052
Stray find of Ipswich ware (SMR no. 06610).

Framlingham TM 28 63
Ipswich ware found (West 1969b).

Freckenham TL 67 74
Single SFB excavated, Ipswich ware recorded from the area close to the motte and bailey castle (West 1985:158), also a finds scatter produced Ipswich ware at TL 6668 7166 (SMR no. 08002).

Freston TM 172 395
Finds scatter produced Ipswich ware (SMR no. 11177).

Gislingham TM 0816 7224
Finds scatter produced Ipswich ware (SMR no. 05576), also a stray find at TM 0763 7192 (SMR no. 05577).

Grundisburgh TM 22 51
Finds scatters containing Ipswich ware (SMR no.s 10568, 10610, 10613, 10619, 10622, 10629, 10570).

Hacheston TM 3088 5692, TM 313 585
Excavation of SFB produced MS pottery (SMR no. 09695), also finds scatter produced Ipwich ware (SMR no. 00354).

Halesworth TM 3874 7741
Excavation produced Ipswich ware (SMR no. 11296).

Hasketon TM 239 510
Finds scatter of MS pottery (SMR no. 00083).

Hemley TM 2911 4216
Stray find of Ipswich ware (SMR no. 11175).

Iken TM 4120 5664
Excavation near church produced pits, skeletons, 31 sherds of Ipswich ware (SMR no. 01729. West 1984).

Ipswich TM 17 45
MS settlement with pits, postholes, SFBs, wells, industry, pottery production, glass, querns. Imports include Badorf, Pingsdorf, Tating, Red-painted types, Black burnished, grey burnished, red-burnished. Imports from both northern France and Rhineland (SMR no.s 04904, 04913, 04928, 04932, 04934, 04937, 04940, 04942, 04851, 05975, 04979, 04981, 04986, 04988, 08518, 08521, 08523, 08525, 09565, 09483, 10726, 11247, 11353, 11356, 11443, 05016, 05017, 05023, Dunmore *et al.* 1975, Hodges 1981a:41, Hurst & West 1957, Wade 1978, Wade 1980b, 1988).

Kedington TL 7076 4696
Stray find of Ipswich ware (SMR no. 09193).

Letheringham TM 279 581
Finds scatter produced Ipswich ware (SMR no. 03258).

Little Bealings TM 2357 4753
Stray find of a buckle and MS pottery (SMR no. 11374).

Little Erlswell TL 7323 8058, 7175 7900
Stray finds of MS pottery, including Ipswich ware (SMR no.s 10713, 10927, 07968).

Little Fakenham TL 9060 7723, TL 903 775
Excavation of a settlement produced MS pottery (SMR no. 02495), finds scatter produced a coin and MS pottery (SMR no. 09786).

Market Weston TL 987 777
Finds scatter produced MS pottery (SMR no. 07443).

Martlesham TM 2512 4773, TM 2738 4611
Finds scatters produced MS pottery, including Ipswich ware (SMR no.s 00316, 09523).

Melton TM 2940 5132
Finds scatter produced Ipswich ware (SMR no. 10513).

Mendlesham TM 11 64
Finds scatters and stray finds of Ipswich ware (SMR no.s 08535, 08541, 08543, 08637, 08735, 08687).

Mildenhall TL 7210 7429
Stray find of Ipswich ware (SMR no. 08952).

Nacton TM 2035 4040
Finds scatter produced MS pottery (SMR no. 02290).

Petistree TM 2894 5362
Finds scatter produced Ipswich ware (SMR no. 09970).

Ramsholt TM 307 420
Finds scatter produced Ipswich ware (SMR no. 02796). Stray find at TM 306 424 (SMR no. 11406).

Rendlesham TM 325 533
MS settlement of 30 acres has produced Ipswich ware. Finds scatters have also produced MS pottery (SMR no.s 11273, 00665, 00668, 00671, 00674, MA 1986:163).

Rickinghall Superior TM 0431 7357
Excavation has produced Ipswich ware (SMR no. 08412).

Sandton Downham TL 8118 8775
Stray find of Ipswich ware (SMR no. 07512).

Shottisham TM3164 4390
Finds scatter produced MS pottery (SMR no. 11590).

Snape TM 3875 5967
Excavation produced Ipswich ware, also stray find at TM 387 578 (SMR no.s 11851, 02394).

South Elmham TM 307 826
Excavation at the minster produced Ipswich ware (SMR no. 07490). Finds scatters at TM 3175 8342, 3091 8301, 3101 8370, 3145 8359, 3170 8352 (SMR no.s 01957, 02809, 02812, 01962, 01964).

Stutton TM 161 344, TM 1627 3403
Finds scatter and stray find of Ipswich ware (SMR no.s 08233, 09777, 08294).

Sudbourne TM 4215 5187
Finds scatter produced MS pottery (SMR no. 00364).

Sutton TM 306 465
Finds scatters produced MS pottery (SMR no.s 07933, 00270, 00273, 00286, 08388).

Sutton Hoo TM 288 487
Early MS burial site with boat burial. Possible Ipswich ware bottle, Imported pot (SMR no.s 03384. MA 1986:164, C. Green 1963).

Tattlingstone TM 1456 3775
Finds scatter produced Ipswich ware (SMR no. 08210).

Timworth TL 8641 6960
Finds scatter produced MS pottery (SMR no. 10584).

Trimley TM 254 363
Stray find of Ipswich ware (SMR no. 08092).

Weeting TL 7486 8360
Finds scatter produced Ipswich ware (SMR no. 09168).

West Stow TL 808 710
ES settlement site, continuing until the beginning of the MS period, with halls, SFBs, weaving equipment, textiles, metal-working, HM pottery and Ipswich ware (SMR no.s 06945, 06951, 02020, 10595, West 1969a, 1969b, 1985).

Wherstead TM 1586 4136
Excavation produced Ipswich ware (SMR no. 11607).

Surrey

Bletchingley TQ 3347 5123
AS vegetable-tempered pottery found in excavation (SMR no. 3094, MA 1989:199).

Frensham SU 859 391
Chance find of single sherd of MS veg-tempered pottery (SMR no. 2133).

Shepperton TQ 0703 6766
8th-9th century SFB and ditch system, with ES - 13th century pottery, MS poorly represented (SMR no. 2284, Canham 1979).

Staines TQ 035 716
Grass tempered and sandy E-MS pottery found (SMR no. 2911, Jones 1982, Moorhouse & Jones 1981).

Stanwell TQ 054 745
MS settlement with E-MS pottery (SMR no. 2944).

Sussex (East)

Bishopstone *TQ 41 01*
Saxon site and cemetery with flint-tempered pottery (Bell 1977:229).

Millbrook TQ 441 296
Excavations at MS iron smelting site produced HM MS pottery (Tebbutt 1982).

Selmeston TQ 51 07
Small collection of MS pottery (Hodges 1980a).

Sussex (West)

Burpham TQ 0479 1122
Saxon burh, Saxon pottery with gritty, shelly and chalky fabrics (SMR no. 2445, Sutermeister 1976).

Chichester SU 86 04
HM M-LS pottery found in excavations (Medmerry-type ware), Beauvaisis ware, Black ware sherds found (MA 1982:210, Hodges 1981a:38, Down 1978, 1981).

Compton SU 7943 1509
Appledown - Saxon cemetery 6th - late 7th century, pottery found (SMR no. 0205, MA 1983:, MA 1984:243, MA 1988:279-80,).

North Marden SU 801 156
Excavations of SFB and midden produced Medmerry-type MS pottery (Foster 1986).

Pagham SZ 88 97
MS assemblage from excavations, includes decorated vessels and coarsewares (Cunliffe 1974:129, Gregory 1976).

Selsey SZ 85 93
Medmerry Farm - Excavations in Saxon settlement produced quartz and flint-tempered pottery (White 1934).

Tyne and Wear

Jarrow NZ 339 652
MS monastic site, Ipswich-type ware, Whitby-type ware, Black ware pottery, Badorf ware and 2 glazed bowls found (Cramp 1968, 1969, 1975, Hodges 1981a:43).

Monkwearmouth NZ 402 577
St Peters church - excavations exposed Saxon structures, Whitby type ware and Ipswich type ware found (Cramp 1968, 1969, 1970).

Newcastle NZ 26 64
Ipswich-type ware found under the castle during excavation (Hurst 1976b:306)

Warwickshire

Hatton Rock SP 255 571
A possible Saxon palace site (MS), with large timber buildings. Black ware pottery found (may be import) (Hirst & Rahtz 1973).

Wellesbourne SP 178 554
Major royal estate in Saxon period. MS fine black cooking pot found (Hooke 1984).

West Midlands

The county SMR for the West Midlands does not hold any records of sites with MS pottery.

West Yorkshire

Otley SE 20 45
Middle Saxon episcopal palace site with MS pottery, termed `Otley type ware' (Le Patourel 1973).

Wiltshire

Ramsbury SU 27 71
MS iron smelting site with animal bone, lava querns and grass-tempered pottery (Haslam 1980).

Swindon Old Town SU 14 84
Saxon domestic site of 5th-8th century, producing similar material to Ramsbury (MA 1980:31).

Downton SU 18 21
Few sherds of MS pottery (Hodges 1980a).

APPENDIX 2:

The Pottery Catalogue.

KEY: **PHASES**

EMS	EARLY MIDDLE SAXON
MS	MIDDLE SAXON
LS	LATE SAXON
ELS	EARLY LATE-SAXON
MLS	MIDDLE LATE-SAXON
EM	EARLY MEDIEVAL
M	MEDIEVAL
LM	LATE MEDIEVAL
LMT	LATE MEDIEVAL TRANSITIONAL
PM	POST-MEDIEVAL
US	UNSTRATIFIED
UD	UNDATED

CONTEXTS

EXCAVATIONS IN IPSWICH

1	3503	COX LANE 1958
2	6901	SHIRE HALL YARD 1959
3	1501	OLD FOUNDRY ROAD 1974
4	3902	ELM STREET 1975
5	7501	GREAT WHIP STREET 1975
6	3601	ST HELEN'S STREET 1975
7	7402	VERNON STREET 1975
8	5502	LOWER BROOK STREET 1975
9	4302	TURRET LANE 1978
10	4801	SCHOOL STREET 1979,
11	5801	FOUNDATION STREET/STAR LANE 1979
12	1804	ARCADE STREET 1979
13	0802	TOWER *RAMPARTS 1979/81*
14	7404	LITTLE WHIP STREET 1980/1
15	3410	TACKET STREET 1980/1
16	6202	BRIDGE STREET 1980/1
17	5202	ST PETERS STREET/GREYFRIARS ROAD 1982
18	5901	KEY STREET 1981/2
19	6904	SHIRE HALL YARD 1982
20	5902	FORE STREET 1982
21	3203	ST STEPHEN'S CHURCH 1982
22	4201	ST NICHOLA'S STREET 1983
23	9802	ST GEORGE'S STREET 1983
24	8804	ST HELEN'S STREET 1983
25	4801	SCHOOL STREET/FOUNDATION STREET 1983/85
26	5701	SMART STREET/FOUNDATION STREET 1984
27	4601	LOWER BROOK STREET/FOUNDATION STREET 1986
28	5203	GREYFRIARS RD 1986
29	3104	ST STEPHEN'S LANE 1987/88
30	3201	BUTTERMARKET 1987/88
31	6601	NEPTUNE QUAY 1989
32	5204	GREYFRIARS RD 1989
33	5003	FRANCISCAN WAY 1990
34	6106	84-7 FORE ST 1990

The numbers on the left refer to the position of trenches as shown on Fig. 2,2.

Badorf Vessels

Badorf vessel no. 1 (Fig. 5,1.2)
Trench 4801
Contexts 0584b LM, 0718 0691i M, 0958a&b ELS?, 1273 UD, 2057i EM, 2131 EM.
A storage vessel decorated with rouletting on its rim and shoulders. The surface colour is 10YR 8/4 very pale brown, and the core is 7.5YR 7/8 reddish-yellow, with a grey central core in its thickest parts. The fabric texture is hard and smooth, and inclusions are of small, well-sorted quartz.

Badorf vessel no. 2
Trench 4801
Contexts 1527e EM, 1534 1430c LM, 1788 M?, 1990 2300a LM, 2661c EM, 3062 EM.
Unidentified form, decorated with low-relief combed decoration and slight rilling. The surface colour is 7.5YR 8/6 reddish-yellow, and the core is 10YR 7/1 light grey. The fabric is slightly speckled with black and yellow. The fabric texture is very hard, dense and slightly coarse, with a light scatter of small quartz inclusions.

Badorf vessel no. 3 (Fig. 5,1.23)
Trench 4801
Contexts 0509b M, 0550j LM, 0713a&b EM, 1520a MLS, 1523 1612a PM, 1668 1570a MS?, 1670 MLS.
An undecorated storage vessel with a sagging base. The surface colour is 7.5YR 8/4 pink, and the core is 7.5YR 8/0 white. The fabric contains sparse mica and iron ore, as well as quartz. The clay matrix contains lighter coloured clay pellets.

Badorf vessel no. 4
Trench 4801
Contexts 0718 0691a&b M, 0808a&j EM, 0808 1560a&b EM, 1554b&c EM.
Trench 4601
Contexts 0506e EM, 0549 0703n MLS, 0800b M.
A large, thin-walled (3mm) vessel decorated *with multiple bands of rouletting. The* colour is 7.5YR 7/6 reddish-yellow, and the surface looks somewhat slip covered. A grey core is visible in the thickest parts of the sherd walls. The fabric is hard and smooth, with sparse inclusions of small quartz and large lumps of iron ore.

Badorf vessel no. 5
Trench 5203
Context 0648 EM
This single sherd is rouletted with double bands of square rouletting, and is in a classic very pale brown colour (10YR 8/3). The sherd is smooth and hard, with a well-sorted scatter of inclusions at <0.3mm across.

Badorf vessel no. 6 (Fig. 5,3.2)
Trench 4801
Contexts 0154a EM, 0665 ELS, 0718d M, 0718 0698a&d M, 0994b LM?.
Trench 4601
Context 0001 US.
A thick walled (9mm) RBA, with handle drawn straight out from the small everted rim. The surface is 10YR 8/3 very pale brown, while the core is more grey - 10YR 8/1 white. The fabric is hard and smooth, with a few well-sorted inclusions of quartz and iron ore.

Badorf vessel no. 7
Trench 5203
Contexts 0001 US, 0044 ELS, 0341 ELS, 0463 MS, 0475 LM, 0521 EM, 0527 EM, 0593 EMS, 0671 EM, 0681 MS, 0725 EM, 0734 EM.
A large, thick walled Bornheim Waldorf vessel with a flat base. The rim is everted and the sides of the vessel are decorated with slight rills. The break displays a banded, speckled core. The fabric contains abundant quartz at <1.0mm across. This is an early Badorf type, or more probably, a Bornheim Waldorf vessel.

Badorf vessel no. 8
Trench 5203
Contexts 0036 LMT, 0125 0654 EMS, 0227 0234 EM, 0797 ELS?.
Coarse Badorf/Bornheim Waldorf. Strong reddish-yellow colour throughout. The fabric contains a moderate to abundant scatter of quartz at <1.0mm across, with occasional quartz at <3.5mm across. The rim is everted and downturned, with a squared-off finish.

Badorf vessel no. 9
Trench 4801
Contexts 1523a PM, 1523 1540e PM.
A thick-walled vessel (7mm), with a 10YR 8/3 very pale brown external surface, and a 7.5YR 7/4 pink fabric. The fabric is hard and smooth, but contains common, large (up to 1.5mm) quartz grains.

Badorf vessel no. 10 (Fig. 5,3.4)
Trench 4801
Contexts 0823b LM, 0825 0840 EM, 1814 M.
A RBA with a very wide strap handle, decorated with thumb-impressed bands. A fine, hard, slightly rough, light yellow-brown fabric, containing small quartz inclusions.

Badorf vessel no. 11
Trench 4201
Context 0017b.
A hard, smooth, slick-surfaced sherd in a reddish-yellow colour. The fabric contains sparse quartz up to 1.5mm, occasional iron ore streaks and lumps up to 1.0mm across.

Badorf vessel no. 12 (Fig. 5,1.1)
Trench 4801
Context 1748 M?
A classic Badorf narrow mouthed spouted pitcher, with a narrow strap handle and decorated with multiple bands of rouletting. The neck is almost vertical, set off from the body by a slight shoulder ridge. The groove on the inside of the rim is a common feature of this particular form. The vessel form corresponds to Dorestad's WIIc Class y (van Es and Verwers 1980). The surface colour is 10YR 8/3 very pale brown, and the core is 7.5YR 8/6 reddish-yellow. The fabric is slightly rough, with a light scatter of quartz inclusions visible on the surface of the vessel.

Badorf vessel no. 13
Trench 4801
Contexts 0304a ELS, 0474a ELS.
This vessel was represented by two sherds, 7mm thick, which probably derive from an amphora. The fabric is smooth, light reddish-yellow, and contains a light scatter of quartz at up to 2.0mm thick.

Badorf vessel no. 14
Trench 4801
Contexts 1668 1571a&b MS?, 2340 EM.
Sherds from a hard, smooth, well-fired vessel, with a slightly slurried surface. The vessel is decorated by low-relief square rouletting. The surface colour is 7.5YR 7/4 pink, and the matrix is 10YR 8/3 very pale brown. Quartz inclusions are well-sorted and common, at less than 0.3mm.

Badorf vessel no. 15
Trench 0802
Context 0006b&c EM.
Coarse Badorf type, reddish yellow colour, buff-yellow core.

Badorf vessel no. 16 TS 92.
Trench 3410
Context 0032 ELS.
Strap handle of Coarse Badorf type.

Badorf vessel no. 17
Trench 3410
Context 0033 EM.
Fairly fine body sherd in a reddish-yellow colour. The fabric is hard and contains sparse quartz inclusions at less than 0.5mm across.

Badorf vessel no. 18 TS 62.
Trench 3902
Context 0505 0199 EM, 0253a & b.
Coarse Badorf type, base fragment and two body sherds.

Badorf vessel no. 19 TS 72.
Trench 3503
Context Pit 6 MS.
Coarse Badorf type.

Badorf vessel no. 20 TS 10.
Trench 3503
Context Pit 9.
Bornheim-Waldorf type, from a large vessel. A hard reddish-yellow coloured sherd, containing a moderate scatter of quartz and iron ore at less than 1.0mm.

Badorf vessel no. 21
Trench 4201
Context 0026 MLS
A classic Badorf sherd. Part of an amphora; the surface is a very pale brown, with a thick reddish-yellow core. The fabric contains a moderate scatter of quartz at less then 0.3mm across.

Badorf vessel no. 22 TS 91.
Trench 4201
Context 0064 0033 ELS
Coarse Badorf type with multiple rilling on upper part.

Badorf vessel no. 23 (Fig. 5,1.7)
Trench 4201
Context 0001, 0030a&b EM, 0044 MLS, 0048 0057 ELS.
Dark reddish-yellow (7.5YR 6/6) glossy surfaced vessel, with everted rim, decorated with square rouletting. The fabric is a light reddish brown colour, and contains a moderate scatter of quartz at less then 0.3mm across.

Badorf vessel no. 24 (Figs. 5.5.1, 2, 3, & 4) TS 12.
Trench 4201
Contexts 0017a MLS, 0042 0050a,b,c&d MLS, 0053a,b&c mixed, 0074 ELS, plus one unmarked sherd.
Hunneschans type, decorated with rouletting, stamping, and red paint. The fabric is a light colour - 7.5YR 7/4 pink, and the paint reddish-yellow (7.5YR 6/8). The inclusions are very small (less than 0.3mm), and fairly sparse, there is also occasional mica.

Badorf vessel no. 25 TS 70, 82.
Trench 4302
Contexts 0007 M, 0063 LS.
A hard, smooth, classic Badorf type, slightly glossy very pale brown surface. The fabric contains a moderate scatter of quartz at up to 0.5mm across.

Badorf vessel no. 26 (Figs. 5.1.22, 5.3.8) TS 51, 53.
Trench 4302
Contexts 0026 EM, 0031 LS, 0075 LS.
Coarse Badorf RBA vessel, with undecorated relief-band and a strap handle. The fabric is a reddish-yellow colour with a dark grey core, containing abundant quartz at up to 1.0mm across

Badorf vessel no. 27 TS 30
Trench 4302
Context 0033c M.
A hard, smooth, dark reddish-yellow sherd with a slightly glossy surface. The fabric contains a light scatter of quartz at up to 0.5mm, as well as iron ore and clay pellets at around the same size.

Badorf vessel no. 28 TS 15.
Trench 4302
Context 0039 MS.
A thick sherd that is probably from a RBA, with a thick grey core and a reddish-yellow surface. The fabric is slightly gritty, containing common quartz grains at less than 0.3mm, and occasional iron ore.

Badorf vessel no. 29 TS 45.
Trench 4302
Context 0075 LS.
Bornheim-Waldorf type, a reddish-yellow colour with a grey core. The sherd is from a large vessel. A hard, rough textured sherd, containing abundant quartz at up to 1.0mm, and occasional clay pellets at up to 2.0mm.

Badorf vessel no. 30
Trench 5701
Context 0225 MLS.
A thin walled vessel in a fine, very pale brown fabric with a reddish-yellow core, decorated with square and rectangular rouletting. The fabric contains common inclusions of quartz at less than 0.3mm, and occasional iron ore at up to 1.0mm.

Badorf vessel no. 31 (Fig. 5,3.11)
Trench 5701
Context 0041 0037d EM.
RBA sherd in a fine, even, very pale brown colour. The relief-band is decorated with rouletting. The fabric is hard and smooth, containing a moderate scatter of quartz at less than 0.3mm.

Badorf vessel no. 32 (Fig. 5,1.3)
Trench 5701
Contexts 0052a MS?, 0053b ELS, 0062 0121a MLS.
This group contains a rim sherd with one strap handle attached. The fabric is slightly coarse, with a common scatter of quartz inclusions at up to 0.5mm across. The vessel has a reddish-yellow surface.

Badorf vessel no. 33
Trench 5701
Context 0041 0037a EM.
A hard, fairly smooth, even reddish-yellow coloured sherd with slight yellow clay mixing. The fabric contains a moderate scatter of quartz at up to 0.5mm across; very large clay pellets are also occasionally visible.

Badorf vessel no. 34
Trench 5701
Context 0103q US.
Classic Badorf sherd from near the sagging base of a pitcher/jar, in a uniform very pale brown colour. The fabric contains common quartz at less than 0.3mm across.

Badorf vessel no. 35
Trench 5701
Context 0001 0103r US.
Fairly even reddish-yellow coloured sherd with a lighter core, containing a moderate scatter of quartz at less than 0.5mm, and occasional iron ore at up to 1.0mm.

Badorf vessel no. 36 TS 60
Trench 5502
Context 0070 EM.
Classic Badorf type, in a fine, very pale brown (10YR 7/3) coloured fabric. The sherd is thin walled, but comes from a large vessel. The fabric contains a moderate scatter of quartz at less than 0.3mm across.

Badorf vessel no. 37 TS 41, 57.
Trench 5502
Contexts 0057 EM, 0148b M, 0162/3b, 0226 MS.
A thick, sagging base and some body sherds in a reddish-yellow colour, containing a moderate scatter of quartz inclusions at up to 0.5mm across.

Badorf vessel no. 38
Trench 8804
Context 0005 EM
Rim sherd from a small lid-seated vessel. Probable Badorf ware.

Badorf vessel no. 39 (Figs. 5.1.15 & 16)
Trench 4601
Contexts 0346 LM, 0977 EM.
Two fragments of a spouted pitcher, decorated with multiple bands of rouletting. The fabric is a very pale brown (10YR 8/4), hard, and slightly rough, and contains a common scatter of quartz at less than 0.5mm.

Badorf vessel no. 40 TS 28, 58.
Trench 5502
Contexts 0001a US, 0164 MLS, 0383c MS.
A thick-walled vessel in a reddish-yellow fabric throughout, similar to vessel 37, but thin-section analysis shows vessel 40 to be grittier. The fabric contains few visible quartz inclusions, but iron ore occurs occasionally at up to 0.3mm, and clay pellets at up to 0.2mm.

Badorf vessel no. 41 TS 36.
Trench 5502
Context 0447 MS.
A very hard, smooth, late Badorf type, decorated with rouletting. The fabric would have been identified as Pingsdorf if it was not for the decoration. The sherd has a very pale brown coloured fabric, with a grey external 'skin'. The fabric contains a common scatter of quartz at less than 0.3mm across. Probably a mid-9th century example.

Badorf vessel no. 42 TS 42.
Trench 5502
Contexts 0132 M, 0315 MS, 0339 MS, 0383 MS.
Bornheim-Waldorf type, the vessel includes a handle. The fabric is hard and rough, in a reddish-yellow colour, and contains an abundant scatter of quartz at c.0.5mm across.

Badorf vessel no. 43 TS 21, 61, 63.
Trench 5502
Contexts 0027 LMT, 0224 MS, 0278 M, 0300a,b,c,d,e,g&h MS, 0384 M, 0447b&c MS, 0632 M.
The remains of a fine Badorf vessel, in a hard, smooth, very pale brown fabric with a reddish-yellow core. The fabric contains a sparse scatter of quartz at less than 0.3mm across, and occasional iron ore at up to 3.0mm across.

Badorf vessel no. 44 TS 27, 66.
Trench 5502
Contexts 0226 MS, 0380a&b MS.
A large, flat-based vessel, with a thickened, everted rim and a glossy surface. The fabric contains a common scatter of quartz and clay pellets at up to 2.0.mm across. Coarse Badorf type.

Badorf vessel no. 45
Trench 5502
Context 0135 M.
A hard fired Badorf vessel, fairly fine, with a reddish-yellow outer surface, a yellow inner surface and a grey core. The fabric contains occasional iron ore and quartz grains at less than 0.3mm.

Badorf vessel no. 46 (Fig. 5,3.1).
Trench 5801
Contexts 0001 0007 US, 0031 M, 0049 EM, 0070 0144 EM.
A Coarse Badorf RBA decorated with rouletting. Fragments of the rim and shoulder of the vessel were recovered, and correspond to van Es and Verwers Type WIA, decorative type a3 (1980:63-4). The relief-band does not form an arch on this sherd, but lies perpendicular to the rim; Dorestad produced only two examples of RBA's with their bands coming directly out from the rim, rather than being arched. The fabric is a reddish-yellow colour and contains common quartz at up to 2.0mm.

Badorf vessel no. 47
Trench 5801
Contexts 0001b US, 0092 0065 EM?.
A fine, smooth, powdery type, in a very pale brown colour with light grey core. The fabric contains very sparse grains of quartz at up to 2.0mm.

Badorf vessel no. 48
Trench 5801
Contexts 0011 0012 PM, 0030c&d EM.
The thick base and body sherds of a reddish-yellow Badorf vessel. The fabric is hard, smooth and fine, and contains occasional quartz at up to 0.5mm.

Badorf vessel no. 49
Trench 5801
Context 0041 EM.
Fragment of an amphora base, in a fabric that contains very sparse quartz grains (up to 6.0mm across). The fabric has a yellow-orange surface and a grey core.

Badorf vessel no. 50
Trench 5902 Context 0079 EM.
Trench 5901 Contexts 0288 MS, 0294 MS.
A hard, slightly rough type in a reddish-yellow colour. Inclusions of quartz are common at up to 0.5mm.

Badorf vessel no. 51
Trench 5901
Context 0280 0283a EM.
Fine, smooth, hard type, decorated with multiple bands of rouletting. The fabric is a very pale brown colour with a reddish-yellow external surface, and contains few visible inclusions.

Badorf vessel no. 52
Trench 5901
Context 0042 ?
This sherd is a reddish-yellow colour. The fabric is fairly hard, smooth and fine, with a single quartz inclusion 7mm thick.

Badorf vessel no. 53
Trench 5901
Context 0293 ELS.
Coarse Badorf type, possibly from an amphora, with a glossy, pale brown surface and a reddish-yellow core. The clay has been poorly mixed, and contains a moderate scatter of quartz at up to 1.0mm across.

Badorf vessel no. 54
Trench 6202
Context 0188e ELS.
An undecorated reddish-yellow Badorf type, smooth and hard. The fabric is streaked with iron ore and contains common quartz inclusions at up to 0.5mm across.

Badorf vessel no. 55
Trench 6202
Context 0380 EM.
A smooth and abraded sherd in a pinkish-grey fabric with a slightly redder external surface. The fabric contains a moderate scatter of quartz at less than 0.3mm.

Badorf vessel no. 56
Trench 6202
Context 0087 LM.
A hard fabric, slightly rough to the touch, in a pale brown colour with a light reddish-yellow core. The fabric contains sparse grains of large quartz, up to 1.5mm across.

Badorf vessel no. 57
Trench 6202
Contexts 0227 LM, 0247h LM.
These sherds are the remains of an amphora in a very fine pale brown to light-grey fabric with few visible inclusions.

Badorf vessel no. 58
Trench 6202
Context 0620b US.
A very smooth, fine fabric in a pink colour. it contains a moderate scatter of quartz at up to 1.0mm across.

Badorf vessel no. 59 (Fig. 5,1.10)
Trench 6202
Contexts 0226g LM, 0398 MLS, 0445 MS.
Bornheim-Waldorf type, slightly gritty. This vessel has a flat base and a simple everted rim. The fabric is a reddish-yellow colour and contains quartz at up to 1.0mm across.

Badorf vessel no. 60
Trench 6202
Context 02021 LM.
A fine, hard fabric in a uniform very pale brown colour, that contains few visible inclusions.

Badorf vessel no. 61
Trench 6202
Context 0559h UD.
A hard, light brown fabric, slightly rough to the touch. The surface is rilled. The fabric contains a moderate scatter of quartz at c.0.5mm, and occasional grains at up to 1.5mm.

Badorf vessel no. 62
Trench 6202
Context 0005 0012a LM.
An amphora base fragment. The fabric is reddish-yellow and feels slightly rough, containing a moderate scatter of quartz at c.0.5mm.

Badorf vessel no. 63
Trench 6202
Context 0155b LM.
A fine, hard, very pale brown fabric, with a reddish-yellow core. The thin wall suggests that the sherd was part of a small vessel. The fabric contains a light scatter of quartz at less than 0.3mm.

Badorf vessel no. 64
Trench 6202
Contexts 0226a LM, 0248a,b&d EM, 250e EM.
A smooth fabric with a slightly pitted surface, similar to vessel 7. The rim is everted and squared. The colour is pinkish-grey, with a moderate scatter of quartz inclusions at up to 2.0mm.

Badorf vessel no. 65
Trench 6202
Context 0620a US.
A RBA in a pink coloured, smooth, powdery fabric, which contains occasional iron ore, but few other visible inclusions. The relief-band is very low-relief and decorated by thumb impressions.

Badorf vessel no. 66 (Figs. 5.1.17 & 24)
Trench 6904
Contexts 0001 US, 0018a,b,c&d MS.
A flat based vessel in a smooth, hard fabric, probably a pitcher or storage vessel. The vessel is decorated with square rouletting. The fabric colour is reddish-yellow, and contains a moderate scatter of quartz at less than 0.3mm.

Badorf vessel no. 67 TS 35.
Trench 7402
Context 0090 0221k MS.
A large sherd from a RBA in a very pale brown classic fabric, that is slightly rough to the touch. The fabric is not dissimilar to Pingsdorf, suggesting a mid-9th century date for the vessel. The fabric contains common quartz at c.0.3mm across.

Badorf vessel no. 68
Trench 7402
Context 0090 0353m MS.
A rather crude, classic Badorf type, with a glossy, pale brown surface. The fabric contains occasional iron ore, and a moderate scatter of quartz at c.0.3mm across. The vessel from which the (shoulder) sherd comes may be a narrow necked jar, a jug or a pitcher.

Badorf vessel no. 69
Trench 7402
Context 0090 0366 MS.
A fine, smooth and soapy sherd in a pink colour, somewhat abraded. The fabric contains few visible inclusions.

Badorf vessel no. 70 TS 87.
Trench 7404
Context 0020 EM.
A hard, slightly gritty type. The fabric is very pale brown, with a grey core where thickest, and contains a moderate scatter of quartz at c.0.05mm.

Badorf vessel no. 71 TS 59.
Trench 7501
Context 0080 0014b EM.
A sagging base fragment in a slightly rough, light grey fabric that is redder on the outer surface. Sparse iron ore, and a moderate scatter of quartz at c.0.3mm is visible.

Badorf vessel no. 72
Trench 4601
Context 0648 0918 MS.
Trench 4801
Contexts 2741a,b,c,d,e&f MLS?, 2471 2783b&f MLS?, 2785 2809a&b ELS, 2779 2787 LS, 2854 ELS.
A large vessel decorated with wavy-line combed incisions. The vessel has a sagging base. The fabric is smooth and hard, with a slick surface, and a hackly fracture. The surface colour is pink (7.5YR 7/4), discoloured to a pinkish grey in some areas. The fabric contains a moderate scatter of quartz at up to 2.0mm across.

Badorf vessel no. 73 (Fig. 5,1.8)
Trench 4601
Contexts 0432e MLS, 0485c MLS, 0493a&f MLS, 0505e EM, 0506c,d&h EM, 0528e ELS, 0611c MLS, 0669 MLS, 0670a US, 0672g,h&i ELS, 0677a EM, 0690w EM, 0710a,b,j&k M, 0725a ELS/MLS, 0726c MLS?, 0740e MLS, 0777c EM, 0824d ELS, 1123b US, 1143 ELS, 1147c US.
A hard, slick surfaced type in a light brown to pinkish grey colour. The vessel is flat based and handled, with a thickened rim - probably a pitcher. Decoration is in the form of rilling and wavy-line combing. The fabric has sparse, large, quartz inclusions, up to 4.0mm across.

Badorf vessel no. 74 (Fig. 5,1.20)
Trench 4601
Contexts 0459 0892 MLS, 0478 US, 0506f EM.
These sherds are probably from a jar or pitcher. One sherd, from the belly of the vessel, is decorated with a single line of square rouletting. The fabric is hard and smooth, but poorly mixed, in a light reddish-yellow colour, and contains yellow clay pellets and lumps of iron ore, at up to 2.0mm across; quartz is common at less than 0.3mm. = OX ROUL 2

Badorf vessel no. 75 (Fig. 5,1.18)
Trench 4601
Contexts 0002 EM, 0003 0038 MS, 0048 0530 EM, 0116 ELS, 0357 MS, 0477 0887f MLS, 0648 0919a,b&c MS, 0784 0795h MLS.
A very hard, somewhat rough fabric with a grey core and a reddish-yellow surface. Some sherds from the same vessel have a grey surface, suggesting that different parts of the vessel experienced different firing conditions. All the sherds recovered from this vessel were body sherds. The vessel was decorated by multiple bands of square rouletting. The fabric contains a moderate scatter of quartz at between 0.5-1.5mm across.

Badorf vessel no. 76 (Fig. 5,1.9)
Trench 4801
Contexts 0703c,d&e ELS, 0808 1560i EM, 0818 1545a&b EM, 0819 EM, 0890 EM, 1544 EM, 1583 MLS, 1589a&b MLS, 1590 MS, 2410b EM, 02662b EM, 3128a,b,c,d,e,f&g ELS.
This vessel appears to be an undecorated jar with a thickened, upright rim. A smooth, hard type with walls 4-6mm thick. The colour is a reddish-yellow (5YR 7/6) throughout, streaked with iron ore (up to c.3.0mm). The core is slightly blotched with yellow clay pellets. Inclusions of quartz and clay pellets measure up to 1.5mm across.

Badorf vessel no. 77
Trench 4801
Contexts 0718 0691m M, 0807c,d&e EM, 1517 EM.
All undecorated body sherds. A smooth, fine, evenly coloured type with occasional iron ore. The fabric colour is pink (7.5YR 8/4) with a redder external surface, and contains a moderate scatter of small quartz (less than 0.3mm).

Badorf vessel no. 78
Trench 4801
Context 1785a&b M?.
The thick (8mm) sherd walls suggest that these are amphora sherds. The fabric is reddish-yellow with a light grey core, slightly iron streaked, containing large (up to 7.0mm) yellow clay pellets. Quartz is common at up to 1.0mm.

Badorf vessel no. 79 (Fig. 5,1.5)
Trench 4801
Context 2151 LS?
A rim sherd, probably from a spouted pitcher. The top of the rim is decorated with rouletting. The fabric is fine, smooth and hard, very pale brown with a light reddish-yellow core. It contains a moderate scatter of small quartz grains (less than 0.3mm).

Badorf vessel no. 80 (Fig. 5,3.10)
Trench 4601 Context 0472 MS.
Trench 4801 Context 1132 1242a EM.
Sherds from a RBA, with a relief-band decorated by deep, square, multiple row rouletting. The surface is a pale brown colour and the core is grey. The fabric is smooth and hard and contains a moderate scatter of quartz at up to 0.3mm, as well as sparse iron ore/rock fragments at up to 4.0mm across.

Badorf vessel no. 81
Trench 4801
Context 1668 1571 MS?.
A uniform grey (7.5YR 6/0) Badorf shoulder sherd decorated with two rows of square rouletting. The fabric is very hard and slightly coarse, containing a moderate scatter of quartz at less than 0.5mm.

Badorf vessel no. 82 (Fig. 5,3.14)
Trench 4801
Context 2597 ELS.
A very large fragment of amphora base, in a classic pale brown fabric with a reddish-yellow core. The surface of the fabric is slightly speckled with black, and contains a moderate scatter of quartz at less than 0.3mm, and occasional iron ore at up to 2.0mm.

Badorf vessel no. 83
Trench 4601 Context 0690t EM
Trench 4801 Context 3062b EM.
Sherds from a large, thin-walled vessel with a carinated shoulder, decorated with rectangular rouletting. The surfaces of the sherds are pale grey-brown but the matrix is a very dark grey. *The fabric is hard, smooth, and fine, with slick surfaces, and contains* occasional, small quartz crystals.

Badorf vessel no. 84
Trench 4601
Context 0372 ELS, 06901 EM, 0981 MLS.
A fairly fine, thin-walled type, decorated with square rouletting. The fabric is a reddish-yellow colour, with a paler surface and contains few inclusions.

Badorf vessel no. 85
Trench 4601
Context 0477 MLS, 0669b MLS, 0928 0971c MLS.
These are fragments of a very fine sagging base. The fabric is a pale yellow colour with a light grey core, and contains sparse inclusions of quartz at less than 0.3mm.

Badorf vessel no. 86 (Figs. 5.3.5, 6 & 7)
Trench 4601
Contexts 0002a,b&f EM, 0011 MS?, 0013a&b ELS, 0013 0036a&b ELS, 0035b ELS, 0041 ELS, 0115 MS, 0116 ELS, 0371 0376 ELS, 0432b MLS, 0497 0511 MLS, 0665 ELS.
A small, thick-based amphora with narrow, triangular profiled relief-bands. The fabric is reddish-yellow with a yellow outer core and iron ore streaks. Inclusions of iron ore and quartz are common at up to 1.5mm.

Badorf vessel no. 87
Trench 4601
Contexts 0359 0886 MS, 0725e&g MS/ELS, 0824 ELS, 0928 0971d MLS.
A fine pitcher/jar (probably Dorestad type WIIy), decorated with double rows of rouletting. The lower part has been knife trimmed. The surface is a pale yellow brown, with a light red to grey core, and the fabric contains a moderate scatter of large (up to 2.0mm) quartz inclusions and occasional iron ore.

Badorf vessel no. 88 (Fig. 5,1.21)
Trench 4801
Context 0808 1560g EM.
A very fine, hard, smooth sherd that is decorated with rectangular rouletting. The fabric is a pale brown colour with a reddish-yellow core, and contains very few visible inclusions.

Badorf vessel no. 89 (Fig. 5,1.19)
Trench 4801
Context 1198c LMT.
A very fine, smooth, hard sherd from the belly of a pitcher or jar, decorated with a line of square rouletting. The sherd has a very pale brown surface, a light grey core and a reddish-yellow central core. The fabric contains few visible inclusions.

Badorf vessel no. 90 (Fig. 5,1.6)
Trench 4801
Context 1668 1571f&g MS?
A unusual pitcher with a pouring lip and a circular perforation on the side of the vessel, below the rim. The vessel is fairly thick walled (5mm). The fabric is grey, with a light brown surface, scorched in places, and contains a moderate scatter of small (less than 0.5mm) quartz inclusions.
Walberberg

Badorf vessel no. 91
Trench 4601
Contexts 0048 0763 EM, 0549 0656n MLS, 0784 0795n MLS.
A hard, type decorated with deep, square rouletting. The surface is a yellow-red with redder core. The clay is slightly streaked with lighter pellets, and contains quartz inclusions.

Badorf vessel no. 92
Trench 4601
Context 0677 0948b&c EM.
A very fine, hard, smooth, thin-walled (2.5mm) vessel. The fabric is a reddish-yellow (5YR 7/8) and contains few inclusions.

Badorf vessel no. 93 (Fig. 5,3.9)
Trench 4601
Context 0003 0038 MS?, 0333 MS?, 0677 0948a EM.
A RBA whose band is undecorated. The fabric is hard, slightly coarse and scorched, in a reddish-yellow colour and contains a moderate scatter of inclusions of quartz, iron ore and clay pellets up to 1.5mm across.

Badorf vessel no. 94
Trench 4601
Context 0041 ELS, 0132a MS.
Two hard, slightly coarse sherds with a triple-banded core of grey, reddish-yellow, and yellow. Inclusions of clay pellets and quartz are visible, the latter at less than 0.3mm.

Badorf vessel no. 95
Trench 4601
Context 0690j EM.
A thin-walled (3.0mm) reduced sherd in a uniform grey colour. The sherd is decorated with square rouletting. The fabric contains a moderate scatter of quartz at c.0.5mm across.

Badorf vessel no. 96
Trench 5201
Context 0001 0010b US.
Probably a 9th century type. The fabric is hard and scorched, in a reddish-yellow colour with a light grey core, and contains a moderate scatter of quartz at c. 0.5-1.0mm.

Badorf vessel no. 97
Trench 5901
Context 0003 ELS.
A hard, slightly coarse Badorf sherd, decorated with a wavy line. The colour is reddish-yellow with a thin, light grey core. The fabric contains frequent quartz inclusions at c.0.05mm, and occasional iron ore.

Badorf vessel no. 98
Trench 5801
Context not marked on sherd.
A hard, smooth, classic Badorf sherd in a very pale brown colour with a reddish-yellow core. The fabric contains a moderate scatter of quartz at less than 0.5mm across.

Badorf vessel no. 99
Trench 5203
Contexts 0044 0321 ELS, 0075 0170 MS, 0076 EM, 0103 EM, 0163 ELS, 0716 LM, 0751 EM, 0857 0020 LM.
A hard, Bornheim Waldorf type with a grey core and a red surface. The vessel has a flat base. The fabric contains quartz at up to 1.0mm across. The lower part of the exterior is slightly burnished.

Badorf vessel no. 100
Trench 5203
Contexts 0001 US, 0044 0231 ELS, 0125 0818 EMS, 0236 0310 LM, 0341 ELS, 0489 ELS?, 0515 ELS, 0521 EM, 0527 EM, 0588 MS, 0589 MS, 0626 ELS?, 0641 EMS?, 0650 EM, 0671 0682 EM, 0725 EM, 0857 0020 LM.
This is an early Badorf type. The vessel has a triangular profiled rim with rilling along its upper surface. A wide strap handle extends directly out from the rim. The fabric is hard and rough and contains a scatter of abundant quartz at up to 2mm across. The surface is a reddish-yellow colour and the cores are reddish-yellow and grey.

Badorf vessel no. 101
Trench 5203
Contexts 0035 0071 ELS?, 0600 0514 EM.
Bornheim Waldorf type. Two everted rim sherds in a reddish, gritty fabric. The fabric contains abundant quartz inclusions at up to 1.0mm across.

Badorf vessel no. 102
Trench 5203
Contexts 0044 0327 ELS, 0257 ELS, 0273 MS?, 0328 0581 MS, 0338 ELS?, 0527 EM, 0588 MS.
Bornheim Waldorf type. Similar to 101, but with a larger rim, and in a lighter, yellower fabric. Scorched outer surface.

Badorf vessel no. 103
Trench 5203
Contexts 0075 MS, 0275 EMS, 0361 EMS?, 0398 MS, 0489 ELS?, 0633 ELS?.
Bornheim Waldorf type. Similar to 101, with a beaded, everted rim and a flat base. The fabric is hard and rough and contains quartz at up to 2mm across.

Badorf vessel no. 104
Trench 5203
Contexts 0044 0068 ELS, 0257 ELS, 0273 MS?, 0275 EMS, 0588 MS, 0595 EMS, 0857 LM.
Bornheim Waldorf body sherds. Heavily gritted reddish fabric with brown exterior. The fabric contains quartz at up to 2mm across, and occasional iron ore and clay pellets.

Badorf vessel no. 105
Trench 5203
Context 0047 EM
Classic Badorf sherd with rouletted decoration. Light reddish-yellow outer surface, very pale brown fabric with light grey core. The fabric is very smooth and fine, with no visible inclusions.

Badorf vessel no. 106
Trench 5203
Contexts 0036 0267 LMT, 0064 EM, 0261 0359 EM, 0465 ELS.
Probable Bornheim Waldorf type. Hard, with a grey core and a light grey outer core. Reddish-yellow outer surface. The fabric is fairly smooth, with a moderate scatter of quartz at <0.3mm across. May be an over-fired Badorf type. All body sherds.

Badorf vessel no. 107
Trench 5203
Context 0465 ELS.
Bornheim Waldorf type. Very hard, over-fired sherds with a black core and a reddish-purple surface. The fabric contains abundant quartz inclusions, occasionally up to 2.0mm across.

Badorf vessel no. 108
Trench 5203
Contexts 0056 EM, 0487 EM, 0610 MS, 0707 EM.
Bornheim Waldorf type. Thick walled vessel with a thick grey core. The surface is light reddish-brown. The fabric is very hard and contains abundant inclusions. One sherd has wavy-line, combed, decoration.

Badorf vessel no. 109
Trench 5203
Context 0346 ELS+
Sherd from a Badorf RBA in a fine, classic Badorf fabric. The bands have square rouletting. The fabric is pale grey with a reddish external surface. The fabric contains a moderate scatter oc inclusions at <0.3mm across.

Badorf vessel no. 110
Trench 5203
Context 0064 EM?
Bornheim Waldorf. Hard, coarse, grey fabric with double bands of square rouletting. Slight reddish-yellow over some parts of the exterior surface. All body sherds.

Badorf vessel no. 111
Trench 5203
Context 0253 MS
Coarse Badorf rim sherd in a similar fabric to vessel 100. The rim iseverted and downturned. The fabric contains a scatter of abundant quartz at up to 1.5mm across. The fabric is a pink colour (7.5YR 8/4), with a more reddish-yellow outer surface.

Badorf vessel no. 112
Trench 5203
Contexts 0648 EM, 0751 EM
Smooth, 8th/9th century body sherds in a light reddish-yellow fabric. The surface of the sherds are slick and smooth. The fabric contains a moderate scatter of quartz at <0.3mm across and occasional iron ore.

Badorf vessel no. 113
Trench 5203
Contexts 0075 MS, 0077 EM, 0163 ELS, 0273 MS?, 0341 0342 ELS, 0642 EM, 0707 0780 EM, 0781 EM, 0783 EM.
A Bornheim Waldorf vessel. The fabric is a light brown to reddish-brown colour with a light red core, and contains abundant quartz inclusions at up to 2mm across, as well as occasional clay pellets. The vessel has a beaded to triangular profiled rim, and may once have been a biconical vessel. The exterior displays parallel bands of light rilling.

Badorf vessel no. 114
Trench 5203
Context 0751 EM
Bornheim Waldorf type. Rim and flat base sherds in a strong reddish-brown colour. The rim is everted and rilled; the shoulder has a strong carination. The fabric contains abunadnt quartz inclusions at <1.0mm across, giving the sherds a rough feel.

Badorf vessel no. 115
Trench 5203
Context 0662 EMS?
Strap handle from a Bornheim Waldorf vessel. Hard, gritty, dark pinkish-brown fabric.

Badorf vessel no. 116
Trench 5203
Context 0317 LM.
Sherd from a rouletted RBA. Slightly rough fabric in a very pale brown colour.

Badorf vessel no. 117
Trench 5203
Context 0685 LMT
Flat-topped rim in a similar fabric to 101. The fabric contains abundant quartz inclusions, with occasional ones up to 4mm across. Slightly scorched.

Badorf vessel no. 118
Trench 5203
Contexts 0044 ELS, 0392 ELS?, 0589 MS.
Bornheim Waldorf. This vessel has a grey surface with a thick red core. The fabric is hard and rough, and contains a scatter of abundant quartz inclusions at <0.5mm across..

Badorf vessel no. 119
Trench 3104
Contexts 0954 EM, 2021 ELS, 2022 EM, 2140 EM, 2195 EM, 3266 EM, 3342 MS, 3391, 4081 MLS, 4258 EM.
Classic small RBA Badorf vessel with a lenticular base. The fabric is very distinctive because of the pronounced firing core. The fabric is fairly fine, hard and smooth, with occasional large (<2.0mm) inclusions, and a moderate scatter of small ones (<0.3mm).

Badorf vessel no. 120
Trench 3104
Contexts 0085 ELS, 0645, 1715 ELS, 3483 LM, 3520, 4774 EM.
Classic Badorf fabric. This vessel has a very pale brown surface and a light grey core. It is decorated with square, single row rouletting over the neck and shoulder. The fabric contains a light scatter of small inclusions.

Badorf vessel no. 121
Trench 3104
Contexts 0321 ELSc, 3475 EM, 3520, 3524 EM, 3530 EM, 3544, 3579 MLS, 4098 ELSc, 4477 MS, 4774 EM, 4856 ELS.
This vessel is made up of body sherds in a hard fabric. The surface is often a dark reddish-yellow, with visible iron ore inclusions. The thicker sherds display a light grey core.

Badorf vessel no. 122
Trench 3104
Contexts 0083 LMT, 0997 LM, 1239, 1590 ELSc, 1815 ELSc, 3020 EM, 3475 EM.
This vessel has a hard, slightly coarse fabric, with inclusions up to 1mm across. The break is slightly streaky, with a darker orange core and lighter outer cores, The external surface is slick.

Badorf vessel no. 123
Trench 3104
Contexts 2140 EM, 2195 EM, 4081 MLS, 4903 EM.
This vessel has a rim with scored lines along its top. Possibly an amphora in a hard, rough fabric. The break is multi-banded from pale reddish-yellow to red to grey. Possibly of early 8th century date.

Badorf vessel no. 124
Trench 3104
Contexts 0865 MLS, 3351 MLS?, 4165 MLS.
This vessel has a hard fabric, similar to 121 and 123. The fabric is fairly rough, with inclusions up to 1.5mm across. The surface is reddish-yellow on the exterior, and yellow on the interior, with a grey core. The shoulder is decorated by rills.

Badorf vessel no. 125
Trench 3104
Contexts 0854 ELS, 1133 LM, 1466 ELS, 3475 EM, 3483 LM, 4935.
A vessel represented by a number of classic Badorf body sherds in an even light brown fabric with few visible inclusions. The base is lenticular. The vessel is decorated with rectangular rouletting.

Badorf vessel no. 126
Trench 3104
Contexts 0385 ELSc, 0664 EM+.
A vessel in a classic Badorf fabric, similar to 121 but with a red core. Pale coloured clay pellets are visible in the break. The rim has a triangular profile.

Badorf vessel no. 127
Trench 3104
Contexts 0085 ELS, 0935 LM, 4587 LM.
A vessel in a similar fabric to 125, but with a greater number of inclusions and a slightly darker fabric. The rim is beaded and down-turned.

Badorf vessel no. 128
Trench 3104
Contexts 1133 LM, 1546 ELS.
The fragments of this vessel have a reddish-yellow exterior and a very pale brown core. The fabric contains many small quartz inclusions at <0.3mm across. The surface has a slick feel.

Badorf vessel no. 129
Trench 3104
Contexts 2139 EM+, 2140 EM, 3524 EM.
This fabric has a very hard reddish-yellow fabric with occasional clay pellets. One of the fragments is from a strap handle. It may be an early Badorf type.

Badorf vessel no. 130
Trench 3104
Contexts 0643 EM, 4165 MLS.
This vessel is hard, with a pale grey core and a reddish-yellow outer surface, and contains a moderate scatter of inclusions at <0.3mm across. The vessel is decorated with square rouletting.

Badorf vessel no. 131
Trench 3104
Context 1165 EM
Bornheim Waldorf type. This is a heavily gritted strap handle fragment. The fabric is grey with an reddish-yellow (5YR 7/8) surface.

Pingsdorf vessels.

Pingsdorf vessel no. 1 (Fig. 5,4.5)
Trench 4801
Contexts 0718b M, 0751a EM, 0800 EM, 0817a EM, 0817 0836b EM, 0818b EM, 1088 1745d EM, 1527 EM.
This vessel has a hard fabric, slightly over-fired, and is decorated on its upper third with dark-reddish brown painted commas. The fabric is a yellow colour, with a reddish-yellow core, and contains a well-sorted scatter of common quartz at less than 0.3mm, as well as a little iron ore.

Pingsdorf vessel no. 2 (Figs. 5.4.8, 5.5.32)
Trench 4801
Contexts 0500 US, 0718e M, 0768 1531f LM, 0808 1560c EM.
This vessel has a hard fabric, and is decorated with red (10R 5/6) paint. The decoration takes the form of dots and commas. The fabric is an even, very pale brown colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 3 (Fig. 5,5.22)
Trench 4801
Contexts 0718a M, 1554e EM.
This vessel has a fine, hard fabric, and is decorated with reddish-yellow (5YR 6/6) paint. The fabric is an even white (10YR 8/2) colour, containing a well-sorted scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 4 (Fig. 5,4.10)
Trench 4801
Context 0768 1531d LM, 1527a,c&d EM.
A frilly based vessel in a reddish-yellow colour (7.5YR 8/6), with a very pale brown surface (10YR 7/4). The paint is a dark reddish-grey colour. The fabric is hard and smooth, with a sparse scatter of iron ore visible, as well as a scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 5
Trench 4801
Context 0768 1531c LM.
This vessel has a hard fabric, and is decorated with a smudge of red paint. The fabric is a reddish-yellow colour with a yellower scratched surface, and contains a moderate scatter of quartz at less than 0.3mm, and occasional iron ore.

Pingsdorf vessel no. 6 (Fig. 5,5.28)
Trench 4801
Context 2674 MLS.
This vessel has a hard, over-fired fabric, and is decorated with dark reddish-grey paint. The fabric is a grey colour, with a slightly browner surface, and contains a well-sorted, common scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 7
Trench 4601 Context 0690gg,hh EM.
Trench 4801 Context 2668 EM.
This vessel has a very hard, over-fired fabric, and is decorated with dark reddish grey paint. The fabric is a strong brown colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 8
Trench 4801
Context 0650 PM.
This vessel has a hard fabric, and is decorated with brown paint. The fabric is a light grey colour, with a yellower core, and contains a common scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 9
Trench 4601 Context 0733 EM.
Trench 4801 Context 2661a EM.
This vessel has a hard, over-fired fabric, and is decorated with red paint that is barely visible. The fabric is a pale yellow (2.5YR 7/4) colour with a grey surface, containing abundant inclusions of quartz at less than 0.3mm.

Pingsdorf vessel no. 10
Trench 4801
Contexts 0680b&c LM, 0681f LM, 2778 2909p EM.
This frilly based, spouted vessel has a very hard fabric, and is decorated with red paint. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 11
Trench 4801
Context 1628t EM.
This sherd has a hard fabric, and is undecorated. The fabric is a grey colour, with a white core, and contains a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 12 (Fig. 5,4.12)
Trench 4801
Contexts 2486a EM, 2486 2445b&c EM.
This is a small vessel with an everted rim, in a hard fabric with a slick surface, and decorated with a lattice painted in weak red paint. The fabric is a yellow colour, with a grey core, and contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 13 (Fig. 5,4.7)
Trench 4801
Context 2057x EM.
This vessel has a hard fabric, and is decorated with a lattice of dark red paint. The fabric is a pinkish grey colour, with a light grey core and interior surface, and contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 14
Trench 4801
Context 1198 LMT.
This thin-walled vessel has a hard, smooth fabric, and is undecorated. The fabric is a light grey colour, with a yellow surface, and contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 15 (Fig. 5,4.6)
Trench 4601
Context 0690b,e&d, PLUS e,f,g&j EM.
This large, frilly based, vessel has an everted rim, and a hard, rough fabric. The fabric is a white to light grey colour (hue 2.5), with a grey core, containing an abundant scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 16 (Fig. 5,5.25)
Trench 4601
Context 0690w EM.
This vessel has a very hard fabric, and is decorated with commas of dark reddish-grey paint. The sherd has a grey-yellow surface colour, and a reddish-yellow core. The fabric contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 17
Trench 4601
Contexts 0346b&c M, 1003e ELS.
This vessel has a slightly flanged rim and a handle, and is decorated with dusky red paint. The fabric is hard and coarse, a brown colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 18 (Fig. 5,4.12, 5.5.30)
Trench 4801
Contexts 0718 0836a M, 0734a EM, 1334a LM.
A vessel with an everted rim and a frilly base, in a hard, coarse fabric, that is decorated with dots of red paint. The fabric is a reddish-yellow colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 19
Trench 4601
Context 0415e,mm,nnn M, 0415 0891b M.
This vessel has thin walls and a hard fabric, and is decorated with possible commas of red paint. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 20 (Fig. 5,4.11)
Trench 4801
Context 1825 M?
This frilly base sherd has a hard, coarse fabric. The fabric is a reddish-yellow colour (5YR 7/8), containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 21
Trench 4601
Context 0625c EM.
This frilly based sherd has a hard fabric. The fabric is fairly fine, in a reddish-yellow colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 22 (Fig. 5,5.27)
Trench 4601
Context 0675b MLS.
This everted rim sherd has a hard fabric, and is decorated with a line of dark red paint. The fabric is a very pale brown colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 23
Trench 4801
Context 0917 1981c LM.
This sherd has a very hard fabric. The fabric is a grey-brown colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 24 (Fig. 5,5.29)
Trench 4601
Context 0415 0891ooo M.
This sherd has a hard, coarse fabric, and is decorated with red paint. The fabric is a reddish-yellow colour, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 25
Trench 4801
Context 1132 1218y EM.
This vessel has a hard, fairly fine fabric, and is decorated with dusky red paint. The fabric is a very pale brown colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 26
Trench 3410
Context 0032a,b,c,d,&e ELS.
This thin-walled vessel has a hard, coarse fabric, and is decorated with dark red paint in a lattice pattern. The fabric is a grey colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 27
Trench 3410
Context 0034f ELS.
This sherd has a fine, hard fabric, and is undecorated, The fabric is a grey colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 28
Trench 3902
Context 0117 EM.
This sherd has a hard fabric, and is undecorated. The fabric is a reddish-yellow colour, with a grey core, and contains a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 29
Trench 4201
Contexts 0053, 0061 0034 ELS.
This vessel has a hard fabric, and is decorated with red paint. The fabric is a reddish-yellow colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 30 TS 56.
Trench 4302
Contexts 0034 M, 0042 M.
These sherds have a hard, coarse fabric. The fabric is a orange-grey-brown colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 31 TS 43.
Trench 5502
Context 0610 EM.
This body sherd has a hard fabric with some evidence of knife trimming, and is decorated with dark red paint. The fabric is a brown colour with a grey core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 32
Trench 5502
Contexts 0001 US, 0005m M.
This vessel has a hard fabric, and is decorated with red paint. The fabric is a reddish-yellow colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 33
Trench 5201
Context 0001a US.
This sherd has a hard, glossy fabric. The fabric is an olive-brown colour, with a reddish-yellow core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 34
Trench 5701
Contexts 0009 LM, 0059a&b EM.
This vessel has a hard fabric, and is decorated with red-brown paint on its interior and exterior surfaces. The fabric is a pale brown colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 35
Trench 5701
Contexts 0059d EM, 0143q ELS, 0156 EM.
This vessel has a very hard, glossy fabric, and is decorated with dark red paint. The fabric is an olive brown colour with a yellow core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 36
Trench 5701
Context 0059c EM.
This vessel has a hard fabric, and is decorated with light reddish-yellow paint. The sherd has a yellow surface colour and a reddish-yellow core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 37
Trench 5801
Context 0001f US.
This sherd has a hard, pimply fabric, and is decorated with very dark red paint. The fabric is a brown colour with a yellow core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 38
Trench 5801
Context 0001a US.
This vessel has a hard, smooth fabric, and is decorated with large splodges of dark red paint. The fabric is a grey colour, with a yellow surface, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 39
Trench 5801
Context 0021a,c,d&e EM.
The remains of this small, thin-walled vessel have a hard fabric, and are decorated with poorly executed commas in dark red paint. The fabric is a grey colour with a yellow-grey inner surface, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 40
Trench 5801
Contexts 0049e EM, 0066b EM.
This vessel has a hard, glossy fabric. The fabric is a reddish-yellow colour with a grey core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 41
Trench 5801
Context 0064m M.
This sherd has a hard, coarse fabric, and is decorated with dark red paint. The fabric is a red-brown colour with a grey and yellow core, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 42
Trench 4601
Contexts 0278 0515c EM?, 0499a,b,c&d EM, 0048 0763m EM.
This (?)amphora has a hard fabric, and is decorated with dark red paint. The fabric is a white colour, containing a well-sorted scatter of abundant quartz at less than 0.3mm. Many of the sherds are scorched.

Pingsdorf vessel no. 43
Trench 5902
Context 0079 EM.
This vessel has a hard fabric, and is decorated with red paint. The fabric is a reddish-yellow colour, containing a scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 44 TS 50.
Trench 8804
Context 0043 M.
This vessel has a hard, slightly coarse fabric, and is decorated with dark red-brown paint. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 45
Trench 9802
Context 0016/17 M.
This vessel has a hard fabric, and is decorated with red paint. The fabric is a light brown colour, containing a scatter of quartz at less than 0.5mm. Badorf/Pingsdorf type.

Pingsdorf vessel no. 46 (Fig. 5,4.2)
Trench 6202
Contexts 0003 LM, 0005 LM, 0075 0084d LM, 0145d LM, 0153i,k,o&v LM.
These sherds are from an amphora with a folded rim and a handle, in a hard, coarse fabric, which is decorated with dark red paint. The fabric is a brown colour with a reddish-yellow and grey core, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 47
Trench 6202
Contexts 0080a LM, 0155e LM, 0247e LM.
This vessel has a fine, hard fabric, and is decorated with strong red paint. The fabric is a yellow colour with a grey core, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 48
Trench 6202
Contexts 0226b LM, 0247f&g LM.
These sherds are distinctive, in a hard, very coarse fabric. The fabric is a speckled brown colour with a yellow core and a weak red outer surface, containing a scatter of quartz at c.0.5mm.

Pingsdorf vessel no. 49
Trench 6202
Contexts 0257d EM, 0399c&d ELS.
This vessel has a hard, slightly coarse fabric, and is decorated with reddish-grey paint. The fabric is a grey colour with a thin yellow core, containing a abundant scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 50
Trench 6202
Contexts 0247 LM, 0255f EM.
This vessel has a hard fabric, and is decorated with reddish-yellow paint. The fabric is a yellow colour with a grey core, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 51
Trench 6202
Contexts 0056b&c LM, 0062a LM.
This vessel has a slightly flanged rim in a hard, coarse, glossy fabric, and is decorated with dark red paint. The fabric is a reddish-yellow colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 52
Trench 6202
Contexts 0153r&x LM, 0153 0162 LM.
The sherds from this small vessel have a hard, coarse fabric, with a rilled surface. The fabric is a dull reddish-yellow colour with a yellow grey core, containing a poorly sorted scatter of quartz at up to 1.5mm. Two of the sherds have scorched surfaces.

Pingsdorf vessel no. 53 (Fig. 5,4.9)
Trench 6202
Context 0056a LM.
This frilly based vessel has a hard, coarse fabric. The fabric is grey on the outside, and pale yellow on the interior, and contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 54 (Fig. 5,4.4)
Trench 6202
Context 0003b LM.
This crude rim/handle sherd has a hard, slightly rough fabric, and is decorated with dark red paint. The fabric is a reddish-yellow colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 55
Trench 6202
Contexts 0031a&b LM, 0119 0122b EM.
This vessel has a hard, fairly fine fabric, and is decorated with commas of thinly applied reddish yellow paint. The fabric is a yellow colour with a reddish-yellow core, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 56
Trench 6202
Context 0155g LM.
This frilly base sherd has a hard, coarse fabric. The fabric is a grey colour, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 57
Trench 6202
Context 0119b EM.
This sherd has a hard, slightly rough fabric. The surface is a grey-brown colour with a yellow core, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 58
Trench 6202
Context 0250c EM.
This vessel has a hard, fairly fine fabric, and is decorated with splodges of red-brown paint. The fabric is a pink colour with a light grey surface, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 59
Trench 6202
Context 0155d LM.
This squared, everted rim has a very hard, proto-stoneware, fabric, and is decorated with dark red paint. The fabric is a brown colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 60
Trench 6202
Context 0249a EM.
This vessel has a hard, slightly coarse fabric, and is decorated with reddish-yellow paint on its interior surface. The fabric is a very pale brown colour with a light grey core, containing a scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 61
Trench 6202
Context 0247a LM.
This vessel has an over-fired, hard, very coarse fabric. The fabric is a dark grey colour, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 62
Trench 6202
Context 01531 LM.
This thick body sherd has a hard, very coarse fabric, and is decorated with a vertical stripe of red paint. The fabric is a brown colour, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 63
Trench 6202
Context 0177a LM.
This vessel has a hard, very coarse fabric. The surface is a dark greyish-brown colour with a well-defined reddish-yellow core. The fabric contains an abundant scatter of well-sorted quartz at less than 0.3mm.

Pingsdorf vessel no. 64
Trench 6202
Context 0153w LM.
This shoulder sherd is from a small vessel with an everted rim and has a hard, over-fired, glossy fabric. The fabric is a dark grey colour with a yellow core, containing an abundant scatter of well-sorted quartz at less than 0.3mm.

Pingsdorf vessel no. 65
Trench 6202
Context 0251q EM.
This thin-walled sherd has a hard, fine fabric, and is decorated with a stroke of reddish-yellow paint. The fabric is a very pale grey colour, somewhat scorched, and contains a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 66
Trench 6202
Context 0056c LM.
This thick sherd has a hard, coarse fabric, and may be from an amphora. The fabric is a reddish-yellow colour with a grey core, containing an abundant scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 67
Trench 6202
Context 0083 LM.
This sherd has a smooth, fine, very hard, fabric. The fabric is a very pale brown colour, containing a well-sorted scatter of quartz at less than 0.2mm.

Pingsdorf vessel no. 68
Trench 6202
Context 0202k LM.
This vessel has a hard, fairly fine fabric. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 69
Trench 6202
Context 0226d LM.
This possible Pingsdorf vessel has a hard, fairly fine, fabric. The fabric is a scorched very pale brown colour, containing a moderate scatter of quartz at less than 0.2mm.

Pingsdorf vessel no. 70
Trench 6202
Context 0226e LM.
This sherd has a hard, fairly fine, glossy fabric. The fabric is a light grey colour, containing a scatter of quartz at less than 0.2mm.

Pingsdorf vessel no. 71
Trench 6202
Context 0247c LM.
This sherd from a thin-walled vessel has a hard, fine fabric. The fabric is a grey colour with a yellow-brown surface, containing a moderate, well-sorted scatter of quartz at less than 0.2mm.

Pingsdorf vessel no. 72
Trench 6202
Context 0380c EM.
This vessel has a hard, fairly fine fabric, and is decorated with drips of red paint. The fabric is a light grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 73
Trench 4801
Context 0653f LM.
This sherd has a hard, fine fabric, and is decorated with a comma of reddish-yellow paint. The fabric is a very pale brown colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 74
Trench 4801
Context 1628t EM.
This sherd has a very hard, fine fabric, and is decorated with a spot of dark grey paint. The fabric is a dark grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 75
Trench 4801
Context 1628z EM.
This vessel has a hard, coarse fabric, and is decorated with dark red paint. The fabric is a light brown colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 76
Trench 4801
Contexts 0680d LM, 0681b&c LM.
This vessel has a hard fabric, and is decorated with reddish-yellow paint. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 77
Trench 4601
Contexts 0499n EM, 0625b EM.
This vessel has a hard, fairly fine fabric, and is decorated with dark reddish-yellow paint. The fabric is a grey colour, containing a moderate scatter of quartz at less than 0.3mm.

Pingsdorf vessel no. 78
Trench 4801
Context 2153 UD.
This vessel has a hard, rough fabric. The fabric is a reddish-yellow colour, containing a moderate scatter of quartz at less than 0.5mm.

Pingsdorf vessel no. 79
Trench 4601
Context 0527 MLS.
This unusual, flat base fragment has a hard, rough fabric. The fabric is a yellow-grey colour, containing a moderate scatter of large quartz grains at up to 1.0mm.

Pingsdorf vessel no. 80
Trench 6202
Context 0247c LM.
This vessel has a hard, fine fabric. The fabric is a very pale brown colour, containing a moderate, well-sorted scatter of quartz at less than 0.2mm.

Pingsdorf vessel no. 81
Trench 7501
Context 0080c EM.
This vessel has a hard fabric, and is decorated with faint splashes of reddish-yellow paint. The fabric is a reddish-yellow colour, and contains a well-sorted scatter of quartz at less than 0.5mm, and occasional iron ore.

Pingsdorf vessel no. 82 (Fig. 5,5.26)
Trench 6202
Context 0248g&h EM
These thin-walled sherds have a fine, very hard fabric, and are decorated with light yellowish-brown paint. The fabric is a white colour, containing a moderate scatter of quartz at less than 0.3mm across.

Pingsdorf vessel no. 83
Trench 5203
Contexts 0035 0043 ELS?, 0062 LM, 0167 EM, 0211 0225 EM, 0217 EM, 0348 EM, 0366 EM, 0381 ELS, 0642 EM, 0670 EM, 0857 LM.
This vessel has an everted flattened rim and a strap handle. The fabric is a very pale brown with no core and contains a moderate scatter of inclusions at <0.3mm across. It has a slightly rough feel. The paint is a yellowish-red.

Pingsdorf vessel no. 84
Trench 5203
Contexts 0366 EM, 0527 EM+, 0857 0081 LM, 0857 0168 LM, 0857 0169 LM.
Very over-fired vessel with a partially vitrified surface. The external surface is a reddish-brown and the core is yellowish. The fabric has a rough feel with abundant inclusions at <0.5mm across. The paint is a very dark grey in a looped design.

Pingsdorf vessel no. 85
Trench 5203
Contexts 0045 EM+, 0236 LM, 0252 EM, 0261 0359 EM, 0261 0369 EM, 0324 ELS, 0337 EM, 0337 0359 EM, 0673 EM, 0695 EM, 0829 PM, 0857 LM.
This vessel has a hard, very pale brown fabric with a light grey core and contains abundant inclusions at <0.5mm across. The surface is rough. The vessel has an everted flattened rim, strap handles and a frilled base. The vessel has yellowish-red paint in blotches and commas.

Pingsdorf vessel no. 86
Trench 5203
Contexts 0207 ELS, 0600 0499 EM
Over-fired and very hard with a greenish-grey surface and brown paint in vertical stripes. The fabric contains abundant inclusions at <0.5mm across. The core is grey.

Pingsdorf vessel no. 87
Trench 5203
Context 0771 EM
This vessel has a grey fabric with an orange tinge and contains abundant inclusions at <0.5mm across, giving it a rough feel. Unpainted.

Pingsdorf vessel no. 88
Trench 5203
Context 0729 EM
Grey fabric with a greenish-yellow tinge and dark purple paint. The fabric is hard, slightly rough, and contains abundant inclusions at <0.5mm across.

Pingsdorf vessel no. 89
Trench 5203
Contexts 0261 0349 EM, 0261 0291 EM, 0783 EM.
This vessel has a squared-off rim and wide strap handle with vertical grooves. The fabric is hard, very pale brown to yellow with a faint grey core. Decorated with dark brown paint.

Pingsdorf vessel no. 90
Trench 5203
Context 0487 EM
Body sherd in a dark grey fabric containing abundant inclusions at <0.5mm across. Decorated with vertical stripes of very dark grey paint.

Pingsdorf vessel no. 91
Trench 5203
Contexts 0036 LMT, 0236 LM, 0261 0291 EM, 0261 0349 EM, 0261 0359 EM, 0487 EM.
This vessel has a very pale brown fabric with a grey core. It is hard and smooth with very small inclusions. Decorated with yellowish-red loops of paint. A narrow strap handle is present.

Pingsdorf vessel no. 92
Trench 5203
Context 0236 LM
A flattened, squared, rim sherd in a very pale brown fabric. The sherd is decorated with a splash of red paint.

Pingsdorf vessel no. 93
Trench 5203
Context 0072 EM
Grey body sherd with dark red-brown paint. The fabric is hard and slightly rough and contains abundant inclusions at <0.3mm across.

Pingsdorf vessel no. 94
Trench 5203
Contexts 0261 0349 EM, 0487 0407 EM, 0487 0274 EM, 0600 0428 EM.
Sagging base in a yellow-brown fabric, with dark purple paint. The rim sherd is unusual; rounded with an internal groove. The fabric is very hard and contains abundant inclusions at <0.3mm across.

Pingsdorf vessel no. 95
Trench 5203
Contexts 0044 ELS, 0044 0022 ELS.
This vessel is represented by two small, scorched sherds in a very dark grey fabric, with very dark grey paint. The fabric contains moderate to abundant inclusions at <0.3mm across.

Pingsdorf vessel no. 96
Trench 5203
Context 0261 EM
Grey, fairly fine fabric with yellowish-red paint. The fabric contains a moderate scatter of inclusions at <0.3mm across.

Pingsdorf vessel no. 97
Trench 5203
Context 0788 EM
Over-fired sherd with a red-painted, vitrified surface. The core is banded in orange and grey, and the external surface is a light reddish-brown with an internal pinkish grey surface.

Pingsdorf vessel no. 98
Trench 5203
Context 0716 LM+
This sherd has a very pale brown fabric with a thin orange core. The fabric contains a moderate scatter of inclusions at <0.3mm across. The paint is a light red.

Pingsdorf vessel no. 99
Trench 5203
Context 0857 LM
This sherd has a light grey fabric, fairly smooth, containing moderate inclusions at <0.2mm across, and is decorated with dark brown paint.

Pingsdorf vessel no. 100
Trench 5203
Contexts 0326 LM, 0261 EM, 0281 EM.
Red-painted with an even core. Slightly pinker/browner than 83, and smoother. The fabric is smooth, with a moderate scatter of inclusions at <0.2mm across. I would suggest that this is an early Pingsdorf vessel, mid to late 9th century.

Pingsdorf vessel no. 101
Trench 5203
Context 0472 LM
Over-fired sherd. No red paint visible. The fabric is a greyish-brown colour with a yellow core and contains an abundant scatter of inclusions at <0.5mm across.

Pingsdorf vessel no. 102
Trench 5203
Context 0167 EM
Fine fabric, with a light red, thick, core. The fabric is smooth, with a moderate scatter of inclusions at <0.3mm across. Dark brown stripe of paint visible. Possibly an early type.

Pingsdorf vessel no. 103
Trench 5203
Contexts 0236 LM, 0317 LM.
Two small sherds in a dark red-brown fabric. The fabric is rough, with abundant inclusions at <0.5mm across. No red paint visible.

Pingsdorf vessel no. 104
Trench 5203
Context 0527 EM
One base sherd, in a very hard, smooth, light grey fabric with brown surfaces. The fabric contains a moderate scatter of inclusions at <0.3mm across.

Pingsdorf vessel no. 105
Trench 3104
Context 1802 EM
A large number of sherds from a vessel with a frilled base and a squared rim with two wide strap handles. The fabric is a very hard dark grey, with dark purple paint. Inclusions are small and well-sorted.

Pingsdorf vessel no. 106
Trench 3104
Contexts 0083 LMT, 1970 EM,1976 EM, 1990 EM, 2022 EM, 2028 EM, 2086 EM,2116, 2140 EM, 2187 EM, 2215 EM, 2243 EM, 2254, 2395 EM, 2546, 2936 EM, 2970 EM, 3035 MLS/EM.
This vessel has a light orange surface and a grey core. The fabric contains a moderate scatter of quartz inclusions at <0.3mm across. It is decorated with dark red paint. It has narrow strap handles and a short, frilled base.

Pingsdorf vessel no. 107
Trench 3104
Contexts 0029 EM, 0083 LMT+, 0255 LM, 2022 EM, 2116, 2140 EM, 2187 EM, 2215 EM, 2865 LM, 2912, 2936, 2949.
This vessel has a flat rim, narrow strap handles and a small frilly base. It is decorated with red to purple paint. The fabric is grey throughout and contains abundant, well-sorted quartz inclusions at <0.3mm across.

Pingsdorf vessel no. 108
Trench 3104
Contexts 0954 EM, 2139 EM+, 2140 EM, 2195 EM.
This vessel has a coarse yellow-grey fabric and is decorated with squiggles of dark purple paint. The interior is slightly pimply from the abundant quartz inclusions in the fabric.

Pingsdorf vessel no. 109
Trench 3104
Contexts 2086 EM, 2116, 2187 EM, 2215 EM, 2396.
This vessel has a coarse reddish-yellow fabric and is decorated with dark reddish-brown paint. The interior and exterior are slightly pimply from the abundant inclusions that the fabric contains.

Pingsdorf vessel no. 110
Trench 3104
Contexts 0770 PM, 1169 LM.
A very hard red-painted vessel. Proto-stoneware? The fabric is grey, and the surface reddish-yellow, with dark purple paint. The inclusions are very small, with occasional ?iron ore lumps at <3.0mm across.

Pingsdorf vessel no. 111
Trench 3104
Contexts 0954 EM, 2139 EM+, 2140 EM, 2269 MS??
This vessel has a squared, collared rim, and is decorated with dark reddish-brown paint. The fabric is hard, with a yellow surface and a reddish-yellow core, and contains abundant inclusions at <0.3mm across.

Pingsdorf vessel no. 112
Trench 3104
Context 3020 EM
This small vessel is similar to 111. In this case, the rim is everted. The vessel has a yellow surface and a reddish-yellow core, and is decorated with dark red paint.

Pingsdorf vessel no. 113
Trench 3104
Contexts 0035 EM, 0253 LM, 4225 EMc.
This vessel has a very hard grey fabric with a brown surface. All the fragments are bodysherds, none are painted.

Pingsdorf vessel no. 114
Trench 3104
Contexts 0033 LMT, 0083 LMT?, 0314, 0954 EM.
This vessel has a very hard fabric in a yellow colour with a dark grey to brown surface. It is decorated with dark purple paint. The fabric contains abundant inclusions at <0.3mm across.

Pingsdorf vessel no. 115
Trench 3104
Contexts 0083 LMT?, 0314, 0814 EM, 2580 LMT?
This vessel has a wide strap handle and a frilled base. The fabric is an even pale grey and decorated with dark purple paint spots. The fabric contains abundant quartz at <0.5mm across.

Pingsdorf vessel no. 116
Trench 3104
Context 4081 MLS
A body sherd with a very hard fabric. The surface is brown and the core yellow, with an outer core of grey. The sherds are decorated with a brown stripe of paint. The fabric contains abundant quartz at <0.3mm across.

Pingsdorf vessel no. 117
Trench 3104
Contexts 0011 LMT, 2022 EM, 2116.
A thin-walled vessel in a hard, buff coloured fabric, decorated with dark red paint.

Pingsdorf vessel no. 118
Trench 3104
Context 2323 EM, 2865 LM?.
A rim sherd and body sherd with a grey surface and a narrow yellow core. The body sherd is decorated with spots of dusky red paint. The fabric contains abundant quartz inclusions at <0.3mm across.

Grey Gritted catalogue.

Grey gritted vessel no. 1 (Fig. 5,9.14)
Trench 3410
Context 0033 EM
Rounded, everted rim sherd with a dark grey core and lighter grey skin of 1.5mm.

Grey gritted vessel no. 2
Trench 0802
Context 0001 US, 0013 0014 LMT.
3 body sherds.

Grey gritted vessel no. 3 TS 76.
Trench 3902
Context 0132 UPH, 0505 0199b EM.
2 body sherds.

Grey gritted vessel no. 4
Trench 4201
Context 0019 0021 EM.
1 body sherd.

Grey gritted vessel no. 5 TS 20.
Trench 4302
Context 0023a M, 9924 M.
1 wheel-turned rim sherd, 1 HM body sherd.

Grey gritted vessel no. 6
Trench 4302
Context 0015 M.
Large wheel-turned rim sherd joining on to HM shoulder. Heavily scorched.

Grey gritted vessel no. 7
Trench 5502
Context 0226 MS.
1 body sherd.

Grey gritted vessel no. 8
Trench 5701
Context 0042c
1 body sherd.

Grey gritted vessel no. 9
Trench 5701
Context 0042f
1 body sherd.

Grey gritted vessel no. 10
Trench 5801
Context 0041 0089g M.
1 body sherd.

Grey gritted vessel no. 11
Trench 5801
Context 0001 0050 US.
1 body sherd.

Grey gritted vessel no. 12
Trench 6202
Context 0031f LM, 0075 0115c LM, 0250 LM.
4 body sherds, heavily scorched, thin walls.

Grey gritted vessel no. 13 TS 85.
Trench 7404
Context 0091
1 body sherd.

Grey gritted vessel no. 14 (Fig. 5,9.2)
Trench 4801
Context 0474b ELS.
1 rim sherd.

Grey gritted vessel no. 15 (Fig. 5,9.3)
Trench 4801
Context 2900 M.
1 rim sherd.

Grey gritted vessel no. 16 (Fig. 5,9.4)
Trench 4801
Contexts 0725h, i & j , 1564c MLS, 1520b MLS.
Trench 4601
Contexts 0611 0762d MLS, 0690, 0832b MLS.
2 rim sherds, 9 body sherds.

Grey gritted vessel no. 17 (Fig. 5,9.1) (Plate 00)
Trench 4601
Context 0048 0763j, k & l EM, 0048 0977g EM, 0677a,b,c EM, 0778 0909c.
Trench 4801
Contexts 0653c LM, 2486 2445 EM, 2778 EM.
Almost complete circumference of the rim and shoulders of a Frisian Kugeltopf.

Grey gritted vessel no. 18 (Fig. 5,9.6)
Trench 4601
Context 0415 0891 M (15 sherds).
Everted, thickened rim. Fabric identical to no. 17.

Grey gritted vessel no. 19
Trench 4601
Context 0690 EM (19 sherds)
Classic Grey Gritted fabric, with very distinctive upright rim.

Grey gritted vessel no. 20 (Fig. 5,9.10) TS 10.
Trench 4601
Contexts 0549 0694r MLS, 0726 0767d MLS, 0740c MLS, 0784 0795 MLS, 0797a US.
Vessel with flattened, everted rim, heavy external scorching, sherds have slightly reddish core.

Grey gritted vessel no. 21
Trench 4801
Context 0882 0885 EM?
Small body sherd, heavily scorched.

Grey gritted vessel no. 22 TS 91.
Trench 4601
Context 0642 MS, 0664 ELS, 0692 MS/ELS.
Early example (7th century?), thick body sherds, decorated with wavy line combed decoration. The sherd surfaces are black and the core is light grey.

Grey gritted vessel no. 23
Trench 4801
Context 0304b ELS.
Similar to 22, but decorated with a single, heavy, incised wavy line around the belly of the vessel. The surfaces are black and the core grey, the inner surfaces are abraded.

Grey gritted vessel no. 24
Trench 5203
Contexts 0001 U/S, 0036 LMT, 0047 EM, 0236 LM, 0258 ELS, 0261 0291 EM, 0261 0349 EM, 0261 0359 EM, 0348 EM, 0487 EM, 0599 LM, 0707 EM, 0716 LM+, 0751 EM.
Everted, rounded rim.

Grey gritted vessel no. 25
Trench 3104
Contexts 0021 MLS, 0639 EM?, 0865 MLS, 2022 EM, 2086 EM, 2187 EM, 2518 EM?, 2540, 2546, 2865 LM?, 3035, 3110 EM, 3785 MLS?, 4587 LM.
59 fragments of a globular vessel with an everted, rounded rim.

Grey gritted vessel no. 26
Trench 3104
Contexts 0844 EMS?, 2022 EM.
34 sherds from a globular vessel. All but one of the sherds come from 2022 and most of them have been reconstructed to form a virtually complete *kugeltopf*.

Grey gritted vessel no. 27 (Fig. 5,9.7)
Trench 6202
Context 0119 0122a EM
Lid-seated rim fragment.

Grey gritted vessel no. 28 (Fig. 5,9.5)
Trench 4601
Context 0594 0694 MLS
Everted and thickened rim fragment.

Grey gritted vessel no. 29 (Fig. 5,9.8)
Trench 4601
Context 0415 M
Rim fragment from a relatively small vessel. The rim is everted, but its top edge turns inwards slightly.

Grey gritted vessel no. 30 (Fig. 5,9.9)
Trench 4601
Context 0740 MLS
Everted rim sherd on relatively straight shoulders.

Grey gritted vessel no. 31 (Fig. 5,9.12)
Trench 4601
Context 0677 EM
Thick, everted rim sherd.

Grey gritted vessel no. 32 (Fig. 5,9.11)
Trench 4801
Context 1520b MLS
Thickened everted rim, slightly squared.

Grey gritted vessel no. 33 (Fig. 5,9.13)
Trench 4801
Context 1355
Everted, slightly beaded rim sherd fragment.

Black ware catalogue.

Black ware vessel no. 1
Trench 0802
Context 0212 LM.
Body sherd, 8mm thick, highly burnished, grey fabric.

Black ware vessel no. 2
Trench 0802
Context 0198 0207 EM.
2 body sherds.

Black ware vessel no. 3 (Fig. 5,10.11)
Trench 0802
Contexts 0190 0202 EM, 0195 MS?.
Everted beaded rim, brown fabric, burnishing from shoulder.

Black ware vessel no. 4 TS 2.
Trench 1804
Context 0003 M.
Body sherd, 7mm thick, highly burnished, grey fabric.

Black ware vessel no. 5 TS 1, 4.
Trench 1804
Contexts 0014 MLS, 0040 MLS.
2 body sherds, 4mm thick, brown fabric, rilled.

Black ware vessel no. 6
Trench 3410
Context 0027 EM.
Grey-black surface, red-brown fabric.

Black ware vessel no. 7
Trench 3410
Context 0011 0016 LMT.
Body sherd, red-brown fabric.

Black ware vessel no. 8 TS 98.
Trench 4201
Contexts 0003 ELS, 0018b ELS, 0025 ELS, 0040 EM, 0059 ELS.
Strap handled vessel with flanged rim, red-brown fabric.

Black ware vessel no. 9 TS 6.
Trench 4302
Context 0039 MS.
Body sherd from steeply carinated vessel, hard red-brown fabric.

Black ware vessel no. 10 (Fig. 5,10.2) TS 5.
Trench 5502
Context 0150 M.
Roller-stamp decorated vessel, steeply carinated. Late 6th to early 7th century.

Black ware vessel no. 11
Trench 5502
Contexts 0001 0172 US, 0057 EM.
2 body sherds, rilled shoulder, red-brown fabric.

Black ware vessel no. 12
Trench 5801
Context 0090 0022 EM.
Body sherd, red-brown fabric.

Black ware vessel no. 13
Trench 5901
Context 0279 0296 ELS.
Hard body sherd.

Black ware vessel no. 14
Trench 6904
Context 0006 0013 ELS.
BB class 13 shoulder sherd, sandwich core.

Black ware vessel no. 15
Trench 7501
Context 0025 US.
Body sherd with grey core.

Black ware vessel no. 16
Trench 5203
Context 0648 0657 EM
Wide, flat flanged rim in a red fabric with a burnished black surface.

Black ware vessel no. 17
Trench 5203
Context 0475 0689 EM
1 rim sherd with a wide, curved flange.

Black ware vessel no. 18
Trench 5203
Context 0163 ELS
Wide, flat rim sherd in a paler fabric than 18. Slightly coarse.

Black ware vessel no. 20
Trench 5203
Context 0302 ELS
Upright rim with a low flange.

Black ware vessel no. 21
Trench 5203
Context 0393 ELS
Very abrade rim with a small flange.

Black ware vessel no. 22
Trench 5203
Context 0372 MS?
Everted rim.

Black ware vessel no. 23
Trench 5203
Context 0633 ELS?
Small vessel with an upright, beaded rim.

Black ware vessel no. 24
Trench 5203
Context 0373 EM
Large beaded rim.

Black ware vessel no. 25
Trench 5203
Context 0725 EM
Upright rim sherd.

Black ware vessel no. 26
Trench 5203
Context 0256 0353 ELS
Small, everted rim sherd.

Black ware vessel no. 27
Trench 5203
Context 0595 EMS
Small vessel with a beaded, everted rim.

Black ware vessel no. 28
Trench 5203
Context 0671 0682 EM
Flanged rim.

Black ware vessel no. 29
Trench 5203
Context 0655 EM?
Very small, thin, upright, beaded rim.

Black ware vessel no. 30
Trench 5203
Context 0044 0053 ELS
Upright, beaded rim.

Black ware vessel no. 31
Trench 5203
Context 0698 MLS
Upright, beaded rim similar to 27.

Black ware vessel no. 32
Trench 5203
Context 0044 ELS
Upright, beaded rim similar to 27.

Black ware vessel no. 33
Trench 5203
Context 0381 0383 ELS
Everted rim and 2 body sherds. Slightly micaceous.

Black ware vessel no. 34
Trench 5203
Context 0521 EM+
Flattened, everted rim.

Black ware vessel no. 35
Trench 5203
Context 0521 EM+
Squared, everted rim and 6 body sherds.

Black ware vessel no. 36
Trench 5203
Context 0250 MS
Thin-walled, everted rim sherd in a slightly rough fabric, with 3 body sherds.

Black ware vessel no. 37
Trench 5203
Context 0250 MS
Small, flanged rim.

Black ware vessel no. 38
Trench 5203
Context 0044 0213 ELS
Sinmgle rim and spout fragment.

Black ware vessel no. 39
Trench 5203
Context 0642 EM
Merovingian biconical vessel, with the upper half decorated with poorly stamped decoration.

Black ware vessel no. 40
Trench 5203
Context 0253 MS
Everted, squared rim.

Black ware vessel no. 41
Trench 5203
Contexts 0521 EM+, 0527 EM+, 0648 EM, 0655 EM?, 0671 EM.
All body sherds, probably of the same vessel. Fine fabric, usually with a red inner surface and highly burnished thin walls.

Black ware vessel no. 42
Trench 5203
Context 0788 EM
Fine, Merovingian, biconical sherd with chevron stamped decoration.

Black ware vessel no. 43
Trench 5203
Context 0309 EM
Sherd from a large vessel. The shoulder of this pitcher displays wide rills, and triangular roller-stamping is visible around the upper belly.

Black ware vessel no. 44 (Fig. 5,10.1)
Trench 5701
Context 0204n EM
Thick flanged rim sherd.

Black ware vessel no. 45
Trench 3104
Context 0971 MS??
Upright, beaded, rim sherd from a thin-walled vessel.

Black ware vessel no. 46
Trench 3104
Context 0880 EM
Small, beaded rim sherd.

Black ware vessel no. 47
Trench 3104
Context 3009 ELS/MLS
Very large, coarse, flanged rim sherd.

Black ware vessel no. 48
Trench 3104
Context 3326 MS
Large, fine, flanged rim sherd.

Black ware vessel no. 49
Trench 3104
Context 4843 ELS?
Large flanged rim sherd, very friable.

Black ware vessel no. 50
Trench 3104
Context 4165 MLS
Large flanged rim sherd, slightly upturned.

Black ware vessel no. 51
Trench 3104
Context 0390 EM
Large, fine, flanged rim sherd, markedly downturned.

Black ware vessel no. 52
Trench 3104
Context 2518 EM?
Medium sized flanged rim sherd, slightly rough and pointed.

Black ware vessel no. 53
Trench 3104
Context 0317 ELSc
Medium sized flanged rim sherd, very fine and somewhat flaky and abraded.

Black ware vessel no. 54
Trench 3104
Context 4843 ELS?
Medium sized flanged rim sherd, slightly downturned.

Black ware vessel no. 55
Trench 3104
Context 2580 LMT?
Medium sized flanged rim sherd, slightly rough.

Black ware vessel no. 56
Trench 3104
Context 4237 EM
Small flanged rim sherd. Hodges Class 13 type.

Black ware vessel no. 57
Trench 3104
Context 1292
Small flanged rim sherd. Class 13 type.

Black ware vessel no. 58
Trench 3104
Context 0885 ELSc
Small fine flanged rim sherd in a flaky fabric.

Black ware vessel no. 59
Trench 3104
Context 1736 MS?
Large flanged rim sherd, downturned edge.

Black ware vessel no. 60
Trench 3104
Context 0815 MLS
Flanged rim sherd.

Black ware vessel no. 61
Trench 3104
Contexts 0385 ELSc, 0413 LM?, 0433 EM, 2022 EM, 2139EM.
Six sherds from a vessel with a flanged rim and strap handle in a dull brownish-red fabric.

Black ware vessel no. 62
Trench 3104
Contexts 0315, 0809 MLS, 1169 LM,. 1285 ELS, 1300 LM, 1727 ELS, 2022 EM, 2037 EM, 3342 MS, 3391, 3475 EM.
A red-burnished Class 13 type, with a rounded, beaded rim. The surfaces are reddish-brown and well burnished. The fabric is hard, with a grey core. 11 sherds in all.

Black ware vessel no. 63
Trench 3104
Contexts 0433 EM, 0880 EM, 2022 EM, 2140 EM, 2556 EM?, 3701 EM, 4147 LM+, 4225 EMc, 4843 ELS?.
Red-burnished vessel with a reddish-brown fabric throughout. The rim is rounded and everted. 11 sherds.

Black ware vessel no. 64
Trench 3104
Context 2022 EM
Three sherds, including an everted beaded rim and a strap handle in a coarse fabric.

Black ware vessel no. 65
Trench 3104
Context 0648 LM-
A body sherd from a Merovingian vessel, decorated extensively with small chevrons. The fabric is coarse and the vessel is large and globular.

Black ware vessel no. 66 (Fig. 5,10.8)
Trench 5701
Context 0127a EM
Flanged rim sherd.

Black ware vessel no. 67 (Fig. 5,10.10)
Trench 5701
Context 0002 LM
Upright rim sherd with horizontal burnishing. Possibly hand-made.

Black ware vessel no. 68 (Fig. 5,10.13)
Trench 5701
Context 0054d EM
Small beaded rim from a wide-mouthed vessel.

Black ware vessel no. 69 (Fig. 5,10.18)
Trench 5701
Context 0008c LM
Simple everted rim from a small vessel.

Black ware vessel no. 70 (Fig. 5,10.22)
Trench 5701
Context 0151 0155f MLS
Flanged rim sherd.

Black ware vessel no. 71 (Fig. 5,10.19)
Trench 5901
Context 0309
Thick beaded rim from a large vessel with a slight shoulder carination.

Black ware vessel no. 72 (Fig. 5,10.4)
Trench 4601
Context 0510 MLS
Flanged rim sherd.

Black ware vessel no. 73 (Fig. 5,10.5)
Trench 4601
Context 0824 ELS
Thick flanged rim sherd from a wide-mouthed vessel.

Black ware vessel no. 74 (Fig. 5,10.6)
Trench 4601
Context 0034 MLS
Flanged rim sherd from a handled pitcher.

Black ware vessel no. 75 (Fig. 5,10.7)
Trench 4601
Context 0474 1061a MLS
Flanged rim sherd.

Black ware vessel no. 76 (Fig. 5,10.17)
Trench 4601
Context 0484c M
Beaded rim sherd with stringly outsloping shoulders.

Black ware vessel no. 77 (Fig. 5,10.9)
Trench 4801
Context 2899 2923 MLS
Beaded rim sherd from a vessel with carinated shoulders.

Black ware vessel no. 78 (Fig. 5,10.12)
Trench 4801
Context 3099 MS?
Rim sherd from a small vessel with a slightly thickened rim.

Black ware vessel no. 79 (Fig. 5,10.14)
Trench 4801
Contexts 0718n M, 1537e EM.
Two rim sherds from a vessel with a beaded rim.

Black ware vessel no. 80 (Fig. 5,10.15)
Trench 4801
Context 1858 M?
Small rim sherd from a vessel with a thick, beaded rim.

Black ware vessel no. 81 (Fig. 5,10.16)
Trench 4801
Context 3136 ELS
Rim sherd from a narrow-mouthed vessel with a beaded rim. The shoulder is highly burnished, horizontally.

Black ware vessel no. 82 (Fig. 5,10.20)
Trench 4801
Context 1527g EM
Flanged rim sherd from a wide-mouthed vessel.

Black ware vessel no. 83 (Fig. 5,10.21)
Trench 4801
Context 0181 1522 EM
Simple everted rim sherd from a small vessel.

Black ware vessel no. 84 (Fig. 5,10.3)
Trench 5502
Context 0619 0617 MS
These sherds from the almost complete profile of a Black ware vessel in a poor quality fabric. The vessel is decorated with four wavy lines, running parallel across the upper part of the vessel, and a single wavy line along the flanged rim. The vessel is an early example of a Black ware pitcher, possibly 7th century in date.

Black ware vessel no. 85 (Fig. 5,11)
Trench 4601
Context 0181
A fine example of a Brown burnished spouted pitcher. The vessel is flat based and has a flattened, everted rim. The vessel is decorated with two parallel wavy lines running across the upper part of the vessel. In addition, the vessel is horizontally birnished on its upper half and vertically burnished on its lower half. The fabric is hard and slightly rough with a moderate scatter of iron ore.

Grey ware 1 catalogue.

Grey ware vessel no. 1
Trench 0802
Context 0001 U/S
1 body sherd.

Grey ware vessel no. 2 (Fig. 5,13.7)
Trench 3902
Context 0176 MLS
1 scorched lid-seated rim sherd.

Grey ware vessel no. 3
Trench 3902
Context 0505 M
1 body sherd.

Grey ware vessel no. 4
Trench 3410
Context 0033b,c, 0050
3 body sherds.

Grey ware vessel no. 5 (Fig. 5,13.9)
Trench 3410
Context 0058
Everted rim sherd.

Grey ware vessel no. 6
Trench 4201
Context 0008a, 0074
2 body sherds, one decorated with thumb impressed relief-band. Thick walled.

Grey ware vessel no. 7
Trench 4201
Context 0043a,b
2 body sherds.

Grey ware vessel no. 8
Trench 4201
Context 0055
1 body sherd.

Grey ware vessel no. 9
Trench 4201
Context 0008b
1 body sherd.

Grey ware vessel no. 10 (Fig. 5,13.6)
Trench 5701
Context 0024b EM
Everted rim sherd, with handle attached.

Grey ware vessel no. 11
Trench 5701
Context 0021 0045 M
1 body sherd.

Grey ware vessel no. 12
Trench 5801
Context 0003
1 body sherd.

Grey ware vessel no. 13
Trench 5801
Context 0001 U/S, 0029, 0030, 0064a,b.
5 body sherds.

Grey ware vessel no. 14
Trench 5801
Context 0030a
1 body sherd.

Grey ware vessel no. 15
Trench 5901
Context 0001 0010g, 0001 0002b
2 body sherds.

Grey ware vessel no. 16
Trench 5902
Context 0027 0088
1 body sherd.

Grey ware vessel no. 17
Trench 5901
Context 0191 0026
1 body sherd.

Grey ware vessel no. 18 (Fig. 5,13.3)
Trench 7501
Context 00? LM
Rim sherd from a small vessel with a carinated shoulder.

Grey ware vessel no. 19 (Fig. 5,13.2)
Trench 8804
Context 0039e M
Flat base sherd from a large vessel.

Grey ware vessel no. 20
Trench 9801
Context 0010 0040
1 body sherd.

Grey ware vessel no. 21 (Fig. 5,13.5)
Trench 6202
Context 0026c LM
Thickened, everted rim sherd.

Grey ware vessel no. 22
Trench 5203
Contexts 0600 0405 EM, 0600 0499 EM.
Large, scorched vessel with a lid-seated rim.

Grey ware vessel no. 23
Trench 5203
Contexts 0600 0386 EM, 0600 0428 EM, 0600 0516 EM.
Small vessel with an everted, squared rim and some external burnishing.

Grey ware vessel no. 24
Trench 5203
Context 0600 0386 EM
Rounded, everted rim sherd.

Grey ware vessel no. 25
Trench 5203
Context 0600 0514 EM
Squared, slightly everted rim sherd.

Grey ware vessel no. 26
Trench 5203
Context 0600 0499 EM
Small, flattened rim.

Grey ware vessel no. 27
Trench 5203
Context 0236 0310 LM
Everted, slightly lid-seated rim.

Grey ware vessel no. 28
Trench 5203
Contexts 0348 0365 EM, 0664 EM.
Everted rim sherd. The rim, handle, and shoulder of this vessel are decorated with extensive, wavy line combed decoration.

Grey ware vessel no. 29
Trench 5203
Context 0079 ELS
Squared, slightly everted rim with strong shoulder carination. Handle also present.

Grey ware vessel no. 30
Trench 5203
Context 0845 EM
Handle/rim sherd, with a scored internal line.

Grey ware vessel no. 31
Trench 3104
Context 2215 EM
Simple everted rim sherd.

Grey ware vessel no. 32
Trench 5203
Context 0167 EM
Everted beaded rim with a darker grey core.

Grey ware vessel no. 33
Trench 5203
Context 0167 EM
Simple everted rim.

Grey ware vessel no. 34
Trench 5203
Context 0121 EM?
Simple everted rim.

Grey ware vessel no. 35
Trench 5203
Context 0857 LM
Simple everted rim.

Grey ware vessel no. 36
Trench 5203
Context 0857 LM
Beaded, everted rim.

Grey ware vessel no. 37
Trench 5203
Context 0346 ELS+
Simple everted rim.

Grey ware vessel no. 38
Trench 5203
Context 0523 MLS
Thin, simple everted rim.

Grey ware vessel no. 39
Trench 5203
Context 0475 LM
Thick, beaded, lid-seated rim.

Grey ware vessel no. 40
Trench 5203
Context 0673 EM
Large, lid-seated rim.

Grey ware vessel no. 41
Trench 5203
Context 0673 EM
Simple everted rim.

Grey ware vessel no. 42
Trench 5203
Context 0316 LM
Collared rim sherd.

Grey ware vessel no. 43
Trench 5203
Context 0699 MLS
Pale brown rim sherd, similar form to 25.

Grey ware vessel no. 44
Trench 5203
Context 0337 EM
Simple everted rim sherd.

Grey ware vessel no. 45
Trench 5203
Context 0337 EM
Beaded, everted rim sherd.

Grey ware vessel no. 46
Trench 5203
Context 0337 EM
Beaded, everted, lid-seated rim sherd.

Grey ware vessel no. 47
Trench 3104
Context 0859 LM
Everted rim sherd.

Grey ware vessel no. 48
Trench 3104
Context 1878 EM
Everted rim sherd.

Grey ware vessel no. 49
Trench 3104
Context 1878 EM
Everted, slightly lid-seated rim sherd.

Grey ware vessel no. 50
Trench 3104
Context 1150 LMT
Very thick, everted rim sherd.

Grey ware vessel no. 51
Trench 3104
Context 1150 LMT
Simple everted rim sherd in a light brown fabric.

Grey ware vessel no. 52
Trench 3104
Context 1170 EM
Simple everted rim sherd.

Grey ware vessel no. 53
Trench 3104
Context 2139 EM+
Lid seated rim sherd.

Grey ware vessel no. 54
Trench 3104
Context 1970 EM
Lid-seated rim sherd.

Grey ware vessel no. 55
Trench 3104
Context 2395 EM
Simple everted rim sherd.

Grey ware vessel no. 56
Trench 3104
Context 2395 EM
Everted, lipped rim sherd.

Grey ware vessel no. 57
Trench 3104
Context 0001 U/S
Simple, thick, everted rim sherd.

Grey ware vessel no. 58
Trench 3104
Context 2580 LMT?
Lid-seated rim sherd.

Grey ware vessel no. 59
Trench 3104
Context 2936 EM
Small, lid-seated rim sherd.

Grey ware vessel no. 60
Trench 3104
Context 2936 EM
Thick, everted rim sherd.

Grey ware vessel no. 61
Trench 3104
Context 2027 EM
Small lid-seated rim sherd.

Grey ware vessel no. 62
Trench 3104
Context 2027 EM
Simple everted rim sherd.

Grey ware vessel no. 63
Trench 3104
Context 2027 EM
Everted rim sherd.

Grey ware vessel no. 64 (Fig. 5,13.4)
Trench 4601
Context 0505a
Everted rim sherd. This vessel has a carinated shoulder.

Grey ware vessel no. 65 (Fig. 5,13.11)
Trench 4601
Context 0048 0530
Slightly inverted rim sherd.

Grey ware vessel no. 66 (Fig. 5,13.14)
Trench 4601
Context 0415 0891w M
Everted rim sherd.

Grey ware vessel no. 67 (Fig. 5,13.15)
Trench 4601
Context 0477 0887 MLS
Simple everted rim sherd.

Grey ware vessel no. 68 (Fig. 5,13.10)
Trench 4801
Context 2778 2090e EM
Simple everted rim sherd.

Grey ware vessel no. 69 (Fig. 5,13.13)
Trench 6202
Context 0129e EM
Lid-seated rim sherd, with shoulder carination.

Grey ware vessel no. 70 (Fig. 5,13.8)
Trench 5701
Context 0150c EM
Everted rim sherd.

Grey ware vessel no. 71 (Fig. 5,13.12)
Trench 5701
Context 0001 0029m U/S
Slightly thickened and everted rim sherd.

Grey ware vessel no. 72 (Fig. 5,13.1)
Trench 4601
Context 0842
Curved everted rim on rounded shoulders. The profile of the upper half of this vessel is present.

La Londe type I catalogue.

La Londe I vessel no. 1
Trench 5201
Context 0007 EM.
Hard body sherd, scorched outer surface, contains abundant very small quartz.

La Londe I vessel no. 2
Trench 5201
Context 0003 0008 MLS.
Body sherd with scorched, powdery, surfaces.

La Londe I vessel no. 3 TS 38
Trench 7402
Context 0090 0353 MS.
body sherd, powdery.

La Londe I vessel no. 4
Trench 4801
Context 0751 EM, 2047c LM, 2057n,o,q,r,s,w,y&z EM, 2078a,b,c,d&e EM, 2113f MLS, 2117b EM, 2148a,b&c MLS, 2157b EM.
21 body sherds, classic type, outer surfaces scorched and powdery.

La Londe I vessel no. 5
Trench 4801
Context 1392 1393 EM.
1 hard body sherd.

La Londe I vessel no. 6
Trench 4801
Context 0900 US.
Upright thickened rim fragment. Powdery, with grey core.

La Londe I vessel no. 7
Trench 5203
Context

La Londe I vessel no. 8
Trench 5203
Contexts 0600 0386 EM, 0600 0447 EM, 0600 0499 EM, 0600 0588 EM.
Rounded, lid-seated rim, with slight internal beading. Flat base. The fabric is powdery and red, very scorched.

La Londe I vessel no. 9
Trench 5203
Context 0600 0447 EM
Very pale brown flat base sherd.

La Londe I vessel no. 10
Trench 5203
Contexts 0044 ELS, 0163 0345 ELS, 0236 0310 LM, 0252 EM, 0857 LM.
Fine, pale brown type, very smooth. These sherds may be from more than one vessel, but are very similar in fabric.

La Londe I vessel no. 11
Trench 5203
Context 0018 LMT
Very abraded, light pinkish-brown, micaceous body sherd.

La Londe I vessel no. 12
Trench 5203
Contexts 0600 0386 EM, 0600 0446 EM, 0600 0447 EM, 0600 0448 EM, 0600 0451 EM, 0600 0499 EM, 0600 0508 EM, 0600 0588 EM.
Vessel has a rounded, lid-seated rim in a reddish fabric. Heavily scorched.

La Londe I vessel no. 13
Trench 5203
Contexts 0077 EM, 0197 ELS, 0282 0283 EM.
Vessel has a reddish-pink inner surface and a scorched outer surface. It includes occasional large iron ore inclusions (up to 4mm across), but is otherwise smooth and soapy. The rim is everted and squared.

La Londe I vessel no. 14
Trench 5203
Contexts 0600 0386 EM, 0600 0405 EM, 0600 0446 EM, 0600 0447 EM, 0600 0454 EM, 0600 0499 EM, 0600 0508 EM, 0600 0558 EM, 0600 0576 EM.
Fine, very pale brown fabric with scorched exterior. Flat base.

La Londe I vessel no. 15
Trench 5203
Contexts 0072 EM, 0261 0359 EM, 0600 0386 EM, 0600 0405 EM, 0600 0446 EM, 0600 0447 EM, 0600 0454 EM, 0600 0499 EM, 0600 0508 EM, 0600 0558 EM.
Slightly yellower than 14. Everted, lid-seated rim, slightly squared.

La Londe I vessel no. 16
Trench
Context

La Londe I vessel no. 17
Trench 3104
Context 1164 EM-
This vessel has a classic scorched surface, with a powdery fabric and occasional large inclusions. The rim is beaded.

The following contexts produced sherds which come from either vessel 17 or 18:
0643 EM, 1133 LM, 1168 EM, 1900 MLS, 3656 MLS.

La Londe I vessel no. 18
Trench 3104
Context 1133 LM
Classic scorched surface, identical fabric to 17. This rim is slightly collared.

La Londe I vessel no. 19
Trench 3104
Context 4081 MLS
Rim sherd in the classic scorched fabric.

La Londe I vessel no. 20
Trench 3104
Contexts 0083 LMT, 0834 LM?, 0865 MLS, 1928 MLS, 2022 EM, 2140 EM, 2865 LM?, 3701 EM, 3721 ELS.
A classic scorched type, but in an orange-red fabric. The rim is everted and rounded and heavily scorched.

La Londe I vessel no. 21
Trench 3104
Context 1816 EM
This rim sherd has a flat top, and is in a scorched, yellow-buff fabric.

La Londe I vessel no. 22
Trench 3104
Context 4147 LM+
This scorched rim sherd has a buff surface and a light reddish-yellow core.

Vessel no 23
Trench 3104
Contexts 1800 EM, 1820 EM, 1857 LMT, 1900 MLS, 4258 EM.
All body sherds of the same vessel.

La Londe type II catalogue.

La Londe II vessel no. 1
Trench 5801
Context 0001d US, 0005 PM.
2 body sherds in a highly micaceous pink fabric, that contains sparim sherde iron ore up to 2.0mm across. A large vessel.

La Londe II vessel no. 2 TS 89
Trench 5902
Context 0014 PM.
Body sherd. Very pale brown surfaces with grey core.

La Londe II vessel no. 3
Trench 7501
Context 0022 LM.
Small lamp base in a very pale brown fabric (10YR 8/4) with a single, sub-rounded fragment of quartz at 3.0mm across.

La Londe II vessel no. 4
Trench 6202
Context 0039b LM.
Base fragment in a micaceous, pink fabric.

La Londe II vessel no. 5
Trench 6202
Context 0043 0044 LM.
Hard, thin walled (4mm) body sherd.

La Londe II vessel no. 6
Trench 6202
Context 0155h LM.
Smooth, powdery, micaceous body sherd.

La Londe II vessel no. 7
Trench 6202
Context 0202 LM.
Very pale brown body sherd.

La Londe II vessel no. 8 TS 97.
Trench 8804
Context 0050 US.
Highly micaceous, pink, body sherd, with a 4.5mm thick wall.

La Londe II vessel no. 9
Trench 4601
Contexts 0506 0605a&b EM, 0549 0656j MLS, 740 1103b MLS.
Strap handle fragment, in a pink micaceous fabric with occasional large (2-3mm) quartz fragments.

La Londe II vessel no. 10
Trench 5203
Context 0716 EM+
Lid-seated rim sherd in a pink, soapy, micaceous fabric, which contains some iron ore and quartz inclusions.

La Londe II vessel no. 11
Trench 5203
Context 0717 EM
Lid-seated rim similar to 12, in a harder, pale brown fabric.

La Londe II vessel no. 12
Trench 5203
Context 0344 EM
Lid-seated rim in a soapy, pale brown, micaceous fabric with occasional large inclusions.

La Londe II vessel no. 13
Trench 5203
Contexts 0348 EM, 0642 EM.
Hard, slightly micaceous, light brown fabric. The exterior is scorched.

La Londe II vessel no. 14
Trench 5203
Contexts 0035 ELS?, 0039 LMT+, 0463 MS, 0671 EM, 0673 EM.
Yellowish fabric. Lid-seated rim with pulled spout.

La Londe II vessel no. 15
Trench 3104
Contexts 0253 LM, 0664 EM+, 2865 LM+, 4798 LM+.
Four body sherds in a pink, micaceous fabric.

La Londe II vessel no. 16
Trench 3104
Contexts 0033 LMT, 0844 EMS?.
Two sherds in a micacous buff fabric with a grey core. One of the sherds is a strap handle.

La Londe II vessel no. 17
Trench 3104
Context 4944LM
Three body sherds in a grey, highly micacous fabric decorated with combed wavy lines.

La Londe II vessel no. 18
Trench 3104
Contexts 0029 EM, 0820?, 4081 MLS.
Six body sherds.

Early Glazed ware catalogue.

Early glazed ware vessel no. 1 (Plates 5,19-22) TS 248.
Trench 4601
Contexts 0549 0694p MLS, 0640 MLS.
Trench 4801
Contexts 1224f ?, 2669a&b EM.
Large storage vessel decorated with stamping, painting and glazing. Yellow brown glaze, red paint and cloverleaf/cross in circle stamps. Vessel has a flattened, everted rim and a high lid. Vessel diameter is a minimum of 24cm.

Red-painted vessels catalogue.

Red-painted vessel no. 1
Trench 4801
Context 0550f&h LM, 1628b&c EM, 1642b&c EM, 1654 US.
This vessel has a fairly hard fabric, and is decorated with spots of light red paint. The fabric is a white colour with a pink surface, containing a common, well-sorted scatter of quartz at c.0.3mm. Badorf type?

Red-painted vessel no. 2 (Fig. 5,5.19)
Trench 4801
Context 1056 M?
This vessel has a hard, slightly sandy fabric, and is decorated with horizontal stripes of reddish-yellow (7.5YR 7/6) paint. The fabric is a reddish-yellow (5YR 6/6) colour with a grey core, containing a light scatter of quartz at less than 0.2mm, and occasional grains at c.1.0mm across.

Red-painted vessel no. 3 (Fig. 5,5.33) TS 246.
Trench 4601
Context 0690dd EM.
This rim sherd has a hard, micaceous fabric, and is decorated with weak reddish-yellow paint. The fabric is a white colour, with a reddish-yellow core, and contains occasional inclusions up to 1.0mm across. La Londe?

Red-painted vessel no. 4
Trench 4801
Context 0653d LM.
This vessel has a hard, scorched, fabric, and is decorated with red (2.5YR 5/6) paint. The fabric is a reddish-yellow colour with a pink (7.5YR 8/4) surface, containing a well-sorted scatter of quartz at less than 0.5mm.

Red-painted vessel no. 5
Trench 4801
Context 1132n EM, 2486 2445k EM.
This vessel has a hard, slightly micaceous fabric, and is decorated with weak red paint. The fabric is a very pale brown colour, containing a common scatter of quartz at less than 0.5mm.

Red-painted vessel no. 6
Trench 4801
Context 0680d LM.
This vessel has a hard fabric, and is decorated with red paint. The fabric is a pink colour with a grey core, containing a scatter of quartz at less than 0.5mm.

Red-painted vessel no. 7
Trench 4801
Context 0718f M, 0734b&c EM, 0768 1531e LM, 0812 ELS?, 1655 1653a MS?, 3128h&i ELS.
A large vessel, decorated with reddish-brown paint. The base fragment is too small to diagnose its shape. The surface colour is 10YR 7/6 yellow, whereas the clay matrix is mostly a 10YR 8/4 very pale brown. The fabric is hard and smooth and includes sparse inclusions of quartz at up to 1.5mm across.

Red-painted vessel no. 8
Trench 4601
Context 0700d US, 0777 EM.
This vessel has a hard fabric, and is decorated with drips of reddish-yellow paint. The fabric is a very pale brown colour with a double-banded reddish-yellow core, and contains a well-sorted scatter of quartz at less than 0.3mm, and numerous small, unidentified, black inclusions. Pingsdorf?

Red-painted vessel no. 9 (Fig. 5,5.8)
Trench 4601
Context 0789 MLS.
This sherd has a hard, rough fabric, and is decorated with a vertical stripe of dark red paint and double rows of rouletting. The fabric is a pink colour with a grey core, containing a common scatter of quartz at less than 0.5mm.

Red-painted vessel no. 10
Trench 4801
Context 0823a LM, 1354 1135i EM.
This vessel has a smooth, hard fabric, similar to Badorf ware, and is decorated with red paint. The fabric is a very pale brown colour and a reddish-yellow core, containing a moderate scatter of quartz at less than 0.3mm.

Red-painted vessel no. 11 (Fig. 5,5.11)
Trench 4601
Context 0657 EM.
This handle has a hard fabric, and is decorated with thin, curving lines of red paint. The fabric is a very pale brown colour, containing a moderate scatter of quartz at less than 0.5mm. Badorf type? Similar to vessel 8.

Red-painted vessel no. 12
Trench 4601
Context 0383 M, 0700 US.
This vessel has a hard fabric, and is decorated with weak red paint. The surfaces of the sherds are light grey, but the core is banded with reddish-yellow, yellow and grey. The fabric contains a scatter of quartz at less than 0.5mm. Badorf?

Red-painted vessel no. 13
Trench 6202
Context 0249e EM.
This vessel has a smooth, very hard fabric, and is decorated with light splashes of reddish-yellow paint. The fabric is a pale brown colour with a grey core, containing a light scatter of quartz at less than 0.3mm. Rhenish?

Red-painted vessel no. 14
Trench 6202
Context 0247c LM.
This sherd has a hard, slightly rough fabric, and is decorated with three vertical, parallel lines of dark red paint. The fabric is a grey colour with a brown surface, containing a moderate scatter of quartz at less than 0.3mm.

Red-painted vessel no. 15
Trench 6202
Context 0080d LM.
This vessel has a hard fabric, and is decorated with reddish-yellow paint. The fabric is a very pale brown colour with a reddish-yellow core, containing a moderate scatter of quartz at less than 0.3mm. The surface of the sherd is slightly scorched.
Badorf/Pingsdorf.

Red-painted vessel no. 16
Trench 6202
Context 0043 0044 LM.
This vessel has a hard, fairly fine fabric, and is decorated with drips of reddish-yellow paint. The fabric is a pink colour, containing a common scatter of quartz at less than 0.3mm.

Red-painted vessel no. 17
Trench 5203
Contexts 0717 EM, 0718 LM, 0730 LM+, 0738 EM.
These sherds have no visible inclusions, but have a soapy feel. Faint traces of red paint are visible. The interior is abraded. The rim is flattened and everted, with a short, wide, strap handle and a thumb-pressed relief-band.

Red-painted vessel no. 18
Trench 6202
Context 0155m LM.
This vessel has a fine, hard, powdery, micaceous fabric, and is decorated with red paint. The fabric is a very pale brown colour. No inclusions other than quartz are visible.

Red-painted vessel no. 19
Trench 6202
Context 0559 ELS.
This possible amphora sherd has a hard, fine fabric, and is decorated with two faint smudges of red paint. The fabric is a light brown colour, containing a moderate scatter of quartz at less than 0.5mm. Badorf/Pingsdorf.

Red-painted vessel no. 20
Trench 6202
Context 0249f EM.
This thin-walled vessel has a hard fabric, and is decorated with light brown paint. The fabric is a light grey colour, containing few visible inclusions. The sherd is heavily scorched.

Vessel no. 21
Trench 6202
Context 0380a EM.
This sherd is the from the rim and shoulder of a spouted pitcher and has a hard, slightly micaceous fabric, decorated with possible commas of reddish-yellow paint. The fabric is a pale brown colour with a dark grey core, containing a common scatter of quartz at less than 0.5mm.

Red-painted vessel no. 22
Trench 5801
Context 0045a EM.
This vessel has a hard, fine fabric similar to vessel 7, and is decorated with reddish-yellow paint. The fabric is a very pale brown colour, containing a moderate scatter of quartz at up to 1.5mm.

Red-painted vessel no. 23 (Fig. 5,5.31)
Trench 5801
Context 0017a&d EM.
This crudely formed vessel has a hard fabric with a slightly polished surface, and is decorated with well-defined commas of reddish-yellow paint. The fabric is a pink colour, containing a common scatter of quartz at less than 0.3mm. Iron ore is also visible. Badorf/Pingsdorf.

Red-painted vessel no. 24 (Fig. 5,5.7)
Trench 5801
Context 0090 0022a&b EM.
This vessel has a hard, coarse fabric, and is decorated with chevrons or zig-zags of red paint in fine lines, and double rows of rouletting. The fabric is a light brown colour with a grey core, containing a common scatter of quartz at c.0.5mm. The sherds illustrated in Fig. 5,5.6, 7, 10, and 14 (contexts 0026, 0673a, 0690 EM and 0527 0861 MLS) are in the same fabric and may come from the same vessel, although their decoration is in arcs rather than chevrons. It is suggested that these sherds are mid-9th century or later; the combination of rouletted decoration and red-paint puts them into a similar bracket to Hunnenschans ware.

Red-painted vessel no. 25
Trench 6904
Context 0006 ELS.
This sherd has a very fine, hard fabric, and is decorated with a smudge of red paint. The fabric is a pink colour. No inclusions are visible.

Red-painted vessel no. 26 (Fig. 5,5.13) TS 49.
Trench 4302
Context 0066 EM.
This sherd has a hard fabric, and is decorated with a curving stripe of red paint. The fabric is a very pale brown colour, containing a well-sorted scatter of quartz at c.0.5mm, and occasional iron ore.

Red-painted vessel no. 27
Trench 4302
Context 0006 M.
This spout has a fine, hard fabric, and is decorated with a spot of light red paint. The fabric is a reddish-yellow colour, containing a scatter of quartz at less than 0.5mm. Rhenish?

Red-painted vessel no. 28 (Fig. 5,5.18) TS 26.
Trench 5502
Context 0224 MS.
This distinctive sherd has a extremely fine, hard, smooth fabric, and is decorated with well-defined spots of red paint in vertical, parallel lines. The decoration is paralleled on sherds of red-painted Badorf ware from Duisburg. The fabric is a reddish-yellow colour with a grey core, containing few visible inclusions, but there is occasional quartz at less than 0.5mm and sparim sherde mica. Possibly Rhenish.

Red-painted vessel no. 29 (Fig. 5,5.23) TS 7.
Trench 5502
Context 0278a M.
This sherd has a hard, fairly smooth fabric, and is decorated with two stripes of reddish-yellow paint. The fabric is a very pale brown surface with a white matrix, containing a fairly well-sorted, moderate scatter of quartz at c. 0.5mm.

Red-painted vessel no. 30 TS 241.
Trench 4801
Context 0550d,i&n LM, 1020c UD, 1132 1218m,n,p&q EM, 1224a,b,c&d ?
This vessel has a hard, rough fabric, and is decorated with faint stripes of red paint that is barely darker than the surface of the sherds. The fabric is a dark reddish-yellow colour with a grey core, containing abundant quartz at c.0.5mm.

Red-painted vessel no. 31 (Fig. 5,5.5)
Trench 4601
Context 0972 EM
This handle has a hard, crude, glossy fabric, with a slightly abraded surface and is decorated with traces of red paint. The fabric is a pink colour, containing a scatter of abundant quartz at c.0.5mm.

Red-painted vessel no. 32
Trench 4601
Context 0278 0515c EM. 0499a,b,c,d EM, 0048 0763m EM.
These sherds derive from a large amphora, in a variable light yellow to dark grey colour. The vessel is decorated with dark red paint and the fabric is fine, with a moderate scatter of quartz.

Red-painted vessel no. 33
Trench 4801
Context 0653d LM.
This vessel has a hard, fairly fine fabric, and is decorated with dark red paint. The fabric is a very pale brown colour with a reddish-yellow core, containing a moderate scatter of quartz at less than 0.5mm.

Red-painted vessel no. 34 (Fig. 5,5.15)
Trench 4601
Context 0690k EM.
This flat strap handle has a hard, fairly fine fabric, and is decorated with two splashes of red paint. The fabric is a very pale brown colour, containing a common scatter of quartz at less than 0.5mm. Possible Limburg product.

Red-painted vessel no. 35
Trench 4801
Context 0680d LM, 0681b&c LM.
This vessel has a hard fabric, and is decorated with reddish-yellow paint. The fabric is a grey-pink colour with a grey core, containing a scatter of quartz at less than 0.5mm. (RP X)

Red-painted vessel no. 36 TS 240.
Trench 4601
Context 0034f UD.
Trench 4801
Contexts 1132o EM, 1132 1218dd,ee,ff,gg,hh,ii,jj&oo EM, 1224e UD, 2089 EM.
This thick-walled vessel has a hard, coarse fabric, and is decorated with commas of reddish-yellow paint. The fabric is a very pale brown colour with a light grey core, containing a well-sorted scatter of sub-angular quartz at c.1.0-2.0mm.

Red-painted vessel no. 37
Trench 5902
Context 0024 0054 MLS.
This vessel has a hard, coarse fabric, and is undecorated, but the fabric is the same as no. 36. The fabric is a yellow colour, containing a scatter of quartz at less than 0.5mm.

Red-painted vessel no. 38
Trench 7501
Context 0057 PM.
This vessel has the same fabric as no. 36, and is undecorated. The fabric is a yellow colour, containing a scatter of quartz at less than 0.5mm.

Red-painted vessel no. 39 TS 40, 77.
Trench 4302
Context 0006 M, 0013 M.
This vessel has a hard fabric, and is decorated with a strong thin line of red paint. The fabric is a reddish-yellow colour with a yellow core, containing a light scatter of quartz at less than 1.0mm.

Red-painted vessel no. 40
Trench 5701
Context 0001 US.
This rim has a hard, slightly rough fabric, and is decorated with a line of red paint along its upper edge. The fabric is a brown colour with a grey core, containing a scatter of quartz at less than 0.5mm.

Red-painted vessel no. 41
Trench 7501
Context 0080 0014 EM.
This large thick strap handle has a hard fabric, and is decorated with spots of reddish-yellow paint. The fabric is a pale brown colour, containing a scatter of quartz at less than 0.5mm.

Red-painted vessel no. 42
Trench 9802
Context 0037 M.
This vessel has a hard fabric, and is decorated with traces of red paint. The fabric is a pink colour, containing a well-sorted scatter of quartz at less than 0.3mm.

Red-painted vessel no. 43
Trench 5203
Context 0024 ELS
Very coarse tempered, everted, flattened rim sherd.

Red-painted vessel no. 44
Trench 5203
Context 0765 EM
Strong light reddish-brown fabric containing enough inclusions to give it a rough feel. A single stripe of red paint is visible, barely darker than the sherd surface itself. The fabric is exactly the same as RP vessel 30, found in trench 4801.

Red-painted vessel no. 45
Trench 5203
Context 0600 0499 EM
Fine pink fabric witha splash of red paint and a slight splash of clear glaze.

Red-painted vessel no. 46
Trench 5203
Context 0600 0426 EM
Slightly gritty and micaceous body sherd with a red-painted wash on the exterior and interior surfaces.

Red-painted vessel no. 47
Trench 3104
Contexts 0033 LMT, 1815 ELSc, 2022 EM, 2086 EM, 2557 EM, 2721 MLS, 2950 MLS.
This vessel has a sandy, light brown fabric with a light reddish-yellow core. The rim is lid-seated and the base lenticular. The vessel is decorated with geometric painted decoration in a light reddish-brown colour. Probably a late 9th/early 10th century French vessel.

Red-painted vessel no. 48
Trench 3104
Contexts 1825 ELS?, 1976 EM, 2022 EM, 2138 EM, 2140 EM, 2187 EM, 2257, 2395 EM, 2546.
This large, thick-walled vessel is decorated with lattice rouletting in a 10th/11th century style, and by irregularly applied light red paint. The fabric is a very pale brown colour, micaceous with occasional very large quartz grains. The fabric has a soapy feel. This may be a northern French vessel, possibly from La Londe.

Red-painted vessel no. 49
Trench 3104
Contexts 1857 LMT, 2022 EM, 2187 EM, 2385.
This vessel has a smooth, soft fabric containing well-sorted quartz temper. The rim is squared off, with rills around the top. The fabric is a dull brown, and the vessel is decorated with soft reddish-brown paint.

Red-painted vessel no. 50
Trench 3104
Contexts 1872 ELS?, 4237 EM.
This vessel has a smooth, very pale brown fabric, not dissimilar to classic Badorf. The core is even. The sherds are decorated with smudged red paint. This may be a mid-9th century type, ?transitional Badorf-Pingsdorf.

Red-painted vessel no. 51
Trench 3104
Contexts 0952 LM, 1816 EM, 2137 LM.
This vessel has a very coarse white fabric with a slightly pinker surface. It is decorated with stripes of reddish-yellow paint.

Red-painted vessel no. 52
Trench 3104
Context 1064 ELS?
This sherd may be from a transitional Badorf/Pingsdorf vessel. The fabric is a very pale brown and contains small, even, quartz inclusions. it is decorated by a single stripe of reddish-yellow paint.

Red-painted vessel no. 53
Trench 3104
Context 1168 EM
This sherd has a dull, coarse brown fabric, tempered with abundant inclusions. It is decorated by smudged lines of reddish-brown paint.

Red-painted vessel no. 54
Trench 3104
Context 2140 EM
This sherd has a slightly soapy, micaceous fabric, in a light reddish colour. It is decorated by smudged lines of reddish-brown paint. This possibly represents a sherd from a La Londe red-painted vessel.

Red-painted vessel no. 55
Trench 3104
Context 2865 LM?
This sherd has a very smooth, soapy fabric with occasional large inclusions. The fabric is a weak red. The sherd is decorated by a smudged line of brown paint. Possibly a Stamford ware red-painted type.

Red-painted vessel no. 56
Trench 3104
Context 1199
This sherd has a light reddish-yellow fabric and contains many small, even inclusions. It is decorated by a thin stripe of red paint.

Red-painted vessel no. 57
Trench 3104
Contexts 2086 EM, 4953 LMT, 4981 LMT.
These sherds may represent a Pingsdorf vessel. The fabric is a hard yellow to very pale brown colour and contains many small quartz inclusions. It is decorated with reddish-brown paint.

Red-painted vessel no. 58
Trench 3104
Contexts 1150 LMT, 1168 EM.
This vessel has a lid-seated rim and is decorated with strong red paint in a lattice decoration. The fabric is a light reddish-yellow and contains well-sorted, small inclusions of quartz and mica.

Red-painted vessel no. 59
Trench 3104
Context 4587 LM
This sherds may be from a Pingsdorf vessel. The fabric is very hard, in a reddish-yellow colour with a grey core. It is decorated with small spots of reddish-brown paint.

Red-painted vessel no. 60
Trench 3104
Context 2865 LM?
This sherd has a grey fabric with a light grey to white inner core, and contains occasional large quartz inclusions. It is decorated with weak red paint. Possible La Londe I type.

Red-painted vessel no. 61
Trench 3104
Context 2140 EM
This sherd has a fairly fine fabric containing small, evenly sorted inclusions. It is decorated with smudged, weak red paint. Possible late Badorf type.

Red-painted vessel no. 62
Trench 3104
Context 1508 EM
This sherd has a light reddish-brown fabric with a grey core, and contains a moderate to abundant scatter of inclusions. It is decorated by red paint in a widely spaced lattice decoration.

Red-painted vessel no. 63
Trench 3104
Context 1508 EM
This sherd has a dull light brown fabric and contains an evenly sorted scatter of inclusions. It is decorated with dark reddish-brown paint.

Mayen ware catalogue

Mayen ware vessel no. 1
Trench 5203
Context 0857 LM
A single , small body sherd in a hard, dark purple fabric with dark grey and yellow inclusions. The vessel form is not discernible.

Walberberg catalogue

Vessel no. 1
Trench 5203
Contexts 0236 LM, 0273 MS?, 0341 0342 ELS.
A very small vessel, with thin walls and a simple everted rim. The fabric is very hard and well fired.

York ware catalogue

Vessel no. 1
Trench 5203
Contexts 0008 MLS, 0705 EM.
A vessel with an everted, lid-seated rim. the fabric is light red-brown on the inner surface, and scorched on the outside. The fabric is characteristically heavily gritted, with a somewhat pimply appearance on the surface.

Tating ware catalogue

Tating vessel no. 1 (Fig. 5,7.4)
Trench 4601
Context 0003 MS
Small jar/cup with everted rim and tinfoil decoration. The surfaces are very dark and highly burnished. the fabric is grey and smooth with few visible inclusions.

Tating vessel no. 2 (Fig. 5,7.3)
Trench 4601
Context 0034, 0690 EM.
Small jar/cup with an upright rim and tinfoil decoration in a strip around the edge of the rim. The fabric is grey with few inclusions. the sherds surfaces are black.

Tating vessel no. 3
Trench 4601
Context 0104 MS
Sherd from a large vessel of uncertain form with tinfoil decoration.

Tating vessel no. 4 (Fig. 5,7.1) TS 19.
Trench 4601 Context 0481 MS?
Trench 4801 Contexts 0808 1560 EM
Shallow dish with tinfoil decoration in diamonds and stripes. The fabric is very smooth, light grey, with a darker grey core, and few inclusions. The surfaces are very well-burnished

Tating vessel no. 5
Trench 5801
Context 0090 EM
Five fragments from a large vessel with no visible decoration. The surfaces are a very shiny black with vertical burnishing. The fabric is grey, fine and smooth with few visible inclusions, it is often abraded. There are possible tinfoil traces on one sherd.

Tating vessel no. 6
Trench 5901
Context 0320 MS
Tiny fragment from a small vessel with tinfoil decoration. The surfaces are black and burnished. The fabric is reddish-brown with a grey core.

Tating vessel no. 7 (Fig. 5,7.5 & 7) TS 94
Trench 7404
Context 0027 EM, 0054a & b ELS.
Rim sherd and two body sherds from a classic Tating ware pitcher . No decoration on the rim sherd, which is not well-burnished. The two body sherds are well-burnished and decorated in diamonds and strips of tinfoil. The fabric is greyish-brown and contains sparse inclusions of quartz, mica and iron ore.

Tating vessel no. 8 (Figs. 5.7.2 & 6) TS 22
Trench 7404
Context 0009b & c MS?.
Sherds from a pitcher with an upright rim decorated with strips of tinfoil decoration. The surfaces are highly burnished (vertically), but a lighter grey on the interior. The fabric is a fine grey with few inclusions.

Tating vessel no. 9 TS 219
Trench 5701
Context 0021 0045 EM
Undecorated sherd from a large vessel (pitcher?), without visible tinfoil residues. The exterior is a dark grey, not well-burnished but very smooth. The fabric is fine and grey with occasional reddish clay pellets visible in the core.

Tating vessel no. 10
Trench 5203
Context 0045 EM+
There are possible Tating ware sherds from the following contexts: 0044 ELS, 0066 EMS, 0392 ELS?, 0527 EM, 0593 EMS, 0641 EMS?. None of these have tinfoil residues.
The tinfoil decorated sherd from this trench is a very small body sherd, with a horizontal stripe of tinfoil. The fabric is fine and grey with no visible inclusions.

Tating vessel no. 11
Trench 3104
Contexts 1800 EM, 2139 EM+, 2865 LM?.
These possible Tating ware sherds do not display tinfoil decoration. All have very fine pale grey fabrics with highly burnished black surfaces.

Red-burnished catalogue

Red-burnished vessel no. 1
Trench 5203
Contexts 0036 LMT, 0671 EM.
Handmade vessel with an abraded, flat base. Possibly a spouted pitcher.

Red-burnished vessel no. 2 (Fig. 5,12.2)
Trench 4801
Context 0823c LM
Everted, thickened and slightly pointed rim sherd fragment. The handle sherd illustrated in Fig. 5,12.6 may come from the same vessel (context 4801 31281 ELS).

Red-burnished vessel no. 3 (Fig. 5,12.5)
Trench 4801
Context 1884 LM
Simple rim and shoulder sherd from a small narrow mouthed vessel. The sherd has vertical burnishing on its external surface, and horizontal burnishing on the inside of the neck. The vessel is probably hand-made.

Red-burnished vessel no. 4 (Fig. 5,12.3)
Trench 5801
Context 0090 0022 EM
Body sherd from a red-burnished vessel with a rounded relief-band attached.

Red-burnished vessel no. 5 (Fig. 5,12.4)
Trench 5801
Context 0045 EM
Hand-made vessel with an unusual rounded, T-shaped rim. The vessel has curving shoulders and the remains of a handle attached to its shoulder.

Red-burnished vessel no. 6 (Fig. 5,12.7)
Trench 5801
Context 0090 0022i EM
A slightly thickened rim sherd with grooves around the neck. The vessel is wheel-made and small.

Red-burnished vessel no. 7 (Fig. 5,12.1)
Trench 5901
Context 0128
Most of the profile of a wide-mouthed bowl. The vessel is hand-made, with a thickened, triangular profiled rim, and decorated by two cordons on its shoulders. The profile suggests that the base would have been rounded.

Red-burnished vessel no. 8 (Fig. 5,12.8)
Trench 6202
Context 0559 0577a
Red-burnished, flat base sherd.

APPENDIX 3:

Thin-section list.

No.	SITE	CONTEXT	POTTERY TYPE
1	IPSWICH	1804 0040	BLACK WARE
2	IPSWICH	1804 0003	BLACK WARE
3	IPSWICH	7402 0090 0021r	BLACK WARE
4	IPSWICH	1804 0014	BLACK WARE
5	IPSWICH	5502 0150	BLACK WARE
6	IPSWICH	4302 0039	BLACK WARE
7	IPSWICH	5502 0278 0277a	RED-PAINTED
8	IPSWICH	4302 0033a	PAFFRATH
9	IPSWICH	4302 0035 0036b	GREY GRITTED
10	IPSWICH	3503 PIT 9	BORNHEIM WALDORF
11	IPSWICH	5502 0226b	BADORF
12	IPSWICH	4201 0053c	HUNNESCHANS
13	IPSWICH	5502 0350b	RED BURNISHED
14	IPSWICH	3503	BORNHEIM WALDORF
15	IPSWICH	4302 0039	BADORF
16	IPSWICH	4201 0018a	GREY CAROLINGIAN
17	IPSWICH	4203 0039b	RHENISH FINE GREY
18	IPSWICH	4302 0066a	GREY GRITTED
19	IPSWICH	4301 1571	TATING
20	IPSWICH	4302 0023a	GREY GRITTED
21	IPSWICH	5502 0447c	BADORF
22	IPSWICH	7404 0009b	TATING
23	IPSWICH	5502 0059	BADORF
24	IPSWICH	4302 0042	LIMESTONE-TEMPERED
25	IPSWICH	7402 0090j	GREY BURNISHED
26	IPSWICH	5502 0224a	RED-PAINTED
27	IPSWICH	5502 0226a	BADORF
28	IPSWICH	5502 0164	BADORF
29	IPSWICH	4302 0006	SEINE/BEAUVAIS
30	IPSWICH	4302 0033c	BADORF
31	IPSWICH	5502	BORNHEIM WALDORF
32	IPSWICH	7402 0090c	GREY BURNISHED
33	IPSWICH	4302 0033	BADORF
34	IPSWICH	5502 0383d	BORNHEIM WALDORF
35	IPSWICH	7402 0090 0221k	BADORF RBA
36	IPSWICH	5502 0447 0511	BADORF
37	IPSWICH	7402 0090e	BADORF?
38	IPSWICH	7402 0090 0353g	SEINE VALLEY
39	IPSWICH	4302 0075b	GREY BURNISHED
40	IPSWICH	4302 0006	RED-PAINTED BADORF
41	IPSWICH	5502 0223 0148b	BADORF
42	IPSWICH	5502 0137	BORNHEIM WALDORF
43	IPSWICH	5502 0610	PINGSDORF/BRUHL KIERBERG
44	IPSWICH	3902 0117 0157	PINGSDORF
45	IPSWICH	4302 0075a	BORNHEIM WALDORF
46	IPSWICH	7402 0022a	BLACK WARE
47	IPSWICH	5502 0350a	BADORF
48	IPSWICH	4302 0051	UNIDENTIFIED BELGIAN
49	IPSWICH	4302 0066	RED-PAINTED BADORF
50	IPSWICH	8804 0043	PINGSDORF
51	IPSWICH	4302 0026	COARSE BADORF

52	IPSWICH	4302 0020a	RED-BURNISHED
53	IPSWICH	4302 0031b	COARSE BADORF
54	IPSWICH	4302 0035 0036	PINGSDORF
55	IPSWICH	7404 0009a	RED-PAINTED
56	IPSWICH	4302 0034	PINGSDORF
57	IPSWICH	5502 0057 0148	BADORF
58	IPSWICH	5502 0383c	BADORF
59	IPSWICH	7501 0080 0014b	BADORF
60	IPSWICH	5502 0070 0078a	BADORF
61	IPSWICH	5502 0300e	BADORF
62	IPSWICH	3902 0253	COARSE BADORF
63	IPSWICH	5502 0384	BADORF
64	IPSWICH	5502 0071a	BADORF
65	IPSWICH	5502 0071b	BADORF
66	IPSWICH	5502 0380b	COARSE BADORF
67	IPSWICH	5502 0345	LATE CAROLINGIAN
68	IPSWICH	4302 0031a	BADORF
69	IPSWICH	5502 0070 0078b	RHENISH
70	IPSWICH	4302 0063	BADORF
71	IPSWICH	7402 0090f	RHENISH GREY
72	IPSWICH	3503 PIT 6	BORNHEIM WALDORF
73	IPSWICH	5502 0431	BADORF
74	IPSWICH	4302 0029	RHENISH
75	IPSWICH	7402 0221h	RED-BURNISHED
76	IPSWICH	3902 0505 0199b	GREY GRITTED
77	IPSWICH	4302 0013	RED-PAINTED
78	IPSWICH	4504 0003	
79	IPSWICH	5502 0001a	BADORF
80	IPSWICH	5502 0145	
81	IPSWICH	5901 0288c	BLACK WARE
82	IPSWICH	4302 0007	BADORF
83	IPSWICH	4302 0042d	RHENISH
84	IPSWICH	7404 0089	OXIDISED CAROLINGIAN
85	IPSWICH	7404 0091	GREY GRITTED
86	IPSWICH	7404 0005a	BROWN MICACEOUS
87	IPSWICH	7404 0020	BADORF
88	IPSWICH	7404 0051	OXIDISED MICACEOUS
89	IPSWICH	5902 0014a	TRIER
90	IPSWICH	5902 0079a	PINGSDORF
91	IPSWICH	4201 0064 0033	COARSE BADORF
92	IPSWICH	3410 0032	BADORF
93	IPSWICH	5902 0093	BADORF
94	IPSWICH	4302 0054b	TATING
95	IPSWICH	5502 0005b	PINGSDORF
96	IPSWICH	4302 0042c	RHENISH OXIDISED
97	IPSWICH	8804 0050	TRIER WARE
98	IPSWICH	4201 0018b	GREY CAROLINGIAN
99	IPSWICH	3410 0033n	GREY GRITTED
100	IPSWICH	4201 0001c	OXIDISED MICACEOUS
101	IPSWICH	8804 0085	LOIRE VALLEY
102	PORTCHESTER	C72/108 48	BLACK WARE
103	DORESTAD		TATING
104	WHARRAM PERCY	15160	TATING
105	LONDON	TREASURY 25(2	BLACK WARE
106	HAUCOURT		
107	DORESTAD		BADORF
108	BREEDON-ON-THE-HILL		GREY BURNISHED

109	AMERSFOORT		
110	AMERSFOORT		
111	AMERSFOORT		
112	AMERSFOORT		
113	AMERSFOORT		
114	AMERSFOORT		
115	HAUCOURT		MEROVINGIAN
116	SEVERY		9TH CENTURY
117	ALTBACHAL	KILN	ALTBACHAL
118	SOUTHAMPTON		
119	NASSINGTON	PREBENDAL MANOR 84	
120	CANTERBURY	MT82 260A	BLACK WARE
121	CANTERBURY	MT82 260A	BLACK WARE
122	CANTERBURY	MT82 260B	BLACK WARE
123	CANTERBURY	MT82 260A	BLACK WARE
124	CANTERBURY	MT82 260A	MEROVINGIAN
125	CANTERBURY	MT82 97	MEROVINGIAN
126	QUENTOVIC	VM85 102	OXIDISED
127	QUENTOVIC	VM85 63	HODGES CLASS 17
128	QUENTOVIC	VM85 59	HODGES CLASS 34
129	QUENTOVIC	VM85 63	TIMBY TYPE 187
130	QUENTOVIC	VM85 63	GREY WARE
131	QUENTOVIC	VM85 14	GREY WARE
132	QUENTOVIC	VM85 57	OXIDISED
133	QUENTOVIC	VM85 57	GREY WARE
134	QUENTOVIC	VM85 57	GREY BURNISHED
135	QUENTOVIC	VM85 57	GREY BURNISHED
136	QUENTOVIC	VM85 63	LA LONDE I
137	QUENTOVIC	VM85 57	BLACK WARE
138	QUENTOVIC	VM85 55	LA LONDE II
139	QUENTOVIC	VM85 102	PINGSDORF?
140	QUENTOVIC	VM85 59	LA LONDE
141	QUENTOVIC	VM85 57	BLACK WARE
142	QUENTOVIC	VM85 63	SORRUS TYPE
143	QUENTOVIC	VM85 102	LA LONDE
144	QUENTOVIC	VM85 57	LA LONDE
145	QUENTOVIC	VM85 12	LA LONDE
146	QUENTOVIC	VM85 57	BLACK WARE
147	QUENTOVIC	VM85 57	LA LONDE II
148	QUENTOVIC	VM85 57	BEAUVAIS
149	QUENTOVIC	VM85 57	GREY WARE 1
150	DUNDURN	DN 105 SF005	BADORF/PINGSDORF
151	LONDON	9TH C. BEAM SLOT	GREY BURNISHED
152			
153	MIDDLE HARLING	6033 HRL 709	TATING
154	MIDDLE HARLING	6033 HRL 428	TATING
155	MIDDLE HARLING	6033 HRL 187	
156	DUISBURG		RED-PAINTED
157	DUISBURG		BADORF/PINGSDORF
158	DUISBURG		PAFFRATH
159	DUISBURG	LAYER 10	EARLY TYPE
160	DORESTAD		MAYEN WARE
161	BARTON		TATING
162	BARTON		BLACK WARE
163	BARTON		TATING
164	BARTON		TATING
165	DUNADD		

166	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
167	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
168	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
169	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
170	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
171	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
172	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
173	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
174	BORNHEIM WALDORF	KILN	BORNHEIM WALDORF
175	BRUHL-KIERBERG	KILN	BRUHL-KIERBERG
176	BRUHL-KIERBERG	KILN	BRUHL-KIERBERG
177	MAINZ		MAYEN WARE
178	MAINZ		MAYEN WARE
179	MAINZ		MAYEN WARE
180	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
181	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
182	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
183	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
184	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
185	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
186	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
187	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
188	BRUHL-ECKDORF	KILN	BRUHL-ECKDORF
189	BRUHL-PINGSDORF	KILN 1	BRUHL-PINGSDORF
190	BRUHL-PINGSDORF	KILN 1	BRUHL-PINGSDORF
191	BRUHL-PINGSDORF	KILN 1	BRUHL-PINGSDORF
192	BRUHL-PINGSDORF	KILN 1	BRUHL-PINGSDORF
193	WILDENRATH	KILN	WILDENRATH
194	WILDENRATH	KILN	WILDENRATH
195	WILDENRATH	KILN	WILDENRATH
196	WILDENRATH	KILN	WILDENRATH
197	WILDENRATH	KILN	WILDENRATH
198	WILDENRATH	KILN	WILDENRATH
199	BRUHL-KIERBERG	KILN	BRUHL-KIERBERG
200	BRUHL-BADORF	KILN	BRUHL-BADORF
201	BRUHL-BADORF	KILN	BRUHL-BADORF
202	BRUHL-BADORF	KILN	BRUHL-BADORF
203	BRUHL-BADORF	KILN	BRUHL-BADORF
204	BRUHL-BADORF	KILN	BRUHL-BADORF
205	BRUHL-BADORF	KILN	BRUHL-BADORF
206	BRUHL-BADORF	KILN	BRUHL-BADORF
207	BRUHL-PINGSDORF	KILN 3	BRUHL-PINGSDORF
208	BRUHL-PINGSDORF	KILN 3	BRUHL-PINGSDORF
209	BRUHL-PINGSDORF	KILN 3	BRUHL-PINGSDORF
210	MECKENHEIM	KILN	MECKENHEIM
211	MECKENHEIM	KILN	MECKENHEIM
212	MECKENHEIM	KILN	MECKENHEIM
213	MECKENHEIM	KILN	MECKENHEIM
214	MECKENHEIM	KILN	MECKENHEIM
215	DUISBURG		DUISBURG WARE
216	DUISBURG		DUISBURG WARE
217	BARROW	CHERRY LANE	RED-BURNISHED
218	BARROW	CHERRY LANE	RED-BURNISHED
219	IPSWICH	5701 0045f	TATING WARE
220	IPSWICH	5701 0045c	BLACK WARE
221	IPSWICH	5502 0001 0162/3	TRIER
222	IPSWICH	5202 0005a	7TH CENTURY RHENISH

223	IPSWICH	5202 0005b	7TH CENTURY RHENISH
224	IPSWICH	5801 0035a	7TH CENTURY RHENISH
225	IPSWICH	5801 0070	7TH CENTURY RHENISH
226	IPSWICH	4801 1655	IPSWICH WARE
227	BRANDON	BRD 018 7427	BADORF
228	BRANDON	BRD 018 7427	BADORF
229	BRANDON	BRD 018 5517	OXIDISED MICACEOUS
230	BRANDON	BRD 018 6195	OXIDISED MICACEOUS
231	BRANDON	BRD 018 6338	IPSWICH BLACK WARE
232	BRANDON	BRD 018	IPSWICH BLACK WARE
233	IPSWICH	4601 0332d	BLACK WARE
234	IPSWICH	4601 0372f	BLACK WARE
235	IPSWICH	4601 0116	BLACK WARE
236	IPSWICH	4601 0795c	BLACK WARE
237	IPSWICH	4801 1628w	DARK GREY WARE
238	IPSWICH	4801 1445f	
239	IPSWICH	4801 1444e	
240	IPSWICH	4801 1218ee	SANDY RED-PAINTED
241	IPSWICH	4801 1224a	COARSE RED-PAINTED
242	QUENTOVIC	VM86 156	GREY BURNISHED
243	IPSWICH	4601 0725c	BADORF
244	IPSWICH	4601 0690c	OXIDISED GRITTY 1
245	IPSWICH	4801 0288c	STAMFORD WARE
246	IPSWICH	4601 0690dd	RED-PAINTED
247	IPSWICH	4601 0899e	BLACK WARE
248	IPSWICH	4601 0694p	EARLY GLAZED WARE
249	BRANDON	BRD 018	IPSWICH BLACK WARE
250	IPSWICH	4801 2444	VESSEL V
251	DORESTAD		MAYEN
252	IPSWICH	4601 0358	BLACK WARE
253	IPSWICH	4601 0357d	BLACK WARE
254	IPSWICH	4801 2722a	BLACK WARE
255	IPSWICH	4601 0899c	BLACK WARE
256	IPSWICH	5901 0306b	BLACK WARE
257	IPSWICH	0802 0193a	BLACK WARE
258	IPSWICH	4801 1571e	BLACK WARE
259	IPSWICH	4601 0038	BLACK WARE
260	IPSWICH	4801 2872	BLACK WARE
261	IPSWICH	4601 0322	BLACK WARE
262	IPSWICH	4801 0688f	BLACK WARE
263	IPSWICH	4801 1990 2300	BLACK WARE
264	IPSWICH	5701 0023a	BLACK WARE
265	BRANDON	BRD 5821	BLACK WARE
266	BRANDON	BRD 6326	BLACK WARE
267	BRANDON	BRD 3686	BLACK WARE
268	BRANDON	BRD 7449	BLACK WARE
269	BRANDON	BRD 7446	BLACK WARE
270	BRANDON	BRD 7452	BLACK WARE
271	BRANDON	BRD 5838	BLACK WARE
272	BRANDON	BRD 7455	BLACK WARE
273	BRANDON	BRD 7450	BLACK WARE
274	BRANDON	BRD 7451	BLACK WARE
275	BRANDON	BRD 5812	BLACK WARE
276	BRANDON	BRD 6147	BLACK WARE
277	BRANDON	BRD 7431	BLACK WARE
278	HAMWIC	SAR XIV P993	BLACK WARE
279	HAMWIC	PIT (8) 8 505	BLACK WARE

280	HAMWIC	GS F6 740	BLACK WARE
281	YORK	3360B	BLACK WARE
282	YORK	3360A	BLACK WARE
283	YORK	3238	BLACK WARE
284	YORK	10180	BLACK WARE
285	YORK	1932	BLACK WARE
286	YORK	1895	BLACK WARE
287	YORK	7109	BLACK WARE
288	YORK	2458A	BLACK WARE
289	YORK	2458B	BLACK WARE
290	YORK	5525	BLACK WARE
291	YORK	3326B	BLACK WARE
292	YORK	3326A	BLACK WARE
293	YORK	3186	BLACK WARE
294	YORK	9100	BLACK WARE
295	QUENTOVIC	VM85 57	BLACK WARE
296	QUENTOVIC	VM85 57	BLACK WARE
297	QUENTOVIC	VM85 57	BLACK WARE
298	QUENTOVIC	VM85 57	BLACK WARE
299	QUENTOVIC	VM85 57	BLACK WARE
300	QUENTOVIC	VM85 63	BLACK WARE
301	QUENTOVIC	VM85 57	BLACK WARE
302	QUENTOVIC	VM85 57	BLACK WARE
303	QUENTOVIC	VM85 57	BLACK WARE
304	QUENTOVIC	VM85 12	BLACK WARE
305	QUENTOVIC	VM85 65/1	BLACK WARE
306	QUENTOVIC	VM85 105	BLACK WARE
307	RIVER CANCHE	STRAY FIND	BLACK WARE
308	IPSWICH	0001	IPSWICH WARE
309	IPSWICH	0212	IPSWICH WARE
310	IPSWICH	0001	IPSWICH WARE
311	IPSWICH	0001	IPSWICH WARE
312	IPSWICH	0212	IPSWICH WARE
313	IPSWICH	0001	IPSWICH WARE
314	IPSWICH	0001	IPSWICH WARE
315	IPSWICH	0001	IPSWICH WARE
316	IPSWICH	0001	IPSWICH WARE
317	IPSWICH	0001	IPSWICH WARE
318	IPSWICH	0001	IPSWICH WARE
319	IPSWICH	0001	IPSWICH WARE
320	IPSWICH	0001	IPSWICH WARE
321	IPSWICH	0001	IPSWICH WARE
322	IPSWICH	0001	IPSWICH WARE
323	YORK		EARLY GLAZED WARE
324	YORK		BEAUVAIS
325	YORK		TOURS

APPENDIX 4:

The thin-section data

List of sites from which ceramic thin-sections were taken.

Britain:
Barrow-on-Humber
Barton-on-Humber
Brancaster
Brandon
Breedon-on-the-Hill
Bridgham
Canterbury
Castor
Chichester
Dunadd
Dundurn
Ipswich
Lincoln
London
Middle Harling
Nassington
Northampton
North Elmham
Norwich
Oxford
Portchester
Tilney St Lawrence
Walpole St Peter
Wareham
Wharram Percy
Wicken Bonhunt
Winchester
York

The Continent
Baralle
Bruhl-Badorf
Bruhl-Eckdorf
Bornheim-Waldorf
Dieue-sur-Meuse
Dorestad
Duisburg
Geseke
Kaupang
Mayen
Meckenheim
Orleans
Paderborn
Pingsdorf
Ribe
Sorrus
Tours
Trier
Quentovic

KEY TO THE THIN-SECTION DESCRIPTIONS.

FREQUENCY OF THE MINERALS:

ABUNDANT = APPEARING A NUMBER OF TIMES IN ANY VIEW OF THE THIN-SECTION AT x10 MAGNIFICATION.

COMMON/MODERATE = APPEARING IN MOST VIEWS AT x10 MAGNIFICATION.

SPARSE = NOT APPARENT IN MOST VIEWS AT x10 MAGNIFICATION.

ANGULARITY: THE FORM OF INDIVIDUAL CRYSTALS.

SORTING: THE REGULARITY WITH WHICH CRYSTALS ARE SPACED THROUGH THE THIN-SECTION.

MATRIX COLOUR: THE COLOUR OF THE CLAY BODY, AS IT APPEARS UNDER CROSSED-POLARS.

MATRIX TEXTURE: A DESCRIPTION BASED ON A SUBJECTIVE ASSESSMENT OF THE APPEARANCE OF THE THIN-SECTION.

Thin-section descriptions.

1 IPSWICH 1804 0040 BLACK WARE
A fairly clean, slightly anisotropic, red-brown clay matrix, containing abundant iron ore at 0.3-1.3mm across, and common, well-sorted, sub-rounded to sub-angular quartz at 0.3-0.4mm across. There are two fragments of angular microquartz at 0.4mm across and a moderate background scatter of quartz at 0.05-0.1mm across. The ware corresponds to Hodges class 14 group 5.

2 IPSWICH 1804 0003 BLACK WARE
A fairly clean, isotropic, brown clay matrix, containing abundant iron ore at 0.1-1.0mm across, and common, fairly well-sorted, sub-rounded to sub-angular quartz at 0.2-0.4mm across. A background scatter of quartz is also present at 0.05-0.1mm across.

3 IPSWICH 7402 0090 0021r BLACK WARE
A gritty, anisotropic, red-brown clay matrix, containing poorly sorted, common, sub-rounded to sub-angular quartz at 0.5-1.0mm across. The background quartz scatter is abundant at 0.05-0.2mm across. Muscovite is sparse at 0.1-0.5mm across. Biotite is sparse at <0.2mm across.

4 IPSWICH 1804 0014 BLACK WARE
A gritty, isotropic, red-brown clay matrix, containing an abundant, well-sorted, sub-angular scatter of quartz at 0.2-0.4mm across. An abundant scatter of background quartz is present at 0.05-0.1mm across. Microquartz is sparse at 0.3-0.4mm across. Iron ore is sparse at 0.05-0.3mm across, and muscovite at <0.2mm across.

5 IPSWICH 5502 0150 BLACK WARE
A gritty, isotropic, brown clay matrix, containing a well-sorted, common scatter of sub-angular quartz at 0.2-0.4mm across, and abundant iron ore at 0.1-0.5mm across, with a few pieces at 0.5-2.0mm across. An abundant background scatter of quartz is present at 0.05-0.1mm across. Muscovite is sparse at <0.2mm across.

6 IPSWICH 4302 0039 BLACK WARE
A fairly clean, anisotropic, brownish-red clay matrix, containing a well-sorted, common, sub-angular scatter of quartz at 0.3-0.4mm across, with an abundant background scatter at 0.01-0.05mm across. Iron ore is common at 0.05-0.1mm across and sparse at 0.3-0.4mm across. Muscovite and microcline are sparse at <0.3mm across. Sparse grog/clay pellets occur at c.1.0mm across.

7 IPSWICH 5502 0278 0277a RED-PAINTED
A clean, slightly dense and laminated, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, and a sparse scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.3mm across, as is muscovite at <0.2mm across. A single pellet of grog/clay is visible at 0.6mm across.

8 IPSWICH 4302 0033a PAFFRATH
A dense and gritty, isotropic, dark grey clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, and an abundant background scatter at 0.05-0.2mm across. Sparse iron ore is visible at 0.1mm across.

9 IPSWICH 4302 0035 0036b GREY GRITTED
A dense and gritty, isotropic, dark grey-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.2-0.5mm across, and abundant at 0.05-0.2mm across. Microquartz is sparse at o.3mm across. Iron ore is common at 0.05-0.3mm across. Muscovite is sparse at <0.2mm across, and grog/clay pellets sparse at 0.1-0.2mm across.

10 IPSWICH 3503 PIT 9 BORNHEIM WALDORF
A clean, slightly laminated, anisotropic, red-brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular to sub-rounded quartz at 0.3-0.8mm across, a background scatter is common at 0.05-0.1mm across. Iron ore is common at 0.05-0.2mm across, and sparse at 0.6mm across. Sparse, sub-rounded to sub-angular rock fragments are visible at 0.3-1.5mm across.

11 IPSWICH 5502 0226b BADORF
A clean and dense, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an abundant background scatter at 0.01-0.05mm across. Sheared quartz is sparse at 0.5mm across. Iron ore is common at 0.1-0.3mm across.

12 IPSWICH 4201 0053c HUNNESCHANS
A dense, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an abundant background scatter at 0.01-0.05mm across. Iron ore is sparse at 0.1-0.3mm across, and muscovite at <0.3mm across.

13 IPSWICH 5502 0350b RED BURNISHED
A very mixed and dense, isotropic, red-brown to dark grey clay matrix, containing a well-sorted, scatter of abundant sub-angular to sub-rounded quartz at 0.2-0.3mm across, there is also a moderate background scatter at 0.05-0.1mm, and sparse quartz at 0.5-0.8mm across. Microquartz is sparse at 0.4mm across. Iron ore and muscovite are common at 0.3mm and <0.4mm across respectively.

14 IPSWICH 3503 BORNHEIM WALDORF
A fairly clean and laminated, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.6mm across, a background scatter of between 0.05-0.1mm across is also apparent, with a few crystals of microquartz at 0.3-0.4mm across. Iron ore is abundant at 0.05-0.2mm across, and sparse at 0.2-0.5mm across. A single fragment of limestone occurs at 0.3mm across, and a basaltic rock fragment at 0.3mm across.

15 IPSWICH 4302 0039 BADORF
A clean and dense, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, with an abundant background scatter at 0.05-0.1mm across. Sub-angular quartzite is common at 0.4-0.5mm across. Iron ore is sparse at <0.2mm across. A 1.0mm across rock fragment is visible.

16 IPSWICH 4201 0018a GREY CAROLINGIAN
A fairly clean, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.4mm across, and muscovite sparse at 0.2-0.4mm across. Grog/clay pellets are visible at 0.05-0.3mm across, and rock fragments at c.1.2mm across.

17 IPSWICH 4203 0039b RHENISH FINE GREY
A grainy, isotropic, dark grey clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-0.6mm across, with an abundant, well-sorted background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.2-0.4mm across. A single crystal of plagioclase feldspar is visible at 0.1mm across, and two rock fragments at 0.5mm and 1.0mm across. (Similar to Mayen TS 160).

18 IPSWICH 4302 0066a GREY GRITTED
A laminated, dense and gritty, isotropic, grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.8mm across, with a well-sorted, abundant background scatter at 0.05-0.2mm across. Microquartz is sparse at 0.1-0.2mm across. Iron ore is common at 0.2-0.5mm across, and plagioclase feldspar occurs twice at 0.2mm and 0.4mm across. Clay pellets are sparse at 0.5-0.7mm across, and a single rock fragment occurs at 2.6mm across.

19 IPSWICH 4301 1571 TATING
A fairly clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.3-0.4mm across; quartz is also abundant at 0.1-0.2mm across. Iron ore is common at 0.05-0.2mm across, with a single piece at 0.4mm across. A single crystal of plagioclase feldspar is visible at 0.2mm across, and a large clay pellet at 3.0mm across.

20 IPSWICH 4302 0023a GREY GRITTED
A slightly laminated and gritty, isotropic, grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.0mm across, with an abundant, well-sorted scatter at 0.03-0.2mm across. Microquartz is sparse at 0.3-0.4mm across. Iron ore is sparse at 0.05-0.1mm across. A single pellet of clay or grog is present at 1.2mm across.

21 IPSWICH 5502 0447c BADORF
A grainy, isotropic, grey clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.5mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is aparse at 0.05-0.2mm across. A single clay pellet is visible at 1.0mm across. Sparse, unidentified minerals are visible at 0.3-0.4mm across.

22 IPSWICH 7404 0009b TATING
A clean, dense and gritty, anisotropic, light grey-brown clay matrix, containing a well-sorted, abundant scatter of sub-angular quartz at 0.05-0.2mm across. Iron ore is common at 0.05 mm across, and sparse at c.0.4mm across. Very different to the other Tating TSs (no.s 19, 153, 154).

23 IPSWICH 5502 0059 BADORF
A gritty, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, and an abundant scatter at 0.05-0.1mm across. Microquartz is sparse at 0.3mm across. Iron ore is sparse at 0.1-0.3mm across, and muscovite at 0.2mm across.

24 IPSWICH 4302 0042 LIMESTONE TEMPERED
A dense, poorly mixed, isotropic, grey to red-brown clay matrix, containing a poorly-sorted, moderate scatter of angular limestone at 0.5-1.5mm across. Iron ore is common at 0.4-1.0mm across. Quartz is sparse and poorly sorted at 0.05-0.3mm across.

25 IPSWICH 7402 0090j GREY BURNISHED
A grainy, anisotropic, dark grey-brown clay matrix, containing a well-sorted, abundant scatter of sub-angular quartz at 0.05-0.2mm across. Iron ore is sparse at 0.1-0.6mm across. A single large clay pellet is visible at 3.2mm across.

26 IPSWICH 5502 0224a RED-PAINTED
A dense, isotropic, grey-brown to red-brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular quartz at 0.2-0.5mm across, with a moderate scatter at 0.01-0.1mm across. Iron ore is common at 0.1mm across, and muscovite sparse at <0.2mm across. A single rock fragment is visible at 0.5mm across.

27 IPSWICH 5502 0226a BADORF
A very clean, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-1.4mm across, and a sparse scatter at 0.01-0.1mm across. Iron ore is common at 0.1-0.4mm across. Two rock fragments occur, at 0.5mm and 1.4mm across.

28 IPSWICH 5502 0164 BADORF
A gritty, isotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.0mm across, and a well-sorted background scatter at 0.05-0.2mm across. Iron ore is abundant at <0.05mm, common at 0.1mm and sparse at <0.8mm across. Muscovite is sparse at <0.2mm across. One crystal of plagioclase feldspar is visible at 0.1mm across. Sparse rock fragments or grog are visible at <0.5mm across.

29 IPSWICH 4302 0006 LA LONDE/BEAUVAIS
A grainy, isotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.5mm across, with an abundant background scatter at 0.03.0.1mm across. Iron ore is sparse at 0.05-0.1mm across, and at 0.4-0.6mm across.

30 IPSWICH 4302 0033c BADORF
A dense and fairly clean, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.5mm across, with an additional moderate scatter at 0.01-0.05mm across. Microquartz is sparse at 0.4mm across. Iron ore is common at 0.01-0.3mm across.

31 IPSWICH 5502 BORNHEIM WALDORF
A dense and laminated, anisotropic, grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.5-1.3mm across, with a sparse scatter at <0.5mm across. Iron ore is common at 0.1-0.5mm across. A single crystal of microcline is visible at 0.5mm across, and one of orthoclase at 1.1mm across. Gypsum and nepheline are also present.

32 IPSWICH 7402 0090c GREY BURNISHED
A grainy, isotropic, dark grey to red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.7mm across, with an abundant scatter at 0.05-0.1mm across. Sub-rounded microquartz is sparse at 0.5mm across. Iron ore is sparse at 0.1-0.4mm, and common at <0.1mm across. A single pellet of clay or grog is visible at 1.6mm across.

33 IPSWICH 4302 0033 BADORF
A dense and gritty, isotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-1.6mm across, with an abundant scatter at <0.1mm across. A single crystal of what is probably olivine is visible at <0.05mm, and a crystal of alkali feldspar at 0.25mm. Grog/clay pellets are visible at 0.4mm and 1.0mm across.

34 IPSWICH 5502 0383d BORNHEIM WALDORF
A grainy, isotropic, dark red-brown to dark grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.4-1.0mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1mm across. Muscovite is common at <0.4mm. Plagioclase feldspar is sparse at 0.25mm across.

35 IPSWICH 7402 0090 0221k BADORF RBA
A dense and slightly gritty, anisotropic, light olive-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across, and a moderate scatter at 0.05-0.2mm across. Iron ore is sparse at 0.1-0.3mm across.

36 IPSWICH 5502 0447 0511 BADORF
A clean, anisotropic, light brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, with a moderate scatter at 0.05-0.1mm. Iron ore is common at 0.05-0.4mm across, with a single pellet at 1.0mm across.

37 IPSWICH 7402 0090e BADORF?
A clean, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across.

38 IPSWICH 7402 0090 0353g LA LONDE I
A clean, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across.

39 IPSWICH 4302 0075b GREY BURNISHED
A slightly grainy and laminated, isotropic, grey to red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.6mm across, with an abundant background scatter at 0.05-0.2mm across. Microquartz is sparse at 0.3mm, and a single crystal of sheared quartz appears at 0.6mm across. Iron ore is common at 0.05-0.3mm across, as is muscovite at <0.1mm. Microcline appears twice, at 0.3mm and 0.5mm across. A fragment of chert is visible at 0.5mm across. This TS is similar to no.s 32 and 34.

40 IPSWICH 4302 0006 RED-PAINTED BADORF
A clean but grainy, anisotropic, light grey to light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.5mm across, with a common background scatter at 0.05-0.1mm across. One quartzite crystal appears at 0.8mm across. Iron ore is sparse at 0.1-0.2mm across.

41 IPSWICH 5502 0223 0148b BADORF
An overground TS, with an anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across, with an abundant background scatter at 0.01-0.05mm across. Iron ore is common at 0.1-0.4mm across.

42 IPSWICH 5502 0137 BORNHEIM WALDORF
A dense, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz and quartzite at 0.3-0.8mm across, with sparse quartz at 0.05-0.1mm. Iron ore is common at 0.1-0.4mm across. Grog/clay pellets are visible at 0.8mm and 1.0mm across, with rock fragments at 0.3- 1.5mm across.

43 IPSWICH 5502 0610 PINGSDORF/BRUHL KIERBERG
A dense, isotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with a sparse background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.2-0.3mm across. A single clay pellet is visible at 1.4mm across, and a fragment of gypsum at 0.5mm across.

44 IPSWICH 3902 0117 0157 PINGSDORF
A dense, isotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, as well as a moderate background scatter at 0.03-0.1mm across. There are occasional quartz crystals at up to 0.8mm across, and a sparse scatter of sub-rounded to sub-angular quartzite at 0.3-0.5mm across. Iron ore is common at 0.05-0.2mm, and sparse at 0.5-1.2mm across.

45 IPSWICH 4302 0075a BORNHEIM WALDORF
A mixed and laminated, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.4-0.8mm across, with a moderate background scatter at 0.01-0.1mm across. Iron ore is abundant at 0.1-0.4mm across. Muscovite is sparse at <0.3mm across. A few grog/clay pellets occur at c.0.4mm across.

46 IPSWICH 7402 0022a BLACK WARE
A fairly clean, isotropic, red-brown to grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at c.0.4mm across, and a moderate scatter at 0.03-0.2mm across. Iron ore was abundant at 0.1-1.5mm across.

47 IPSWICH 5502 0350a BADORF
A clean, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartzite at 0.4-0.8mm across as well as a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across. A background scatter of quartz was also apparent at 0.05-0.1mm across. Iron ore was common at 0.1-0.8mm across. A large, clay pellet was visible at 1.0mm across, and two rock fragments at 0.5-0.8mm across.

48 IPSWICH 4302 0051 UNIDENTIFIED BELGIAN
A laminated, densely packed, anisotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.4-1.0mm across, and an abundant background scatter at 0.05-0.2mm across. Iron ore is common at 0.1-0.3mm across, and muscovite sparse at 0.2-0.3mm across. A single grog/clay pellet occurred at 1.2mm across.

49 IPSWICH 4302 0066 RED-PAINTED BADORF
A very clean, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, and a sparse background scatter at 0.01-0.05mm across. A single crystal of microquartz is present at 0.5mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is common at 0.2-0.3mm across.

50 IPSWICH 8804 0043 PINGSDORF
A clean, slightly laminated, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across. Iron ore is sparse at 0.05-0.4mm across.

51 IPSWICH 4302 0026 COARSE BADORF
A fairly clean, slightly stained, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, and a sparse background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.25mm across.

52 IPSWICH 4302 0020a RED-BURNISHED
A grainy, isotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to angular quartz at 0.4-0.5mm across, as well as a moderate scatter at 0.1-0.2mm and a sparse scatter at 0.05-0.1mm across. Iron ore is common and well-sorted at 0.1mm across. Muscovite is also common at <0.2mm across.

53 IPSWICH 4302 0031b COARSE BADORF
A clean, anisotropic, yellow to greyish-yellow clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with no background scatter. Iron ore is present at 0.1-0.2mm across. A single crystal of muscovite is visible measuring 0.2mm across. Plagioclase feldspar occurs twice at 0.3mm and 0.4mm across. Two volcanic rock fragments occur at o.4mm and 0.5mm across.

54 IPSWICH 4302 0035 0036 PINGSDORF
A grainy, isotropic, grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.0mm across, with a background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1mm across, and muscovite common at 0.2mm across. A sub-rounded crystal of olivine is visible measuring 0.3mm across.

55 IPSWICH 7404 0009a RED-PAINTED
A gritty, anisotropic, light yellow-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.6mm across, with a sparse background scatter at 0.1-0.2mm across. Iron ore is common at c.0.05mm and sparse at 0.1-0.6mm across. Plagioclase feldspar is abundant at c.0.1mm across.

56 IPSWICH 4302 0034 PINGSDORF
A very clean, isotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with a background scatter at 0.05-0.1mm across, and a crystal of microquartz at 0.4mm across. Iron ore is sparse at 0.2mm across.

57 IPSWICH 5502 0057 0148 BADORF
A dense and slightly gritty, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of angular to sub-angular quartz at 0.2-0.7mm across, with a moderate background scatter at 0.02mm across. Iron ore is common at 0.05-0.2mm across. Muscovite is sparse at <0.2mm across. Rock fragments are sparse at <0.2mm across.

58 IPSWICH 5502 0383c BADORF
A grainy, anisotropic, light red-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.3-0.6mm across, and an abundant scatter at 0.05-0.2mm across. Iron ore is abundant at 0.05mm, and sparse at 0.2-0.4mm across. Muscovite and plagioclase feldspar are present in very small quantities. One grog/clay pellet is visible at 1.2mm across.

59 IPSWICH 7501 0080 0014b BADORF
A coarse, dense and gritty, anisotropic, grey-brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.4-0.9mm across, and an abundant background scatter at 0.1-0.3mm across. Iron ore is sparse at 0.1-0.5mm across, as is muscovite at <0.2mm across. A single crystal of microcline is present at 0.7mm across.

60 IPSWICH 5502 0070 0078a BADORF
A grainy, anisotropic, light yellow-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an abundant background scatter at 0.05-0.2mm across. One grain of microquartz is visible at 0.3mm across, and a grain of sheared quartz at 0.4mm across. Iron ore is sparse at 0.1-0.3mm across. A single grain of microcline is visible at 0.4mm across.

61 IPSWICH 5502 0300e BADORF
A grainy, anisotropic, light red-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.3-0.4mm across, and an abundant scatter at 0.03-0.2mm across. Iron ore is sparse at 0.2-0.4mm across. Biotite and plagioclase feldspar are common, but small.

62 IPSWICH 3902 0253 COARSE BADORF
A fairly clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.5mm across, and a moderate scatter at 0.01-0.1mm across, with a single crystal of microquartz at 0.25mm across. Iron ore is sparse at 0.2-0.4mm across, and muscovite common at <0.1mm across.

63 IPSWICH 5502 0384 BADORF
A dense and gritty, anisotropic, grey-brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular to sub-rounded quartz at 0.2-0.3mm across, and abundant quartz at 0.02-0.05mm across. Iron ore is vbisible once, at 0.7mm across. Muscovite is sparse at <0.2mm across, and grog/clay pellets occur twice, at 0.5mm and 0.7mm across.

64 IPSWICH 5502 0071a BADORF
A fairly clean, anisotropic, light yellow-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with a sparse background scatter at 0.05-0.2mm across. Iron ore is common at 0.1-0.4mm across. Plagioclase feldspar is common at <0.1mm across.

65 IPSWICH 5502 0071b BADORF
A clean, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.4mm across, and a moderate background scatter at <0.05mm across. Iron ore is common at 0.2-0.5mm across, and muscovite is sparse at 0.1-0.3mm across. A single, sub-angular grog fragment is visible at 0.3mm across.

66 IPSWICH 5502 0380b COARSE BADORF
A very clean, anisotropic, light red-brown clay matrix, containing a very poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.4-0.8mm across, with a single crystal of microquartz at 0.6mm across. Iron ore is common at 0.2-0.4mm across.

67 IPSWICH 5502 0345 LATE CAROLINGIAN
A grainy, anisotropic, light red-brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular quartz at 0.3-0.5mm across, and an abundant scatter at 0.05-0.2mm across. Iron ore is common at 0.1-0.4mm across. A single crystal of plagioclase feldspar is visible at 0.2mm across, as well as a fragment of augite at 0.1mm across. Rock fragments are sparse at >1.0mm across.

68 IPSWICH 4302 0031a BADORF
A gritty, isotropic, dark red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-rounded quartz at 0.3-1.5mm across, with a sparse scatter at 0.05-0.2mm across. Microquartz is sparse at 0.3mm across. Plagioclase feldspar occurs once at 0.25mm across.

69 IPSWICH 5502 0070 0078b RHENISH
A densely gritted, anisotropic, grey-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.3-0.5mm across, and an abundant background scatter at 0.01-0.2mm across. Iron ore is sparse at 0.2-0.3mm across, and muscovite common at the same size. A single crystal of plagioclase feldspar is visible at 0.25mm across.

70 IPSWICH 4302 0063 BADORF
A very clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, and sparse quartz at <0.6mm across. Iron ore is sparse at 0.1-0.5mm across. A single crystal of anorthoclase is visible at 0.6mm across.

71 IPSWICH 7402 0090f RHENISH GREY
A grainy, isotropic, light yellow-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across, and an abundant scatter at 0.01-0.2mm across. Iron ore is sparse at 0.2-0.3mm across. Biotite and muscovite are common.

72 IPSWICH 3503 PIT 6 BORNHEIM WALDORF
A grainy, anisotropic, light grey-brown to red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-1.0mm across, and an abundant scatter at 0.05-0.2mm across. Iron ore is sparse at 0.2-0.4mm across, and muscovite is sparse at c.0.2mm across.

73 IPSWICH 5502 0431 BADORF
A clean, isotropic, red-brown to grey clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.5mm across, and an abundant scatter at c.0.1mm across. Iron ore is sparse at 0.2mm across.

74 IPSWICH 4302 0029 RHENISH
A grainy, isotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.7mm across, and an abundant scatter of crystals at 0.1mm across. Iron ore is common at 0.1-0.5mm across, as is muscovite at <0.3mm across. Plagioclase feldspar is sparse at 0.1-0.2mm, and microcline at 0.15mm. Single pellets of grog and rock occur at 1.5mm across.

75 IPSWICH 7402 0221h RED-BURNISHED
A grainy, isotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across, and an additional abundant scatter at 0.05-0.2mm across. Iron ore is common at 0.2-0.3mm across. Muscovite is abundant at an average of 0.2mm across. A single crystal of augite is visible at 0.05mm across.

76 IPSWICH 3902 0505 0199b GREY GRITTED
A clean, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.2mm across, withj sparse quartz at <0.1mm across. Grog/clay pellets occur at 1.0mm amd 1.5mm across, as well as a fragment of dolomite at 0.5mm across.

77 IPSWICH 4302 0013 RED-PAINTED
A clean, anisotropic, light yellow-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, and sparse quartz at c.0.1mm across. Microquartz is visible at 0.6mm across. Iron ore is common at 0.1-0.4mm across, and muscovite sparse at 0.2mm across.

78 IPSWICH 4504 0003
A grainy, anisotropic, brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.2-0.6mm across, and a well-sorted, moderate scatter scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.4mm across, as is muscovite at 0.2-0.3mm across.

79 IPSWICH 5502 0001a BADORF
A clean and dense, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with abundant quartz at <0.05mm across. Iron ore is common at 0.05mm, and sparse ar 0.3-0.7mm across. A single rock fragment is visible, measuring 0.8mm across.

80 IPSWICH 5502 0145
A clean, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across.

81 IPSWICH 5901 0288c BLACK WARE
A clean, anisotropic, light brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.3-0.4mm across, with an additional sparse scatter at c.0.1mm across. Iron ore is common at 0.05-0.3mm across, and sparse at c.0.5mm across.

82 IPSWICH 4302 0007 BADORF
A clean, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an additional moderate scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.3mm across, as is muscovite at <0.2mm across. One fragment of volcanic rock is also visible.

83 IPSWICH 4302 0042d RHENISH
A dense, isotropic, dark grey-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.3mm across, with a moderate scatter at >0.01mm across. A single quartz crystal is visible at 0.7mm across. Iron ore is sparse at 0.4mm across. Muscovite and plagioclase feldspar occur once at 0.2mm across. limestone is visible at 0.3mm and 0.6mm across.

84 IPSWICH 7404 0089 OXIDISED CAROLINGIAN
A dense, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at <0.1mm across. Iron ore is common at c.0.1mm across, and sparse at c.0.4mm across. Muscovite is abundant at <0.2mm across.

85 IPSWICH 7404 0091 GREY GRITTED
A fairly clean, anisotropic, brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.4mm across, sparse quartz at c.0.1mm, and one fragment of microquartz at 0.6mm across. Muscovite is sparse at 0.1-0.2mm across, and grog/clay pellets at 0.4-1.0mm across.

86 IPSWICH 7404 0005a BROWN MICACEOUS
A gritty, anisotropic, red-brown clay matrix, containing a well-sorted, abundant scatter of sub-angular quartz at 0.1-0.2mm across, with sparse quartz at c.1.2mm across. Iron ore is common at 0.1-0.4mm across, as is muscovite at c.0.2mm across. A single fragment of basaltic rock is visible at 0.8mm across.

87 IPSWICH 7404 0020 BADORF
A clean, anisotropic, light brown clay matrix, containing a fairly well-sorted, abundant scatter of sub-angular quartz at 0.2-0.5mm across. Iron ore is present at 0.2- 1.5mm across. A single rock fragment is visible at 0.6mm across.

88 IPSWICH 7404 0051 OXIDISED MICACEOUS
A densely packed, anisotropic, red-brown clay matrix, containing a well-sorted, abundant scatter of sub-angular quartz at 0.1-0.4mm across. Iron ore is sparse at 0.1-0.2mm across, as is muscovite at c.0.3mm across. Plagioclase feldspar occurs twice, at 0.2mm and 0.4mm across. Occasional grog/clay pellets occur at c.0.4mm across.

89 IPSWICH 5902 0014a LA LONDE II
A dense, anisotropic, light grey clay matrix, containing a well-sorted, abundant scatter of sub-angular quartz at <0.2mm across, with sparse quarz at between 0.2-0.5mm across. Iron ore is sparse at 0.1-0.2mm, and muscovite abundant at <0.3mm across.

90 IPSWICH 5902 0079a PINGSDORF
A very clean and dense, isotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with sparse quartz at <0.1mm across. Iron ore is common at 0.1-0.2mm across, and sparse at 1.0mm across. Muscovite is sparse at c.0.4mm across. One rock fragment is visible at 1.2mm across.

91 IPSWICH 4201 0064 0033 COARSE BADORF
A fairly clean, anisotropic, light grey to light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.2mm across, and sparse at <0.1mm across. Iron ore is common at 0.1-0.4mm across. Muscovite is sparse at c.0.2mm across. A single fragment of a basaltic rock fragment is visible at 0.6mm across.

92 IPSWICH 3410 0032 BADORF
A dense, isotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across, with an abundant background scatter at <0.1mm across, and a single fragment at 2.0mm across. Iron ore is abundant at 0.1-0.3mm across, as is muscovite at <0.2mm across.

93 IPSWICH 5902 0093 BADORF
A grainy, isotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.0mm across, and an abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.2mm across. A piece of grog or a clay pellet is visible at 2.0mm across., and occasional rock fragments at >0.8mm across.

94 IPSWICH 4302 0054b TATING
A clean, anisotropic, light brown clay matrix, containing a well-sorted, scatter of abundant sub-angular to sub-rounded quartz at 0.1-0.2mm across, and sparse quartz at 0.4-0.5mm across. Iron ore is sparse at 0.1-0.2mm across.

95 IPSWICH 5502 0005b PINGSDORF
A clean and dense, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at c.0.3mm across, and a common background scatter at 0.01-0.1mm across. Iron ore is sparse at 0.1-0.3mm across.

96 IPSWICH 4302 0042c RHENISH OXIDISED
A dense, anisotropic, light red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.03-0.5mm across. Iron ore is common at 0.1-0.2mm across. Muscovite is abundant at 0.2-0.3mm across.

97 IPSWICH 8804 0050 LA LONDE TYPE II
A clean, dense, isotropic, light grey clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.2mm across. Iron ore is sparse at 0.1-0.8mm across. Plagioclase feldspar and muscovite are common at <0.2mm across.

98 IPSWICH 4201 0018b GREY CAROLINGIAN
A gritty, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.1-0.5mm across, with a single crystal at 1.5mm across, and sparse microquartz at 0.2-0.3mm across. Iron ore is common at 0.1-0.2mm across.

99 IPSWICH 3410 0033n GREY GRITTED
A dense, anisotropic, dark red-brown clay matrix, containing a fairly well-sorted, abundant scatter of sub-angular to sub-rounded quartz at 0.2-0.5mm across. Iron ore is common at 0.1-0.5mm across. Plagioclase feldspar occurs once at 0.2mm across. Two pieces of grog or clay pellets occur at 0.2mm and 0.3mm across.

100 IPSWICH 4201 0001c OXIDISED MICACEOUS
A gritty, isotropic, light red-brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.2mm across, with occasional fragments at <1.0mm, and microquartz at 0.2-0.5mm across. Iron ore is common at 0.1-0.4mm across. Muscovite is sparse at 0.3mm across. Plagioclase feldspar occurs twice at 0.1mm and 0.3mm across.

101 IPSWICH 8804 0085 LOIRE VALLEY
No TS made.

102 PORTCHESTER C72/108 48 BLACK WARE
A dense and gritty, isotropic, brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.2mm across, and an abundant background scatter at 0.02-0.1mm across. Muscovite is sparse at c.0.2mm across, and biotite common at <0.2mm across. A single rock fragment is visible at 1.2mm across, which bears within its matrix a crystal of microcline, 0.2mm across. There are also some unidentified light reddish-brown rock fragments present.

103 DORESTAD TATING
A dense and gritty, anisotropic, grey-brown clay matrix, containing a well-sorted, scatter of sparse sub-angular quartz at 0.3-0.4mm across, as well as abundant background scatter at 0.05-0.2mm across. A single clay pellet/grog fragment, at 1.5mm across, is also visible.

104 WHARRAM PERCY 15160 TATING
A clean, but laminated, isotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.5mm across.

105 LONDON TREASURY 25(2 BLACK WARE
A dense and gritty, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at c.0.2mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is common at <0.2mm across. Microcline is sparse at c.0.3mm across. Single fragments of limestone and chert occur at c.1.0mm across, as well as two clay pellets aat 1.2mm and 1.5mm across.

106 HAUCOURT
A gritty, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.4-0.5mm across, with a background scatter of abundant quartz at 0.1-0.2mm across. Iron ore is sparse at 0.1-0.2mm across.

107 DORESTAD BADORF/PINGSDORF
A fine, anisotropic, olive-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.3mm across, with a moderate scatter at <0.02mm, and sparse quartz at c.0.5mm across. Iron ore is sparse at <0.1mm across.

108 BREEDON-ON-THE-HILL GREY BURNISHED
A dense and gritty, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with a background scatter of abundant quartz at <0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Single fragments of rock and grog occur at 0.8mm and 2.1mm across.

109 AMERSFOORT
A dense and gritty, isotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular to sub-rounded quartz at c.0.1mm across. Iron ore is common at 0.2-1.0mm across. Plagioclase feldspar is sparse at c.0.1mm across, and a single crystal of olivine is visible at 0.3mm across. Rock fragments occur occasionally at between 0.2-0.7mm across.

110 AMERSFOORT
A clean, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate to sparse scatter of sub-angular quartz at 0.2-0.7mm across, with a background scatter of abundant, well-sorted quartz at c.0.05mm across. Two crystals of sanidine occur at c.0.3mm across.

111 AMERSFOORT
A very dense and gritty, isotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.02-0.1mm across. Iron ore is common at 0.1-0.4mm across. A single crystal of plagioclase feldspar occurs at 0.5mm across.

112 AMERSFOORT
A dense, but fairly clean, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.02-0.2mm across. Iron ore is common at 0.1-1.2mm across. Actinolite or augite occur at 0.6mm and 0.1mm across.

113 AMERSFOORT
A dense and gritty, isotropic, brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular to sub-rounded quartz at 0.2-0.8mm across, with a well-sorted background scatter at <0.05mm across.

114 AMERSFOORT
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, and a background scatter of abundant quartz at <0.05mm across. Plagioclase feldspar is sparse at c.0.01mm, and anorthoclase at 0.2mm across. Olivine occurs once at 0.3mm across.

115 HAUCOURT MEROVINGIAN
Not thin-sectioned.

116 SEVERY 9TH CENTURY
Not thin-sectioned.

117 ALTBACHAL KILN ALTBACHAL
A very dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.02-0.1mm across. Iron ore is sparse at 0.3mm across.

118 SOUTHAMPTON
A gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-rounded quartz at 0.3-0.6mm across, a scatter of fairly well-sorted, sub-angular quartz at 0.2-0.6mm across, and at 0.05-0.1mm across. Iron ore is common at 0.1-0.8mm across.

119 NASSINGTON PREBENDAL MANOR 84
A fairly clean, anisotropic, light olive-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with sparse quartz at c.0.1mm across. Iron ore is sparse at 0.1-0.2mm across. An unidentified rock fragment occurred at 0.8mm across.

120 CANTERBURY MT82 260A BLACK WARE
A gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at c.0.3mm across, with a background scatter of abundant quartz at 0.05-0.1mm across. Iron ore is common at 0.2-0.3mm across, as is muscovite at c.0.2mm across. There are sparse clay pellets/grog fragments at <2.5mm across.

121 CANTERBURY MT82 260A BLACK WARE
A clean, isotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-rounded quartz at 0.3-1.6mm across, with a background scatter of abundant quartz at 0.1-0.2mm across. Sub-rounded quartzite is sparse at c.0.5mm across. Iron ore is common at c.0.1mm across. One fragment of biotite, at 0.8mm across, is visible. Grog/clay pellets are common at 0.3-0.5mm across.

122 CANTERBURY MT82 260B BLACK WARE
A clean, isotropic, light red-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular to sub-rounded quartz at 0.05-0.1mm across. Iron ore is common at 0.05-0.1mm, and sparse at 0.2-0.4mm, with a single fragment at 2.0mm across.

123 CANTERBURY MT82 260A BLACK WARE
A gritty, isotropic, red-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular to sub-rounded quartz at 0.4-0.5mm across, and an abundant background scatter at 0.1-0.2mm across. Iron ore is common at 0.05-0.2mm across. Grog/clay pellets occur at c.0.8mm across.

124 CANTERBURY MT82 260A MEROVINGIAN
A clean, isotropic, grey clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with an abundant background scatter at 0.01-0.05mm across. Microquartz occurs once at 0.4mm across. Iron ore is common at 0.1-0.3mm across.

125 CANTERBURY MT82 97 MEROVINGIAN
A clean, isotropic, grey clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with a background scatter of abundant quartz at 0.01-0.05mm across. Iron ore is common at 0.1-0.3mm across. Plagioclase feldspar is sparse at c.0.3mm across. A single limestone fragment occurs at 0.5mm across, as well as a basaltic rock fragment.

126 QUENTOVIC VM85 102 OXIDISED
A fairly clean, anisotropic, light olive-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.6mm across, with a background scatter of abundant quartz at 0.05-0.1mm across. Iron ore occurs once at 0.9mm across.

127 QUENTOVIC VM85 63 LA LONDE
A dense and gritty, isotropic, brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.5-1.5mm across, and an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at <0.1mm across. Muscovite is common at <0.2mm across. A single crystal of ?brucite appears at 0.7mm across.

128 QUENTOVIC VM85 59 HODGES CLASS 34
A dense and gritty, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to rounded quartz at 0.3-0.8mm across, with an abundant background scatter at 0.05-0.1mm across. Muscovite is sparse at <0.2mm across.

129 QUENTOVIC VM85 63 TIMBY TYPE 187
A fairly clean, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-1.0mm across, with an abundanmt background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.7mm across. Microcline occurs at 0.15mm across. Grog/clay pellets are sparse at 0.2-0.5mm across.

130 QUENTOVIC VM85 63 GREY WARE
A poorly mixed, isotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to quartz at 0.1-0.3mm across, with a moderate background scatter at 0.01-0.05mm across, and sparse, sub-rounded microquartz at 0.2-0.3mm across. Iron ore occurs once at 0.2mm across.

131 QUENTOVIC VM85 14 GREY WARE
A mixed, anisotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at c.0.3mm across, with a moderate scatter at 0.05-0.1mm across. Iron ore is common at 0.2-0.3mm across.

132 QUENTOVIC VM85 57 OXIDISED
A fairly clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at c.0.3mm across, with abundant quartz at 0.1mm across. Iron ore is sparse at 0.1mm across. Muscovite is soarse at <0.2mm across. Olivine occurs once at 0.4mm across.

133 QUENTOVIC VM85 57 GREY WARE
A fairly clean, isotropic, light olive-brown clay matrix, containing a well-sorted, moderate scatter of sub-rounded quartz at 0.3-0.6mm across, with an abundant background scatter at 0.01-0.1mm across. Microquartz is sparse at 0.2-0.8mm across. Iron ore is common at 0.1-0.3mm across. Muscovite is sparse at <0.2mm across.

134 QUENTOVIC VM85 57 GREY BURNISHED
A dense and gritty, anisotropic, dark red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.3-0.5mm across, with an abundant background scatter at 0.01-0.2mm across. Quartzite is sparse at 0.3-0.5mm across. Fine microquartz is common at 0.3mm across. Iron ore is common at 0.1-1.2mm across. Muscovite is sparse at 0.3-0.4mm across. Grog/clay pellets are common at <0.2mm across.

135 QUENTOVIC VM85 57 GREY BURNISHED
A fairly clean, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with an abundant background scatter at 0.01-0.05mm across. Iron ore is sparse at 0.1-0.4mm across. Muscovite is abundant at <0.05mm across. Sanidine occurs once at 0.2mm across.

136 QUENTOVIC VM85 63 LA LONDE I
A fine but gritty, anisotropic, light grey-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.3-0.5mm across, with an abundant scatter at 0.01-0.1mm across. Iron ore is sparse at 0.1-0.2mm across. Anorthoclase and orthoclase both occur once at 0.3mm across.

137 QUENTOVIC VM85 57 BLACK WARE
A very fine and clean, anisotropic, light grey-brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular quartz at 0.05-1.0mm across. Iron ore is sparse at 0.2-0.3mm across.

138 QUENTOVIC VM85 55 LA LONDE II
A dense and gritty, isotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.03-0.1mm across. Muscovite is abundant at 0.2-0.8mm across.

139 QUENTOVIC VM85 102 PINGSDORF?
A very clean, isotropic, grey clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.5mm across, with an abundant background scatter at 0.01-0.05mm across. Iron ore is sparse at 0.05mm across.

140 QUENTOVIC VM85 59 LA LONDE
A dense, isotropic, light grey clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.0mm across, with an abundant background scatter at 0.05-0.2mm across. Quartzite occurs once at 0.6mm across. Iron ore is sparse at 0.1-0.4mm across. Muscovite is common at c.0.1mm across. Limestone is sparse at 0.6-1.0mm across.

141 QUENTOVIC VM85 57 BLACK WARE
A clean, anisotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.01-0.7mm across. Iron ore is sparse at 0.2-0.4mm across.

142 QUENTOVIC VM85 63 SORRUS TYPE
A dense and gritty, anisotropic, grey clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across, with an abundant background scatter at 0.05-0.1mm across. Rounded quartzite is sparse at c.0.4mm across. Iron ore is common at 0.1-0.7mm across. Anorthoclase is sparse at 0.4mm across. Rounded grog/clay pellets are sparse at 0.5-1.2mm across.

143 QUENTOVIC VM85 102 LA LONDE
A gritty, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.6mm across, with an abundant background scatter at 0.05-0.1mm across. Quartzite occurs once at 0.5mm across. Microquartz is sparse at 0.3-0.4mm across. Iron ore is common at 0.1-0.2mm across and ine lump occurs at 1.5mm across. Limestone occurs once at 0.4mm across.

144 QUENTOVIC VM85 57 LA LONDE
A gritty, anisotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.7mm across, with an abundant background scatter at 0.03-0.2mm across. Iron ore is common at 0.1mm across and sparse at 0.4mm. Plagioclase feldspar is sparse at 0.3mm across.

145 QUENTOVIC VM85 12 LA LONDE
A fine and clean, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.05-2.0mm across. Iron ore is common at 0.1-0.3mm across. Muscovite is sparse at <0.1mm across. Anorthoclase occurs once at 1.5mm across.

146 QUENTOVIC VM85 57 BLACK WARE
A clean, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across. Sub-rounded quartzite is sparse at 0.4mm across. Iron ore is common at 0.1-0.4mm, and occurs once at 0.8mm across. One rock fragment occurs at 1.5mm across. This TS is similar to TS 1.

147 QUENTOVIC VM85 57 LA LONDE I
A very dense and gritty, isotropic, dark grey clay matrix, containing a well-sorted, scatter of abundant angular to sub-angular quartz at 0.1-0.3mm across, with sparse quartz at 0.6-1.2mm across.

148 QUENTOVIC VM85 57 BEAUVAISIS
A fairly dense and dritty, isotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.5mm across, with abundant quartz at 0.05-0.1mm across. Iron ore is sparse in 0.1-0.4mm across.

149 QUENTOVIC VM85 57 GREY WARE 1
A denseand gritty, anisotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.5mm across, with a moderate background scatter at 0.05-0.1mm across. Quartzite is sparse at 0.3-0.5mm across. Iron ore is common at c.0.1mm, and sparse at 0.3-1.2mm across. Microcline occurs once at 0.4mm across. A fargment of grog or rock occurs at 1.5mm across.

150 DUNDURN DN 105 SF005 BADORF/PINGSDORF
A dense and gritty, anisotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-rounded to rounded quartz at c.0.5mm across. Quartzite is also abundant at 0.3-0.5mm across. Iron ore is sparse at 0.2-0.5mm across. Olivine occurs at <0.2mm across.

151 LONDON 9TH C. BEAM SLOT GREY BURNISHED
A clean, anisotropic, red clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across. Iron ore is sparse at 0.2-0.4mm across.

152
No TS made.

153 MIDDLE HARLING 6033 HRL 709 TATING WARE
A mixed, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, with an abundant background scatter at 0.05-0.25mm. Iron ore is common at 0.05mm and sparse at 0.5-1.0mm across.

154 MIDDLE HARLING 6033 HRL 428 TATING WARE
A clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, scatter of sparse sub-angular quartz at c.0.4mm across, and an abundant background scatter at 0.05-0.25mm across. Iron ore is sparse at 0.05-0.2mm across.

155 MIDDLE HARLING 6033 HRL 187
A dense and gritty, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across, and an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at c.0.5mm across. Muscovite is abundant at 0.2-0.3mm across, and a single crystal occurs at 0.5mm across.

156 DUISBURG RED-PAINTED
A dense, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.4-0.5mm across. Iron ore is sparse at 0.2-0.3mm across.

157 DUISBURG BADORF/PINGSDORF
A dense and fairly fine, anisotropic, light brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with an additional moderate scatter at <0.05-0.1mm across. Iron ore is common at 0.1-0.2mm across, and a single lump occurs at 0.6mm across.

158 DUISBURG PAFFRATH
A dense, anisotropic, grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.1-0.5mm across.

159 DUISBURG LAYER 10 EARLY TYPE
A dense and gritty, anisotropic, brown clay matrix, containing a poorly-sorted, scatter of abundant sub-angular to sub-rounded quartz at 0.05-0.2mm across, and sparse quartz at 0.6-0.1mm across. Iron ore is common at 0.2-0.8mm across.

160 DORESTAD MAYEN WARE
A dense, isotropic, dark grey-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.2mm across. Iron ore is common at 0.1-0.4mm across, and sparse at 0.8mm across. Muscovite is sparse at 0.3mm. Sanidine occurs once at 0.6mm across. Two rock fragments are visible at 0.8mm across each.

161 BARTON TATING
A dense and gritty, anisotropic, light brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.2mm across, and sparse quartz at 0.2-1.0mm across. Iron ore is sparse at c.0.1mm across. One fragment of grog or a clay pellet is visible at 1.3mm across.

162 BARTON BLACK WARE
A fairly clean, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.05-0.1mm across. Quartzite is sparse at 0.5-1.0mm across. Limestone occurs once at 0.6mm across.

163 BARTON TATING
A dense and gritty, anisotropic, light brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.2mm across, and sparse quartz at 0.4-0.5mm across. Iron ore is common at 0.05-0.1mm across. Grog or clay pellets are visible at 1.0-1.8mm across. This is the same fabric at TS 161.

164 BARTON TATING
A fine, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-1.2mm across, with sparse quartz at 0.05-0.1mm across. Muscovite is common at 1.0-2.4mm across. Two crystals of anorthoclase are visible at 1.2mm and 0.7mm across. This is an unusual Tating ware TS.

165 DUNADD
A clean, anisotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at c.0.5mm across.

166 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A clean and dense, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.0mm across, and sparse quartz at 0.1-0.2mm across. Iron ore is common at 0.1-0.2mm across. Microcline is sparse at c. 0.4mm across. Grog/clay pellets are common at 0.4-3.5mm across.

167 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A dense, anisotropic, grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an abundant scatter at 0.01-0.1mm across. Microquartz is sparse at 0.3-0.4mm across. Iron ore is common at 0.1-0.3mm across, and sparse at <1.0mm across. Plagioclase feldspar is sparse at c.0.4mm across.

168 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A dense, isotropic, light grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.8mm across, with sparse quartz at 0.1-0.2mm across. Iron ore is common at 0.1-0.3mm across and sparse at 0.6mm across. Grog/clay pellets are present at 0.2-1.0mm across.

169 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A coarse, dense, isotropic, red-brown to grey clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.9mm across, with most of this occurring at 0.2-0.5mm. Iron ore is sparse at <0.1mm across. One grain of dolomite(?) is visible at 0.6mm across, as is a grain of kyanite at the same size.

170 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A dense, slightly laminated, anisotropic, light red-brown to grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-1.0mm across, and also at 0.05-0.1mm across. Iron ore is common at 0.2-0.3mm across. Grog/clay pellets are common at 0.3-1.8mm across. A single grain of ironstone occurs at 1.0mm across.

171 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A dense, anisotropic, light red-brown to grey clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional scatter at 0.1-0.2mm across. Iron ore is common at 0.1-0.2mm across. A single clay pellet is visible at 1.5mm across.

172 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A mixed and iron-stained, anisotropic, light red-brown to grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, and an additional scatter at 0.05-0.1mm across. Sparse microquartz is visible at 0.3-0.4mm across. Iron ore is common at 0.1-0.3mm across.

173 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A dense, anisotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.6mm across, with an additional scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.4mm across. Grog/clay pellets are common at 0.2-1.0mm across.

174 BORNHEIM WALDORF KILN BORNHEIM WALDORF
A very clean, isotropic, olive brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.2-0.8mm across, with an abundant background scatter at 0.01-0.1mm across. Iron ore is common at 0.1-0.3mm across and sparse at 1.2-1.8mm across.

175 BRUHL-KIERBERG KILN BRUHL-KIERBERG
A dense and laminated, very clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with sparse microquartz at c.0.4mm across. Iron ore is sparse at 1.5mm across, as is biotite at 0.5mm across.

176 BRUHL-KIERBERG KILN BRUHL-KIERBERG
A clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at c.0.4mm across, with a sparse scatter at 0.05-0.15mm across. Iron ore is sparse at 0.1-0.4mm across.

177 MAINZ MAYEN WARE
A dense, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.2mm across, with sparse quartz at c.0.4mm across. Iron ore is common at 0.05-0.1mm across. Rock fragments are common at 0.2-0.8mm across.

178 MAINZ MAYEN WARE
A dense, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.01-0.25mm across, with sparse quartz and microquartz at c.0.4mm across. Iron ore is common at 0.1-0.4mm across. Plagioclase feldspar is visible at 0.3mm across.

179 MAINZ MAYEN WARE
A dense, isotropic, light red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.01-0.2mm across. Volcanic rock fragments are sparse at c.1.0mm across. Limestone/chert is also present. Similar to 177.

180 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an abundant background scatter at 0.05-0.2mm across. Iron ore is common at 0.1-0.4mm across. Muscovite is sparse.

181 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.3mm across, and a single lump occurs at 1.0mm across. Muscovite is visible.

182 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A laminated, anisotropic, grey-brown to light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an additional scatter at 0.05-0.1mm across, and sparse microquartz at 0.4-1.0mm across. Iron ore is sparse at 0.1-0.4mm across.

183 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with a background scatter of abundant quartz at 0.1-0.3mm across. Microquartz is visible once at 0.3mm across. Iron ore is common at 0.1-0.3mm across. Muscovite is also present.

184 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.2mm across.

185 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A fairly clean, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional scatter at 0.03-0.1mm across. Iron ore is common at 0.1-0.3mm across.

186 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.2mm across, and sparse at <0.5mm across.

187 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A dense and gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an additional abundant scatter at 0.05-0.1mm across. Iron ore is common at 0.1-0.2mm across.

188 BRUHL-ECKDORF KILN BRUHL-ECKDORF
A laminated, anisotropic, light grey to red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional moderate scatter at 0.05-0.1mm across. Microquartz is sparse at 0.3mm across. Iron ore is common at 0.1-0.8mm across. Muscovite is sparse at 0.3mm across.

189 BRUHL-PINGSDORF KILN 1 BRUHL-PINGSDORF
A dense, anisotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional moderate scatter at 0.05-0.1mm across. Iron ore is common at 0.05-0.3mm across.

190 BRUHL-PINGSDORF KILN 1 BRUHL-PINGSDORF
A very dense, isotropic, light grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-0.5mm across, with an additional fairly well sorted scatter at c.0.1mm across. Iron ore is common at 0.05-0.2mm across. A single grog/clay pellet is visible at 0.8mm across.

191 BRUHL-PINGSDORF KILN 1 BRUHL-PINGSDORF
A gritty, anisotropic, light grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an additional moderate scatter of quartz at 0.01-0.1mm across. Iron ore is common at 0.1-0.2mm across.

192 BRUHL-PINGSDORF KILN 1 BRUHL-PINGSDORF
A very dense, anisotropic, olive-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.5mm across, with an additional sparse scatter at 0.01-0.05mm across. Microquartz is sparse at 0.4mm across. Iron ore is sparse at 0.05-0.2mm across.

193 WILDENRATH KILN WILDENRATH
A dense, isotropic, light olive-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.3-0.4mm across, with an additional scatter of abundant quartz at 0.05-0.1mm across, and sparse microquartz at c.0.4mm across. Iron ore is common at 0.1-0.2mm across and soarse at <0.4mm. Olivine is visible once at 0.2mm. Clay pellets are sparse at 0.6-1.0mm across. Rock fragments occur twice, at 0.5mm and 1.5mm across.

194 WILDENRATH KILN WILDENRATH
A clean, isotropic, light olive-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with an additional moderate scatter at 0.01-0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Grog/clay pellets are common at 0.4-1.0mm. A single rock fragment occurs at 1.4mm across.

195 WILDENRATH KILN WILDENRATH
A dense, anisotropic, light red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across, with common quartz at <0.05mm across. Iron ore is sparse at 0.1-0.5mm across. Clay pellets are common at 0.5-1.5mm across.

196 WILDENRATH KILN WILDENRATH
A dense, anisotropic, light brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across, with a moderate scatter of quartz at <0.05mm across. A single fragment of iron ore is present, within a clay pellet, at 0.3mm across. Clay pellets are sparse at 1.9-9.0mm across.

197 WILDENRATH KILN WILDENRATH
A dense and gritty, anisotropic, brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.1-0.4mm across, with a moderate scatter at <0.05mm across. Clay pellets are common at 1.2-3.3mm across.

198 WILDENRATH KILN WILDENRATH
A dense, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across, with a common background scatter at <0.05mm across. Clay pellets are common at 1.0-2.8mm across.

199 BRUHL-KIERBERG KILN BRUHL-KIERBERG
A fairly clean, anisotropic, light grey-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.3-0.4mm across. Iron ore is sparse at 0.2-0.4mm across. Clay pellets are sparse at 0.4mm across.

200 BRUHL-BADORF KILN BRUHL-BADORF
A fairly fine, anisotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at c.0.2mm across, with a moderate background scatter of quartz at <0.2mm across.

201 BRUHL-BADORF KILN BRUHL-BADORF
A dense, gritty, and fairly fine, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with an additional common scatter at <0.05mm across. Iron ore is sparse at <0.1mm across.

202 BRUHL-BADORF KILN BRUHL-BADORF
A fine and dense, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across. Iron ore is sparse at <0.2mm across.

203 BRUHL-BADORF KILN BRUHL-BADORF
A laminated, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular to sub-rounded quartz at 0.2-0.6mm across, with an additional background scatter at <0.05mm across.

204 BRUHL-BADORF KILN BRUHL-BADORF
A dense and fairly fine, isotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.3mm across, with an additional abundant background scatter at <0.05mm across. Iron ore is sparse at <0.2mm across.

205 BRUHL-BADORF KILN BRUHL-BADORF
A dense, fine, and laminated, anisotropic, light red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across. Iron ore is sparse at <0.2mm across. A single clay pellet is visible at 0.8mm across.

206 BRUHL-BADORF KILN BRUHL-BADORF
A clean, fairly fine, and dense, anisotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.6mm across, with an abundant background scatter at c.0.01mm across. Iron ore is sparse at 0.05-1.5mm across.

207 BRUHL-PINGSDORF KILN 3 BRUHL-PINGSDORF
A dense, fairly fine and clean, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.1-0.2mm across.

208 BRUHL-PINGSDORF KILN 3 BRUHL-PINGSDORF
A clean, dense, fine and laminated, isotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.5mm across, with a single crystal of microquartz at 0.2mm across.

209 BRUHL-PINGSDORF KILN 3 BRUHL-PINGSDORF
A clean, fairly fine and dense, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, and a single microquartz crystal at 0.3mm across. Iron ore is sparse at 0.1-0.2mm across.

210 MECKENHEIM KILN MECKENHEIM
A dense and gritty, laminated, anisotropic, light red-brown clay matrix with a grey core, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.1-0.4mm across, with sparse microquartz at c.0.2mm across. Iron ore is sparse at <0.3mm across. Biotite is sparse at <0.6mm across. A single clay/grog pellet is visible at 1.0mm across.

211 MECKENHEIM KILN MECKENHEIM
A dense and laminated, anisotropic, light grey-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular at 0.3-0.8mm across, and an additional moderate scatter at 0.05-0.2mm across. Microquartz occurs once at 0.3mm across. Iron ore is sparse at 0.1-0.6mm across. A single rock fragment is visible at 0.4mm across.

212 MECKENHEIM KILN MECKENHEIM
A dense and laminated, anisotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.5mm across, with an additional moderate scatter at 0.05-0.1mm across, and a single fragment at 1.0mm across. Biotite and plagioclase feldspar crystals are visible as single specimens, both at 0.3mm across. One rounded rock fragment is visible at 1.1mm across.

213 MECKENHEIM KILN MECKENHEIM
A dense and gritty, anisotropic, light grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.2mm across. Iron ore is sparse at 0.1-1.2mm across. Muscovite occurs once at 0.7mm across. Plagioclase feldspar occurs once at 0.2mm across.

214 MECKENHEIM KILN MECKENHEIM
A dense and fairly fine, anisotropic, light brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.8mm across, with anadditional moderate scatter at 0.05-0.1mm across. Iron ore is sparse at c.0.2mm across; plagioclase feldspar is sparse at the same size.

215 DUISBURG DUISBURG WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.3mm across. Iron ore is common at 0.2-0.4mm across.

216 DUISBURG DUISBURG WARE
No TS made.

217 BARROW CHERRY LANE RED-BURNISHED
A clean and fairly fine, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.5mm across, with a single crystal at 1.2mm across. Iron ore is sparse at 0.1-0.6mm across. Grog/clay pellets occur twice at 1.5mm and 3.5mm across.

218 BARROW CHERRY LANE RED-BURNISHED
A clean fairly fine and dense, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.9mm across. Iron ore is sparse at <0.3mm across, although a single lump occurs at 1.5mm across. Microcline is visible as a single crystal, 0.1mm across. A pellet of grog or clay is visible at 0.4mm across.

219 IPSWICH 5701 0045f TATING WARE
A dense and gritty, isotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.1mm across. Iron ore is visible once at 1.0mm across. Muscovite is sparse at <0.2mm across. One clay pellet occurs ar 1.0mm across. One rock fragment occurs at 2.0mm across. A possible crystal of hornblende occurs at 0.1mm across.

220 IPSWICH 5701 0045c BLACK WARE
A fairly clean, isotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at c.0.2mm across. Iron ore is sparse at 0.1-0.3mm across.

221 IPSWICH 5502 0001 0162/3 LA LONDE II
A very dense and fine, anisotropic, light grey-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at <0.05mm across, and sparse quartz at c.0.5mm across. Muscovite is sparse at <0.1mm across.

222 IPSWICH 5202 0005a 7TH CENTURY RHENISH
A fairly fine, anisotropic, light grey-brown to red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.6mm across. Iron ore is sparse at 0.1-0.2mm across. Plagioclase feldspar is sparse at c.0.3mm across. Grog/clay pellets are sparse at c.0.4mm across, and a single rock fragment is visible at 1.5mm across

223 IPSWICH 5202 0005b 7TH CENTURY RHENISH
A fairly fine, anisotropic, brown to red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.8mm across. Rounded limestone pellets are common at 0.3-0.8mm across, with a single one measuring 2.6mm across.

224 IPSWICH 5801 0035a 7TH CENTURY RHENISH
A fairly fine and gritty, isotropic, grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.4mm across, with an additional moderate background scatter at c.0.03mm across. Black iron ore is common at 0.1-0.2mm across. Muscovite is sparse at <0.1mm across. A single rock fragment is visible at 1.1mm across.

225 IPSWICH 5801 0070 7TH CENTURY RHENISH
A fairly fine, anisotropic, grey-brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.02-0.05mm across, with sparse quartz at 0.5-0.8mm across. Iron ore is common at 0.1-1.0mm across. Biotite is sparse at 0.1-0.4mm across, as is plagioclase feldspar at 0.5-0.3mm across. Orthopyroxine is sparse at 0.6-2.2mm across. Grog/clay pellets occur twice, at 1.0 and 2.2mm across. Hornblende occurs once at 0.1mm across.

226 IPSWICH 4801 1655 IPSWICH WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.3mm across, with an abundant background scatter at 0.02-0.05mm across. Microquartz occurs once at 0.3mm across. Iron ore is visible once at 0.7mm across.

227 BRANDON BRD 018 7427 BADORF
A dense and gritty, isotropic, grey clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.02-0.2mm across, with a single fragment occurring at 0.6mm across. Iron ore is visible once, at 0.15mm across.

228 BRANDON BRD 018 7427 BADORF
A fairly fine, anisotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.2mm across, with an additional background scatter at 0.02-0.05mm across. Muscovite is sparse at <0.2mm across. Plagioclase feldspar is visible once at 0.3mm across.

229 BRANDON BRD 018 5517 OXIDISED MICACEOUS
A fine, dense and gritty, isotropic, dark red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.1-0.3mm across, with an abundant background scatter at <0.02mm across. Biotite is common at <0.1mm across. Grog/clay pellets are sparse at c.0.4mm across.

230 BRANDON BRD 018 6195 OXIDISED MICACEOUS
A dense and gritty, isotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.03-0.3mm across, and sparse quartz at 0.5-0.8mm across. Iron ore is sparse at 0.1-0.4mm across. Plagioclase feldspar is sparse at c.0.1mm across.

231 BRANDON BRD 018 6338 IPSWICH BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.15mm across, and a single rounded fragment at 1.0mm across. Iron ore is common at 0.1-0.5mm across.

232 BRANDON BRD 018 IPSWICH BLACK WARE
A dense and gritty, anisotropic, dark red-brown clay matrix, containing a well-sorted, moderate scatter of rounded to sub-angular quartz at 0.2-1.5mm across. Iron ore is sparse at 0.1-0.3mm across. A single grog pellet occurs at 0.9mm across.

233 IPSWICH 4601 0332d BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of rounded to sub-angular quartz at 0.3-1.2mm across, with a background scatter at c.0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is sparse at c.0.1mm across. Microcline occurs once at 0.3mm across. One clay pellet occurs ar 0.9mm, and one rock fragment at 2.4mm across.

234 IPSWICH 4601 0372f BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.4mm across, with a background scatter at c.0.05mm across. Iron ore is common at 0.2-0.6mm across. Muscovite is sparse at c.0.2mm across. Microcline occurs once at 0.3mm across, as do grog and rock fragments at 0.2mm and 1.2mm respectively

235 IPSWICH 4601 0116 BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.4mm across, with an additional abundant scatter at 0.05-0.1mm across. Iron ore is common at 0.2-0.4mm across. A single limestone fragment occurs at 0.2mm across.

236 IPSWICH 4601 0795c BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.4mm across, and an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.2-1.0mm across. Limestone fragments are visible three times, at 0.2mm, 0.3mm and 1.7mm across.

237 IPSWICH 4801 1628w DARK GREY WARE
No TS successfully made.

238 IPSWICH 4801 1445f
A dense and gritty, isotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at c.0.3mm across, with an abundant background scatter at 0.02-0.1mm across. Iron ore is sparse at 0.1-0.4mm across. Biotite is sparse at <0.1mm across. Microcline occurs once at 0.2mm across.

239 IPSWICH 4801 1444e
A dense and gritty, anisotropic, red-brown clay matrix, containing a well-sorted, scatter of sparse, sub-angular quartz at 0.4-0.6mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.3mm across. Hornblende occurs once at 0.2mm across.

240 IPSWICH 4801 1218ce SANDY RED-PAINTED
A coarse and laminated, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.4-0.8mm across, with a moderate scatter at 0.05-0.1mm across.

241 IPSWICH 4801 1224a COARSE RED-PAINTED
A coarse and laminated, anisotropic, dark red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular to sub-rounded quartz at 0.2-0.5mm across, with an additional moderate scatter at 0.05-0.1mm across. Microquartz is sparse at 0.25-0.1mm across. Iron ore is common at 0.1-0.4mm across. Muscovite is sparse at <0.1mm across. Anorthoclase(?) occurs once at 0.3mm across.

242 QUENTOVIC VM86 156 GREY BURNISHED
A dense and gritty, anisotropic, red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.2-0.3mm across, with sparse microquartz at c.0.3mm across. Iron ore is sparse at 0.2-0.5mm across. Muscovite is common at <0.1mm across.

243 IPSWICH 4601 0725c BADORF
A very fine, clean, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.2mm across. Iron ore is common at 0.05-0.3mm across.

244 IPSWICH 4601 0690c OXIDISED GRITTY 1
A dense and gritty, isotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-1.6mm across, with an additional background scatter at 0.02-0.1mm across. Anorthoclase occurs twice at 0.3 and 1.6mm across.

245 IPSWICH 4801 0288c STAMFORD WARE
A fine and dense, anisotropic, olive-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.01-0.25mm across. Iron ore and muscovite are common at <0.2mm and <0.1mm across respectively.

246 IPSWICH 4601 0690dd RED-PAINTED
A dense and gritty, isotropic, grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.6mm across, with an abundant background scatter at 0.02-0.1mm across. Iron ore is sparse at c.0.2mm across. Muscovite is abundant at <0.2mm across. A single clay pellet occurs at 0.5mm across.

247 IPSWICH 4601 0899e BLACK WARE
A dense and gritty, anisotropic, dark brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.3mm across. Muscovite is sparse at <0.2mm across.

248 IPSWICH 4601 0694p EARLY GLAZED WARE
A dense and gritty, isotropic, light grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.5mm across, with an abundant background scatter at 0.02-0.1mm across and a single quartz crystal at 1.6mm across. Iron ore, muscovite and biotite are all sparse at c.0.1mm across. A single clay pelley occurs at 0.8mm across.

249 BRANDON BRD 018 IPSWICH BLACK WARE
A dense and gritty, anisotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.3mm across. Iron ore is sparse at 0.2-0.3mm across. Rock fragments are sparse at c.0.4mm across.

250 IPSWICH 4801 2444 VESSEL V
A dense and gritty, isotropic, brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.3mm across, and a single crystal at 1.2mm across. Iron ore is sparse at c.0.1mm across. This TS is very similar to 248.

251 DORESTAD MAYEN
A dense and gritty, isotropic, dark red-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.05-0.2mm across, with a single crystal at 1.4mm across. Biotite is sparse at 0.2-0.3mm across. Grog/clay pellets are sparse at 0.3-1.2mm across. A single rock fratgment occurs at 1.6mm across. Augite occurs once at 0.5mm, and hornblende at 0.2mm and 0.3mm across.

252 IPSWICH 4601 0358 BLACK WARE
A dense and gritty, isotropic, dark grey-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with sparse quartz at 0.3-0.4mm across, and a moderate background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1
0.4mm across. Muscovite is common at c.0.1mm across. Plagioclase feldspar occurs once at 0.3mm across. Sanidine occurs once at 0.2mm across. One rounded grog/clay pellet is visible at 1.0mm across.

253 IPSWICH 4601 0357d BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a poorly-sorted, sparse scatter of sub-rounded quartz at 0.3-0.8mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is common at <0.1mm across. Plagioclase feldspar is sparse at c.0.1mm across. Olivine occurs once at 0.1mm across. Grog/clay pellets are sparse at 0.3-0.6mm across.

254 IPSWICH 4801 2722a BLACK WARE
A dense and gritty, isotropic, grey to red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.0mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.2-1.0mm across. Muscovite is common at <0.1mm across. Grog/clay pellets occur once at 0.5mm across, as do rock fragments at 1.2mm across.

255 IPSWICH 4601 0899c BLACK WARE
A dense and gritty, isotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with a moderate background scatter at c.0.05mm across. Iron ore is common at 0.2-0.6mm across.

256 IPSWICH 5901 0306b BLACK WARE
A fine and very dense, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.2-0.3mm across, Iron ore is sparse at 0.2-0.3mm across. Rounded grog/clay pellets occur twice, at 0.6mm and 0.8mm across..

257 IPSWICH 0802 0193a BLACK WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a well-sorted, sparse of sub-angular quartz at 0.1-0.7mm across, with an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.1-0.4mm across. A single grog/clay pellet occurs at 1.6mm across.

258 IPSWICH 4801 1571e BLACK WARE
A dense and gritty, isotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.8mm across, with an abundant background scatter at c.0.05mm across. Muscovite is common at c.0.1mm across. One rounded microcline fragment, with granophyric texture occurs at 0.7mm across. Olivine occurs once at 0.1mm across. An unidentified rock fragment occurs at 1.5mm across.

259 IPSWICH 4601 0038 BLACK WARE
A fairly, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with a moderate background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.2mm across. One grog/clay pellet occurs at 0.2mm across.

260 IPSWICH 4801 2872 BLACK WARE
A fairly fine, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.2-0.4mm across. Iron ore is sparse at 0.2-0.4mm across. One rock fragment occurs at 0.5mm across. This TS is similar to 259.

261 IPSWICH 4601 0322 BLACK WARE
A dense and gritty, isotropic, brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.3mm across, with an abundant background scatter at c.0.05mm across. Iron ore is common at 0.1-1.1mm across.

262 IPSWICH 4801 0688f BLACK WARE
A fairly fine, isotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across. Iron ore is sparse at 0.1-0.4mm across. Limestone occurs once at 0.5mm across.

263 IPSWICH 4801 1990 2300 BLACK WARE
A dense and fairly fine, isotropic, red-brown clay matrix, containing a very well-sorted, scatter of abundant sub-angular quartz at 0.3-0.4mm across. Iron ore is sparse at 0.2-0.4mm across, but one fragment occurs at 2.0mm across. Anorthoclase occurs once at 0.3mm across, limestone once at 0.5mm, a clay pellet once at 8.2mm. and two rock fragments at 1.1mm and 1.6mm across.

264 IPSWICH 5701 0023a BLACK WARE
A fine and dense, isotropic, red-brown clay matrix, containing a very well-sorted, scatter of abundant sub-angular quartz at 0.2-0.4mm across. Iron ore is sparse at 0.1-0.2mm across, with one fragment at 1.2mm across. Anorthoclase occurs once at 0.3mm across. A single fragment of rock or grog occurs at 1.0mm across. This TS is similar to 263.

265 BRANDON BRD 5821 BLACK WARE
A dense and gritty, isotropic, dark grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.1-0.3mm across, with an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is common at 0.1mm across. Grog occurs once at 0.2mm across, and a single rock fragment occurs at 0.8mm across.

266 BRANDON BRD 6326 BLACK WARE
A dense and gritty, isotropic, brown clay matrix, containing a poorly-sorted, sparse scatter of sub-angular quartz at 0.2-1.0mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is sparse at <0.1mm across.

267 BRANDON BRD 3686 BLACK WARE
A dense and gritty, isotropic, light brown clay matrix, containing a well-sorted, scatter of abundant sub-angular to angular quartz at 0.05-0.1mm across. Iron ore is sparse at c.0.3mm across. Muscovite is sparse at <0.2mm across. One grog/clay pellet occurs at 1.0mm across.

268 BRANDON BRD 7449 BLACK WARE
A dense and gritty, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.0mm across, with an abundant background scatter at c.0.05mm across. Iron ore is common at 0.2-0.7mm across. Muscovite is sparse at <0.1mm across. One grog/clay pellet occurs at 0.7mm across.

269 BRANDON BRD 7446 BLACK WARE
A dense and gritty, anisotropic, light red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.1-0.6mm across, with an additional abundant scatter at <0.05mm across. Iron ore is sparse at 0.1-0.3mm across. Muscovite is sparse at <0.1mm across. A single grog/clay pellet occurs at 1.2mm across.

270 BRANDON BRD 7452 BLACK WARE
A dense and gritty, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of rounded to sub-angular quartz at 0.1-0.4mm across, with an additional abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.5mm across. Muscovite is sparse at <0.1mm across.

271 BRANDON BRD 5838 BLACK WARE
A dense and gritty, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.9mm across, with an additional abundant background scatter at c.<0.05mm across. Iron ore is sparse at 0.1-0.3mm across. Muscovite is sparse at <0.1mm across. Grog/clay pellets occur twice, at 0.7mm and 0.8mm across. A single rock fragment is visible at 0.9mm across.

272 BRANDON BRD 7455 BLACK WARE
A dense and gritty, anisotropic, grey-brown clay matrix, containing a poorly-sorted, scatter of sparse sub-angular quartz at 0.2-1.6mm across, with an abundant background scatter at 0.05-0.1mm across.. Iron ore is sparse at 0.2-0.3mm across. Muscovite is common at <0.1mm across.

273 BRANDON BRD 7450 BLACK WARE
A dense and gritty, anisotropic, grey-brown clay matrix, containing a poorly-sorted, scatter of sparse sub-angular quartz at 0.2-0.9mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.1-0.2mm across. Muscovite is common at <0.1mm across. A single grog or iron ore pellet occurs at 2.0mm across.

274 BRANDON BRD 7451 BLACK WARE
A dense and gritty, isotropic, brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.9mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.1-0.4mm across. Muscovite is sparse at <0.1mm across. Grog/clay pellets are sparse at 0.2-0.3mm across. One rock fragment, 1.0mm across, is also visible.

275 BRANDON BRD 5812 BLACK WARE
A dense and gritty, anisotropic, dark brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.5mm across, with an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.2-0.4mm across. Muscovite is sparse at <0.1mm across. A single rock fragment is visible at 0.8mm across.

276 BRANDON BRD 6147 BLACK WARE
A dense and gritty, isotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-rounded quartz at 0.2-1.0mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.2-0.4mm across. Muscovite is sparse at <0.1mm across. Plagioclase feldspar occurs once at 0.2mm across. A single grog/clay pellet occurs at 1.2mm across.

277 BRANDON BRD 7431 BLACK WARE
A dense and gritty, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.3-0.4mm across. Iron ore is sparse at 0.1-0.5mm across.

278 HAMWIC SAR XIV P993 BLACK WARE
No TS made.

279 HAMWIC PIT (8) 8 505 BLACK WARE
No TS made.

280 HAMWIC GS F6 740 BLACK WARE
No TS made.

281 YORK 3360B BLACK WARE
A fairly fine, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.4mm across. Iron ore is common at 0.1-0.4mm across. A single grog/clay pellet occurs at 0.3mm across.

282 YORK 3360A BLACK WARE
A fairly fine, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.3mm across. Iron ore is common at 0.1-0.4mm across.

283 YORK 3238 BLACK WARE
A fairly fine, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across. Iron ore is common at 0.1-0.4mm across. Two grog/clay pellets occur at 0.3mm across.

284 YORK 10180 BLACK WARE
A fairly fine, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across. Iron ore is common at 0.2-0.8mm across. Grog/clay pellets are sparse at 0.4-1.7mm across.

285 YORK 1932 BLACK WARE
A fairly fine, anisotropic, red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.4mm across, with sparse quartz at <0.05mm across. Iron ore is sparse at 0.1-0.6mm across. A single grog/clay pellet occurs at 0.3mm across.

286 YORK 1895 BLACK WARE
A fairly fine, anisotropic, light red-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with a sparse scatter at <0.05mm across. Iron ore is sparse at 0.2-1.0mm across.

287 YORK 7109 BLACK WARE
A very fine, anisotropic, light brown clay matrix, containing a poorly-sorted, scatter of sparse sub-angular quartz at 0.1-0.3mm across, with sparse quartz at <0.05mm across. Iron ore is sparse at c.0.2mm across.

288 YORK 2458A BLACK WARE
A dense and gritty, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.1-0.4mm across, with an abundant background scatter at <0.05mm across. Iron ore is sparse at 0.1-1.0mm across. Muscovite is sparse at <0.2mm across. A single grog/clay pellet occurs at 0.7mm across.

289 YORK 2458B BLACK WARE
A dense and gritty, anisotropic, light red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.1-0.4mm across, with a sparse background scatter at 0.05-0.1mm across. Iron ore is common at 0.2-0.6mm across. A single grog/clay pellet occurs at 1.6mm across.

290 YORK 5525 BLACK WARE
No TS successfully made.

291 YORK 3326B BLACK WARE
No TS successfully made.

292 YORK 3326A BLACK WARE
A fairly fine, anisotropic, light brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.1-0.2mm across. Iron ore is sparse at 0.1-0.2mm across.

293 YORK 3186 BLACK WARE
A fairly fine, isotropic, light -brown clay matrix, containing a well-sorted, moderate scatter of sub-angular quartz at 0.2-0.3mm across, with a moderate background scatter at <0.05mm across. Iron ore is common at 0.1-0.6mm across.

294 YORK 9100 BLACK WARE
A fairly fine, anisotropic, red-brown clay matrix, containing a fairly well-sorted, moderate scatter of sub-angular quartz at 0.2-0.5mm across. Iron ore is common at 0.1-0.6mm across. Angular grog fragments are visible at 0.3mm and 0.4mm across.

295 QUENTOVIC VM85 57 BLACK WARE
No TS successfully made.

296 QUENTOVIC VM85 57 BLACK WARE
A dense and gritty, isotropic, light brown clay matrix, containing a well-sorted, scatter of anbundant angular to sub-angular quartz at 0.2-0.3mm across, with a moderate background scatter at 0.05-0.1mm across. Iron ore is sparse at c.0.1mm across. Biotite is sparse at c.0.15mm across.

297 QUENTOVIC VM85 57 BLACK WARE
A fairly fine, anisotropic, light grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.6mm across.

298 QUENTOVIC VM85 57 BLACK WARE
A fairly fine, anisotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.6mm across. Very similar to 297.

299 QUENTOVIC VM85 57 BLACK WARE
A dense and fairly fine, anisotropic, light yellow-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.6mm across. Similar to 297 and 279.

300 QUENTOVIC VM85 63 BLACK WARE
A dense and fairly fine, anisotropic, light brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.5mm across, with a single quartz crystal at 2.0mm across. Muscovite is sparse at <0.1mm across.

301 QUENTOVIC VM85 57 BLACK WARE
A dense and fine, anisotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.7mm across. Iron ore is sparse at 0.1-0.5mm across. A single grog/clay pellet ocurs at 0.3mm across.

302 QUENTOVIC VM85 57 BLACK WARE
A dense and gritty, anisotropic, yellow-brown clay matrix, containing a well-sorted, scatter of abundant sub-angular quartz at 0.1-0.3mm across. Iron ore is sparse at 0.1-0.2mm across.

303 QUENTOVIC VM85 57 BLACK WARE
A dense and fine, isotropic, yellow-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.1-0.3mm across. Iron ore is common at 0.1-0.4mm across. A single grog/clay pellet occurs at 1.0mm across.

304 QUENTOVIC VM85 12 BLACK WARE
A fine, isotropic, yellow-brown clay matrix, containing a well-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-0.3mm across. Iron ore is common at 0.1-0.4mm across. Similar to 303.

305 QUENTOVIC VM85 65/1 BLACK WARE
No TS successfully made.

306 QUENTOVIC VM85 105 BLACK WARE
A dense and gritty, anisotropic, red-brown clay matrix, containing a poorly-sorted, scatter of abundant sub-angular quartz at 0.1-0.5mm across. Muscovite is sparse at <0.1mm across. A single grog/clay pellet occurs at 0.2mm across.

307 RIVER CANCHE STRAY FIND BLACK WARE
A fine, anisotropic, light brown clay matrix, containing a well-sorted, sparse scatter of sub-angular quartz at 0.1-0.2mm across, with a single crystal at 1.0mm across.

308 IPSWICH 0001 IPSWICH WARE
A dense and gritty, anisotropic, dark grey to red-brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.1-0.3mm across.

309 IPSWICH 0212 IPSWICH WARE
A dense and gritty, anisotropic, dark grey-brown clay matrix, containing a fairly well-sorted, scatter of abundant sub-angular quartz at 0.05-0.6mm across. A single grog/clay pellet occurs at 0.9mm across. Two rock fragments occurs at 1.2mm and 3.0mm across.

310 IPSWICH 0001 IPSWICH WARE
A dense and gritty, anisotropic, dark grey to red-brown clay matrix, containing a poorly-sorted, moderate scatter of angular to sub-angular quartz at 0.2-0.6mm across, with an additional abundant background scatter at 0.05-0.1mm across. Iron ore is common at 0.1-1.0mm across. Muscovite is common at <0.1mm across. Grog/clay pellets are sparse at <0.5mm across.

311 IPSWICH 0001 IPSWICH WARE
No TS available.

312 IPSWICH 0212 IPSWICH WARE
No TS available.

313 IPSWICH 0001 IPSWICH WARE
A dense and gritty, isotropic, dark grey-brown clay matrix, containing a fairly well-sorted, sparse scatter of sub-angular quartz at 0.3-0.6mm across, with an abundant background scatter at 0.05-0.15mm across. Iron ore is sparse at 0.1-0.6mm across. Muscovite is sparse at <0.1mm across.

314 IPSWICH 0001 IPSWICH WARE
A dense and gritty, isotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.3mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is sparse at 0.1-0.3mm across. Muscovite is common at 0.1-0.2mm across. Plagioclase feldspar and olivine crystals both occur once at 0.1mm across. A single grog/clay pellet occurs at 4.0mm across.

315 IPSWICH 0001 IPSWICH WARE
No TS available.

316 IPSWICH 0001 IPSWICH WARE
A dense and gritty, isotropic, red to grey-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-1.6mm across, with an abundant background scatter at 0.05mm across. Iron ore is common at 0.1-1.0mm across. Muscovite is common at <0.1mm across. Single fragments of grog and rock occur at 0.4mm and 1.3mm across respectively.

317 IPSWICH 0001 IPSWICH WARE
A dense and gritty, isotropic, dark brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to sub-rounded quartz at 0.2-2.1mm across, with an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.1-0.5mm across. Muscovite is common at <0.1mm across.

318 IPSWICH 0001 IPSWICH WARE
No TS available.

319 IPSWICH 0001 IPSWICH WARE
No TS available.

320 IPSWICH 0001 IPSWICH WARE
A dense and gritty, isotropic, brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular to rounded quartz at 0.1-1.8mm across, with an abundant background scatter at c.0.05mm across. Iron ore is sparse at 0.2-0.5mm across. Muscovite is sparse at <0.1mm across. Limestone is common at 0.5-1.2mm across. A single fragment of dolomite appears at 1.9mm across.

321 IPSWICH 0001 IPSWICH WARE
A dense and gritty, anisotropic, red-brown clay matrix, containing a poorly-sorted, moderate scatter of sub-angular quartz at 0.3-1.0mm across, with an abundant background scatter at 0.05-0.2mm across. Iron ore is sparse at 0.1-0.7mm across. Muscovite is sparse at <0.1mm across. Grog/clay pellets are sparse at c.0.4mm across.

322 IPSWICH 0001 IPSWICH WARE
No TS available.

323 YORK EARLY GLAZED WARE
A dense and gritty, irotropic, light grey-brown clay matrix, containing a well-sorted scatter of abundant, sub-angular quartz at 0.05-0.6mm across. Two quartz crystals occurs at 1.4mm and 1.7mm across. Muscovite and biotite are sparse at 0.1mm across. This TS is very similar to TS 248.

324 YORK BEAUVAIS
A dense and fairly fine, anisotropic, light brown, clay matrix, containing a fairly well-sorted, moderate scatter of sub-rounded to sub-angular quartz at 0.3-0.8mm across, with a moderate background scatter at 0.02-0.1mm across. Iron ore is sparse at 0.1-0.2mm across. Plagioclase feldspar occurs once at 0.4mm across.

325 YORK TOURS
A dense and gritty, anisotropic, light grey-brown clay matrix, containing a poorly sorted, moderate scatter of sub-angular quartz at 0.2-1.0mm across, with an abundant background scatter at 0.05-0.1mm across. Iron ore is abundant at 0.1-0.2mm across. Limestone ocurs once at 0.7mm across. Grog/clay pellets occur once at 0.5mm across. Rock fragments are common at 0.2-1.0mm across.

APPENDIX 5:

A Study of Middle Saxon black-surfaced pottery by point-counting analysis.

Middle Saxon Black ware groups, divided according to point-counting analysis.

Group 1: Ipswich Black ware
Dense and gritty appearance.
Micaceous.

Thin sections: 254, 32

Group 2: Ipswich Black ware, York Black ware
Dense and gritty.
Iron ore.
No mica.

Thin sections: 253, 255, 261, 5,
288, 289, 290

Group 3: Ipswich Black ware, York Black ware
Very fine.
No mica.

Thin sections: 256, 257, 259, 260, 262,
281, 282, 283, 287, 291, 292, 293, 294

Group 4: Ipswich Black ware, London Black ware
Dense and gritty, but fairly fine.
A few large inclusions of quartz.

Thin sections: 258,
105

Group 5: Ipswich Black ware, York Black ware
Fairly fine.
Frequent, large, well-sorted quartz inclusions.

Thin sections: 252, 263, 264, 284, 285, 286,

Group 6: Brandon Black ware, Ipswich ware
Fine. (= sandy type)

Thin sections: 231, 265, 267, 269,
309, 313

Group 7: Brandon Black ware, Ipswich ware
Coarse, gritty. (= pimply type)

Thin sections: 232, 270, 271,
312, 316, 317, 320, 321, 322

Group 8: Brandon Black ware, Ipswich ware
Fairly fine, with grits. (= midway type)

Thin sections: 266, 268, 272, 273, 274, 275, 276, 277
308, 310, 311, 214,

SAMPLES TAKEN FOR THIN-SECTION AND NAA ANALYSIS

Ipswich Black wares:	T-S GROUP
5. IAS 5502 0150	2
32. IAS 7402 0090	1
252. IAS 4601 0358	5
253. IAS 4601 0357D	2
254. IAS 4801 2722A	1
255. IAS 4601 0899C	2
256. IAS 5901 0306B	3
257. IAS 0802 0193A	3
258. IAS 4801 1571E	4
259. IAS 4601 0038	3
260. IAS 4801 2872	3
261. IAS 4601 0322	2
262. IAS 4801 0688F	3
263. IAS 4801 1990 2300	5
264. IAS 5701 0023A	5
Brandon Black wares:	
231. BRD 018 6338	6
232. BRD 018 7429	7
265. BRD 018 5821	6
266. BRD 018 6326	8
267. BRD 018 3686	6
268. BRD 018 7449	8
269. BRD 018 7446	6
270. BRD 018 7452	7
271. BRD 018 5839	7
272. BRD 018 7455	8
273. BRD 018 7450	8
274. BRD 018 7451	8
275. BRD 018 5812	8
276. BRD 018 6147	8
277. BRD O18 7431	8

London Black wares:

105 .	Treasury Whitehall [25] 2	4

York Black wares:

281.	1986.9 3360B	3
282.	1986.9 3360A	3
283.	1986.9 3238	3
284.	1986.9 10180	5
285.	1986.9 1932	5
286.	1986.9 1895	5
287.	1986.9 7109	3
288.	1986.9 2459A	2
289.	1986.9 2458B	2
290.	1986.9 5525	2
291.	1986.9 3326B	3
292.	1986.9 3326A	3
293.	1986.9 3186	3
294.	1986.9 9100	3

Quentovic Black wares:

295.	VM 85 57	
296.	VM 85 57	
297.	VM 85 57	3
298.	VM 85 57	
299.	VM 85 57	
300.	VM 85 63	
301.	VM 85 57	
302.	VM 85 57	3
303.	VM 85 57	3
304.	VM 85 12	
305.	VM 85 65/2	
306.	VM 85 105	
307.	River Canche find	3

Ipswich-type ware:

308.	IAS 7402 0001	8
309.	IAS 7402 0212	6
310.	IAS 7402 0001	8
311.	IAS 7402 0001	8
312.	IAS 7402 0212	7
313.	IAS 7402 0001	6
314.	IAS 7402 0001	8
315.	IAS 7402 0001	deleted
316.	IAS 7402 0001	7
317.	IAS 7402 0001	7
318.	IAS 7402 0001	8
319.	IAS 7402 0001	8
320.	IAS 7402 0001	7
321.	IAS 7402 0001	7
322.	IAS 7402 0001	7

Point counting:

All thin-sections were point counted at x20 magnification; 300 counts taken, stage interval set at 2.

Rank order of point-counted thin-sections according to their percentage of clay.

rank number	%	TS no.	source
1	66.6	317	Ipswich ware
2	68.7	320	Ipswich ware
3	69.1	322	Ipswich ware
4	69.3	316	Ipswich ware
5	70.2	306	Quentovic Black ware
6	70.3	310	Ipswich ware
7	70.6	263	Ipswich, Black ware
8	70.6	321	Ipswich ware
9	71.5	309	Ipswich ware
10	71.6	313	Ipswich ware
11	72.1	254	Ipswich, Black ware
12	72.1	314	Ipswich ware
13	72.2	232	Brandon, Black ware
14	72.7	271	Brandon, Black ware
15	72.0	258	Ipswich, Black ware
16	73.7	252	Ipswich, Black ware
17	74.2	105	London, Black ware
18	75.2	265	Brandon, Black ware
19	75.2	253	Ipswich, Black ware
20	75.5	272	Brandon, Black ware
21	76.2	270	Ipswich, Black ware
22	76.3	308	Ipswich ware
23	76.5	266	Brandon, Black ware
24	76.8	273	Brandon, Black ware
25	78.1	276	Brandon, Black ware
26	78.1	318	Ipswich ware
27	78.1	261	Ipswich, Black ware
28	78.4	274	Brandon, Black ware
29	78.6	319	Ipswich ware
30	78.7	312	Ipswich ware
31	79.0	311	Ipswich ware
32	79.2	286	York, Black ware
33	80.4	289	York, Black ware
34	80.5	275	Brandon, Black ware
35	80.5	277	Brandon, Black ware
36	80.6	268	Brandon, Black ware
37	80.8	5	Ipswich, Black ware
38	80.8	267	Brandon, Black ware
39	81.5	264	Ipswich, Black ware
40	81.6	290	York, Black ware
41	81.7	32	Ipswich, Black ware
42	82.0	295	Quentovic Black ware
43	82.5	285	York, Black ware
44	83.4	282	York, Black ware
45	83.5	281	York, Black ware
46	83.6	300	Quentovic Black ware
47	83.8	301	Quentovic Black ware
48	84.1	304	Quentovic Black ware

49	84.1	288	York, Black ware
50	84.3	255	Ipswich, Black ware
51	84.7	296	Quentovic Black ware
52	85.4	284	York, Black ware
53	85.5	231	Brandon, Black ware
54	86.0	294	York, Black ware
55	86.1	257	Ipswich, Black ware
56	86.3	291	York, Black ware
57	86.7	269	Brandon, Black ware
58	87.5	259	Ipswich, Black ware
59	87.7	292	York, Black ware
60	87.7	293	York, Black ware
61	89.4	297	Quentovic Black ware
62	89.4	299	Quentovic Black ware
63	90.1	302	Quentovic Black ware
64	90.5	298	Quentovic Black ware
65	90.6	256	Ipswich, Black ware
66	90.8	283	York, Black ware
67	91.1	262	Ipswich, Black ware
68	91.3	260	Ipswich, Black ware
69	92.7	303	Quentovic Black ware
70	94.7	307	Quentovic Black ware
71	96.2	287	York, Black ware

APPENDIX 6:

Tabulation of the Ipswich pottery data

Table 1

Imported pottery in Ipswich (not including weights or areas for trenches 3104 & 5203).

TRENCH	NUMBER OF CONTEXTS	NUMBER OF SHERDS	NUMBER OF VESSELS	WEIGHT	AREA
0802	18	41	29	505.3g	324m
1501	0	0	0	0	8m
1804	8	8	7	132.2g	55m
3104	305	1388	(119)		
3203	0	0	0	0	/
3410	12	44	22	560.0g	65m
3503	2	2	2	18.7g	/
3601	0	0	0	0	/
3902	7	8	5	157.1g	445m
4201	24	67	22	555.6g	63m
4302	21	37	27	523.3g	50m
4601	157	849	(71)	10,551.4g	2000m
4801	216	1220	186	14,486.2g	3000m
5201	3	10	7	145.2g	60m
5202	3	5	5	255.2g	49m
5203	171	1147	126		/
5502	34	72	24	1,476.9g	380m
5701	41	167	(35)	1,829.4g	240m
5801	29	143	74	1,529.4g	92m
5901	24	45	16	1,011.0g	393m
5902	15	35	23	260.0g	136m
6202	64	269	72	3,566.0g	100m
6901	0	0	0	0	/
6904	5	33	18	292.2g	108m
7402	5	23	14	572.5g	380m
7501	4	11	7	198.6g	65m
8804	29	111	(37)	974.7g	95m
9802	7	14	7	71.0g	125m
totals	1219	5770	969	40,391.9g	

Vessel numbers given in brackets indicates those trenches which include larger numbers of vessels, but which have Late Saxon and later material mixed in with the Middle Saxon group.

Table 2

Ratios of the area excavated to the number of imported sherds and the area excavated to the weight of imported sherds

Trench	Ratio m to sherds	Ratio m to weight
0802	1:0.13	1: 1.56
1804	1:0.15	1: 2.40
3410	1:1.7	1: 8.61
3902	1:0.02	1: 0.35
4201	1:1.06	1: 8.82
4302	1:0.74	1:10.46
4601	1:0.37	1: 5.18
4801	1:0.37	1: 5.83
5201	1:0.16	1: 2.42
5202	1:0.1	1: 5.20
5502	1:0.18	1: 3.88
5701	1:0.69	1: 7.62
5801	1:1.55	1:16.62
5901	1:0.11	1: 2.55
5902	1:0.25	1: 2.08
6202	1:2.69	1:35.51
6904	1:0.3	1: 2.70
7402	1:0.06	1: 1.51
7404	1:0.08	1: 0.69
7501	1:0.17	1: 3.06
8804	1:1.17	1:10.26
9802	1:0.11	1: 0.57

Table 3

Ranking of area:sherds and area:weight

1	6202	2.69	6202	35.51
2	3410	1.70	5801	16.62
3	5801	1.55	4302	10.46
4	8804	1.17	8804	10.26
5	4201	1.06	4201	8.82
6	4302	0.74	3410	8.61
7	5701	0.69	5701	7.62
8	4601	0.41	5202	5.20
9	4801	0.37	4601	5.18
10	6904	0.30	4801	4.83
11	5902	0.25	5502	3.88
12	5502	0.18	7501	3.06
13	7501	0.17	6904	2.70
14	5201	0.16	5901	2.55
15	1804	0.15	5201	2.42
16	0802	0.13	1804	2.40
17	5901	0.11	5902	2.08
18	9802	0.11	0802	1.56
19	5202	0.10	7402	1.51
20	7404	0.08	7404	0.69
21	7402	0.06	9802	0.57
22	3902	0.02	3902	0.35

Table 4

Comparison of rankings by sherd numbers and weight

rank by sherds		rank by weight	difference
1	6202	1	0
2	3410	6	4
3	5801	2	2
4	8804	4	0
5	4201	5	0
6	4302	3	3
7	5701	7	0
8	4601	9	1
9	4801	10	1
10	6904	13	3
11	5902	17	6
12	5502	11	1
13	7501	12	1
14	5201	15	1
15	1804	16	1
16	0802	18	2
17	5901	14	3
18	9802	21	3
19	5202	8	11
20	7404	20	1
21	7402	19	2
22	3902	11	0