TOWARDS A NEW HISTORY OF ROMAN BROADLAND

J. Peterson

ABSTRACT

Broadland lies in the drowned and infilled valleys of rivers that run eastwards from the interior of Norfolk and Suffolk to the coast of East Anglia (UK). In the mouth of this wetland, on a sandbank, sits the medieval town of Great Yarmouth. According to a traditional view of the area's history, tidal waters once covered both the site of Great Yarmouth and the wetland itself. Most archaeologists seem to believe that this was so throughout the Roman period – leading to the suggestion that Roman finds on the sandbank are later imports. However, recent discoveries of Roman material, in the marsh sediments of Broadland, seem to contradict these claims. Together with indications of Roman sea levels elsewhere on England's east coast, and local geological evidence, they suggest a different history of marshland development. The sandbank need not have been submerged in the Roman period and finds from it could be signs of local occupation at that time. Then, as now, it could have been a north-south causeway across the mouth of a wetland that suffered only temporary inundation.

KEY WORDS

Roman, Broadland (UK), Great Yarmouth (UK), Relative Sea Level (RSL).

GREAT YARMOUTH AND BROADLAND – SITUATION AND GEOLOGY

The medieval town of Great Yarmouth sits on a sand and gravel spit running north-south between the uplands of Flegg and Lothingland (Fig. 1).

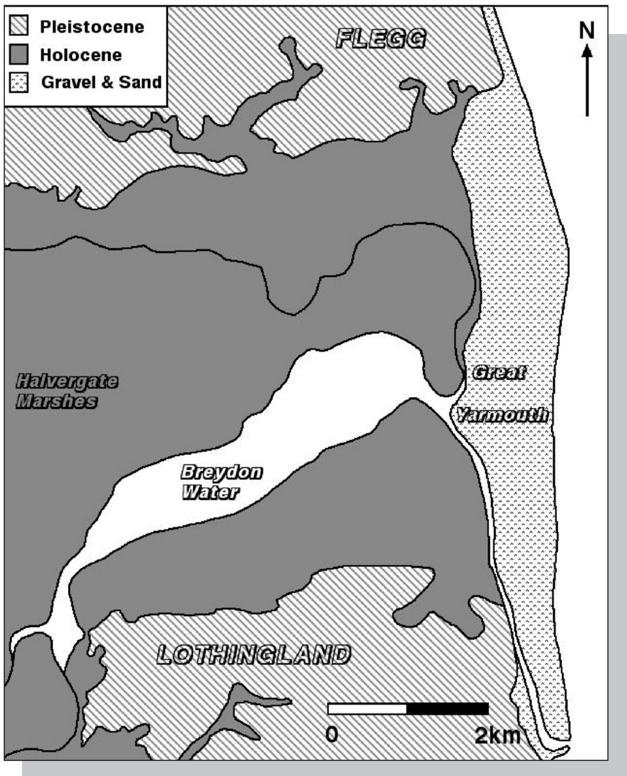

Figure 1 Situation and generalised geology of Great Yarmouth.

To the west the combined lower valleys of the rivers Bure and Yare are filled with holocene sediments. As shown in figure 2, this is part of Broadland, a wetland extending into the heart of East Anglia.

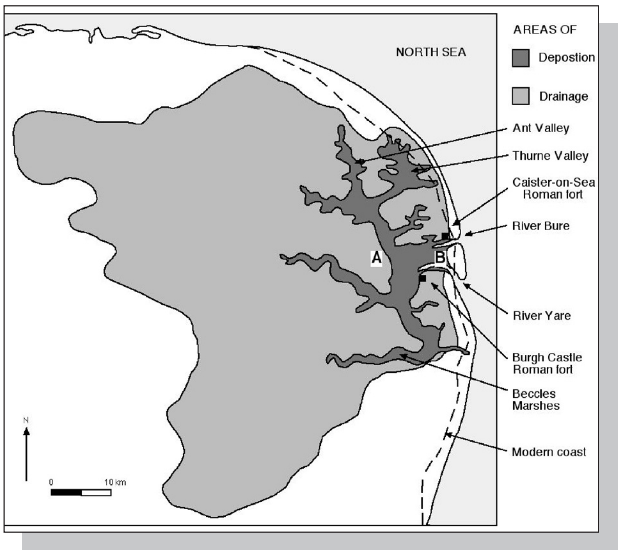

Figure 2 Yare/Bure drainage basin showing maximum extent of estuarine influence in the Upper Clay, c. 1,600 years BP, after Godwin (1993: figure 5.8), but showing no opening of the Thurne valley to the sea.

The generalised geology of the wetland immediately west of Great Yarmouth is displayed diagramatically in the British Geological Survey (BGS) memoir (Arthurton, *et al*., 1994), by a section (between points A and B in figure 2). This diagram, see figure 3, shows alternating deposits of peat and clay. Their deposition corresponds to alternating periods of lesser and greater marine influence on the accreting marsh sediments. Factors that may have influenced coastal evolution have been examined by Shennan (1994) for the UK Fenland, and may be applied generally. The most important factor is the rate of rise of Relative Sea Level (RSL). A slow and steady rate leads to peat formation, whereas rapid rates of rise lead to the deposition of silts and clays.

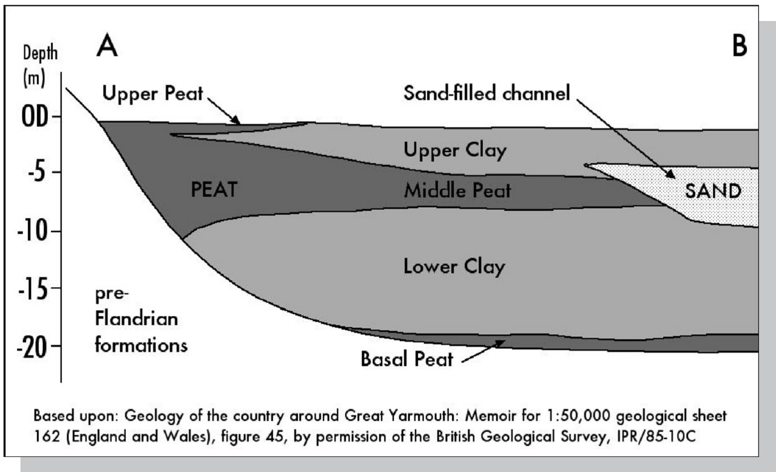

Figure 3 Generalised sequence of deposits of the Breydon (Arthurton et al., 1994).

Further upstream, in each individual valley, the Upper Clay fills a river channel incised in the Middle Peat. Cross sections show that this former channel normally has very little lateral displacement from the existing river course. As shown in figure 4, clay fills the old channel and spreads in a flange on each side. This flange does not always reach the valley side, and it grades into peat, both vertically and horizontally.

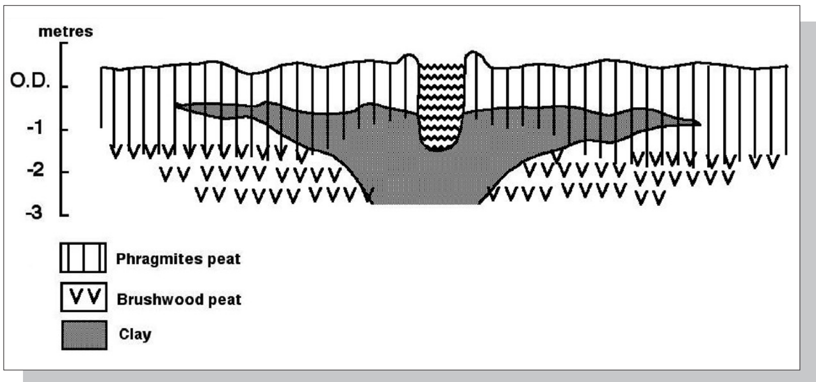

Figure 4 Idealised representation of Broadland upper alluvial stratigraphy, after Wells and Wheeler (1999), Lambert et al. (1960).

A more detailed representation of stratigraphy above the Middle Peat in one of these valleys (that of the Ant) is given by Wells and Wheeler (1999). They were able to obtain radiocarbon dates for the sediments, even for those with low organic content. The author used Online CalPal (www.calpal-online.de/), with a 68% range, to calibrate these dates and they are shown in figure 5 superimposed on the Sedge Marsh section.

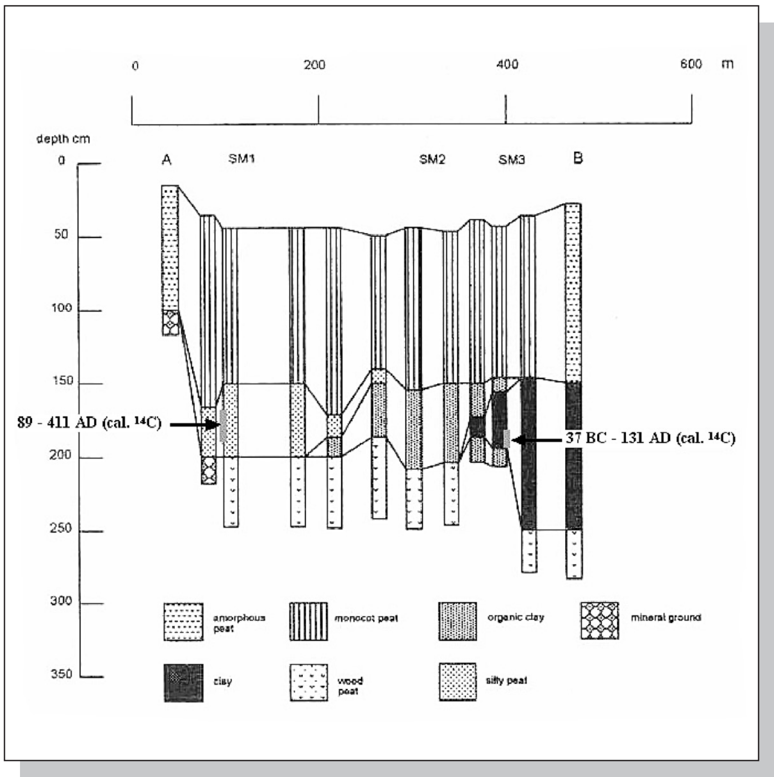

Figure 5 Section from upland boundary (left) to centre of Sedge Marsh, Ant Valley, and radiocarbon dates for sediments of the Romano-British transgression, after Wells and Wheeler (1999).

This section makes it clear that the sediments lying between the wood peat and the monocot ("Phragmites") peat are contemporaneous. The clay (so-called "marine clay"), organic clay and silty peat are all to be found, side by side, in the Roman wetland. We should therefore see it as a varied and dynamic environment.

DEVELOPMENT OF BROADLAND SINCE MIDDLE PEAT TIMES – DIFFERENT VIEWS

The BGS memoir presents reconstructions of the geography of the lower estuary during past periods, including Middle Peat and Upper Clay times (Arthurton, et al. 1994 (figure 55)).

The Middle Peat reconstruction is dated to 4,700 - 2,500y BP (Before Present = years before 1950 AD). The associated RSL is rising from -7m to -2m relative to the current Great Yarmouth Ordnance Datum (OD, the UK mapping datum). The landscape is a floodplain swamp that may, or may not, have had a sand barrier separating it from the sea. Indeed, the memoir suggests that similar swamps in other areas bordering the North Sea have formed in the absence of such a barrier. Nevertheless the reconstruction shows a barrier beyond the present coastline, but labels it, sceptically, "Presumed sand barrier (Coles and Funnell 1981)".

The Upper Clay reconstruction is dated to 2,000 - 1,000y BP. The RSL is c. -1m OD. The landscape is that of marine re-invasion. A sandbank occupies the mouth of the estuary. According to the memoir, it was already in existence during the first few centuries AD. Channels flushed the estuary to north and south of it, as shown in Godwin's (1993) reconstruction (see figure 2).

Both these reconstructions differ from those envisaged by Coles and Funnell (1981). In their article, based on Coles' (1977) thesis, they describe the Middle Peat as the result of sedimentation behind a sand and gravel barrier, and continue (1981 (127) :

"The second estuarine episode apparently began at the seaward end of the present Halvergate marshes with the establishment of sheltered estuarine conditions in what had previously been a freshwater lagoon. Coarse sandy sediment, containing open estuarine and estuarine channel foraminifers soon succeeded however, indicating both the destruction of a pre-existing sand barrier and the strong incursion of marine water into the lower valley."...

"The base of the upper clay, is dated by ^{14}C to 1793 ± 50 y BP, towards its inland limit, and its feather-edge representing the maximum extension of estuarine influence is dated by ^{14}C to 1609 ± 50 y BP. At its maximum extension the upper clay reached 23 km inland to within 7 km of the site of Norwich. It consisted of medium to very fine sand nearest the coast, ranging through silt further inland to true clay furthest inland. Open estuarine intertidal mud flats and salt marsh environments characterised the seaward limits, whereas brackish-water (mesohaline) microfaunas predominated at the inland limit."

So, Coles and Funnell give an explanation for the presence of sand above the Middle Peat in many parts of the marsh immediately west of Great Yarmouth, including the Halvergate marshes. They postulate the pre-existence and destruction of a sand barrier between the marsh and the sea. The BGS, however, regard the existence of such a barrier, before Upper Clay times, as unproven and do not tell us that sand deposits are the result of its destruction.

Coles and Funnell also maintain that the Upper Clay becomes progressively less sandy at greater distances from Great Yarmouth. The BGS memoir makes no mention of this. Instead it draws attention to a vertical change in the sediments, visible in most parts of the lower marsh. Beneath a weathered layer 0,7 to 1.8m thick there is a layer of soft grey clay with the remains of *phragmites* reed in growth position. Beneath this is softer dark bluish or brownish grey to black silty clay with laminae or thin beds of sand.

Given the available evidence, the BGS description is more convincing. Of

Coles' sections through the marsh sediments, section HM2 (Coles 1977 (figure 4.1)) is the nearest to the sea. However, it is 5km away, so not very informative about the intervening area. Furthermore the logs of three commercial boreholes close to the bar, which Coles also provides (1977 (229)), do little to support the idea that the clay becomes more sandy in that area. They show Middle Peat overlain by clay described as, respectively, "soft sandy clay with some silt", "soft silty blue clay" and "light gray clay with some black peat areas".

Other data further strengthen the impression that the sediments of the Upper Clay immediately behind the bar are not particularly sandy. Two items in the Norfolk Historic Environment Record (HER) relate to Roman (or possibly Iron Age) ceramics found within 400m of each other in marsh sediments at Caister-on-Sea, also close to the bar. The clay is described as "marine clay" (HER 13228) and "bluish-grey clay with organic inclusions." (HER 39596).

If the sand bar had been destroyed at the start of Upper Clay times, then more sand might appear nearer the coast. This does not appear to be the case, casting doubt on the idea.

GENERAL ACCEPTANCE OF THE "OPEN ESTUARY" MODEL AND ITS CONSEQUENCES

Despite its insecure foundation, Coles and Funnell's reconstruction of the Roman wetland as an open tidal estuary became the dominant model. It has been reproduced in many other publications, such as George (1992), Darling with Gurney (1993) and Cracknell (2005). One of its most clear expressions can be seen in a newly opened, and generally excellent, museum in Great Yarmouth. The early history of the area is here displayed under the rubric "The Town that Grew Out of the Sea". Part of a panel, titled "Coastline in the Roman Period", is reproduced here as figure 6.

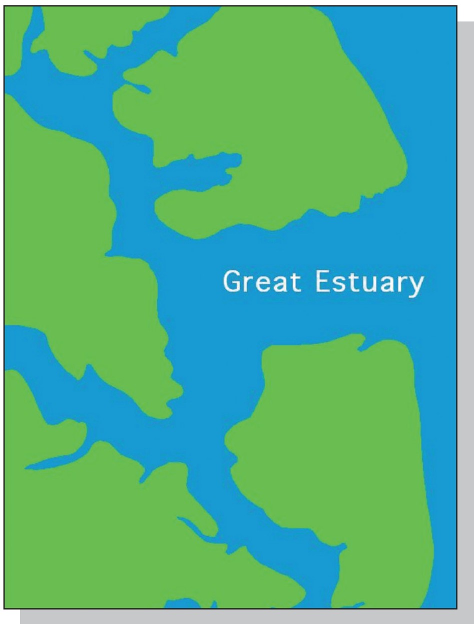

Figure 6 The Great Estuary, detail of display panel in the sequence "The Town that Grew Out of the Sea", Time and Tide: Museum of Great Yarmouth Life (2004 - 2007).

This map is very persuasive, particularly in the way it uses colour. We almost automatically associate blue with water; and (at least in northern Europe) we normally see land as green. It is thus not surprising that the public, and some archaeologists, see the boundary between green and blue as a coast.

There is also a traditional belief that prepares the public to see a watery past for the town. More than four centuries ago the “Hutch” map reconstructed the supposed geography of the Great Estuary in the year 1,000 AD. The map is still kept in the town hall and displayed in facsimile in the same museum. It is essentially the same as the modern reconstruction of the Roman period; and it uses the same iconic colours. In consequence, most visitors to the museum are probably not surprised that another panel – “Great Yarmouth in the Roman Period” – tells them:

“In 43 AD Great Yarmouth did not exist. The site lay under water. When the Romans invaded Britain sea levels were much higher than they are today. The site of Great Yarmouth lay at the mouth of a vast estuary which opened out into the North Sea. The area where the Halvergate marshes now stand was tidal mud-flats. The districts of Flegg and Lothingland were islands in the great estuary.”

It is surprising to see the phrase “sea levels were much higher” – as part of the explanation for the supposed inundation of the area in Roman times. As we have seen, the BGS memoir assign a sea level of c. -1m OD to the period 2,000 - 1,000y BP. This is one metre lower than the current local mean sea level.

In fact, it is hard to see that the text can be right in this respect. Shennan and Horton (2002) present overwhelming evidence that, over the last 4,000 years, values of RSL on the east and southeast coast of Britain, from the Humber to Southampton Water have been, on average, always below current levels. Over this period, in this area, RSL has been rising at 0.4 - 0.9mm yr^{-1}, depending on location. The figure for Lowestoft, 15km south of Great Yarmouth, is 0.6mm yr^{-1}. This is in excellent agreement with the figure in the BGS memoir. Such a rate would lead to a rise of one metre since the end of the Roman period

So, one consequence of the uncritical acceptance of this iconic “open estuary” model is the general acceptance of information that would, in other circumstances, be open to question.

Another consequence is that archaeologists, when they become aware of the model, feel obliged to explain Roman finds from the sand bar as imports or, if that is not possible, deny that they ever were Roman.

CURRENT EXPLANATION OF ROMAN FINDS FROM GREAT YARMOUTH

The parish of Great Yarmouth lies wholely on the sand bar, whereas the town’s modern urban extension in Gorleston-on-Sea lies partly on a higher, earlier, land surface. The distribution of Roman finds from the two parishes is shown in figure 7.

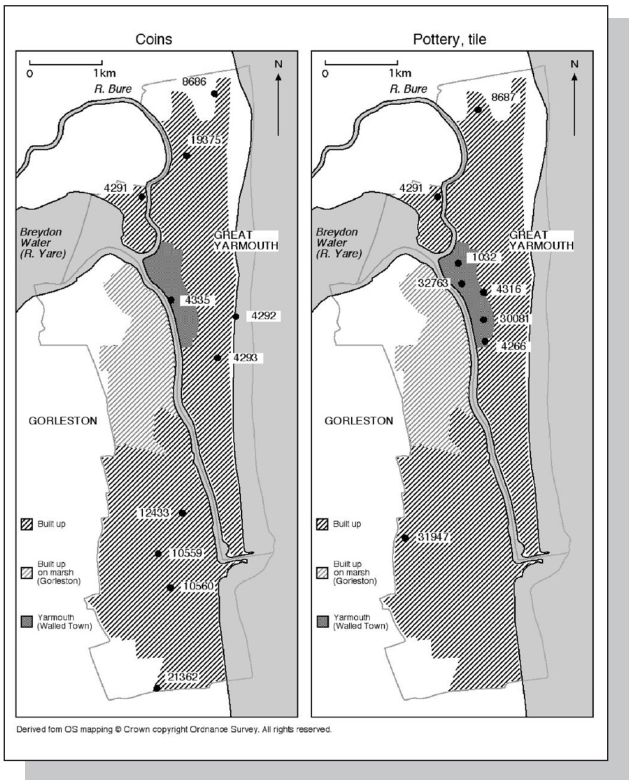

Figure 7 Roman finds from Great Yarmouth and Gorleston-on-Sea.

The coins found in Great Yarmouth can easily be explained as imports, because of their portability and possible worth in later times. Nevertheless, if they are imports from Roman sites on higher ground, it seems slightly odd that more should be found in the Yarmouth urban area than in the equally large part of the urban area of Gorleston that does indeed lie on higher ground. The relative abundance of pottery/tile is even more peculiar, but may perhaps be explained by the greater number of archaeological excavations conducted in the medieval walled town. Whatever the reason for the disparity, most material from Great Yarmouth parish, with the exception of HER 4291 (the "cinerary urns" from Runham) and a Roman tile fragment from Howard Street South (HER 32763), is described as having been moved from elsewhere.

Pottery could have been washed up by the sea. Charles Green (1973 (114)) explains the pottery (and roof tile fragments) at HER 4316 in this way. At Blackfriars Church (HER 4266) Rye (1980) offers the same explanation for the presence of a Roman black-burnished ware sherd in a medieval grave fill. He reports that it is unabraded, but still assumes that it was "washed up by the flood tide at some period". However, at Nottingham Way (HER 30081) no explanation is offered for the presence of a small fragment of heavily abraded Romano-British ceramic material in a deposit immediately above the natural sand (Wallis 1995).

Tile could also have been imported. Rogerson (1976 (238)) explains the presence of a fragment of Roman roof tile in the early medieval deposits at Fuller's

Yard (HER 1032) by pointing to the availability of building debris at Caister-on-Sea and Burgh Castle.

One exception to this theme of importation is the explanation for the presence of another Roman tile fragment at Howard Street South (HER 32763). This was in the primary fill of a pit with a 13th century pottery assemblage. The excavators suggest that this "was almost certainly residual from the disturbed deposits below" (RPS Clouston 1998), but they were not local archaeologists and could not be expected to be fully aware of traditional views.

Another exception, in a case where importation seems highly unlikely, is the site at Runham (HER 4291). The HER data is as follows.

HER 4291 (Site)
Location: TG 5193 0886 - Runham Vauxhall
Height: circa 1.8m OD
May 1879: RB coins including bronze of Augustus Caesar and fragments of cinerary urn.
A few years before 1883: cinerary urns found with with coin of one of the Constantine family.

On the face of it, this looks like an early Roman cemetary, and Rainbird Clarke (1941 (249)) regarded it as "either Anglian or early Roman or late Bronze Age". He stated that "As these finds can scarcely be later than the sixth century AD. they prove, what other evidence confirms, that the site of Yarmouth was inhabited long before it appears in history in late Saxon and Norman times." However, Green and Hutchinson (1960) show it on one distribution map for the early Anglo-Saxon period, but omit it in another. Nevertheless, they regard it as highly probable that it was indeed the remains of a pagan Anglian cemetery and, as such, evidence for human occupation of the sand bar not later than the seventh century AD. As time passed, these earlier interpretations were further modified by Rogerson (1976) who, in the absence of surviving finds, regards the evidence for this Anglo-Saxon cemetery as inconclusive and gives us Barbara Green's view. This is that the finds could be associated with salt working, an industry that takes place around the upper limit of tidal waters. The data have thus been made more consistent with current theory, by revising the original description of the finds in line with changing expectations.

Finally, there is one site where Roman pottery was almost indubitably imported. The Roman material from Midsands Cross is described in the HER as follows:

HER 8687 (Site)
Location: TG 5251 1003 - Midsands Cross
Height: circa 0.3m OD (estimated from the spot height of 1m on OS 1:25,000 map at a distance of 150m).
RB rim found in situ circa 2 feet (0.6m) under base of Midsands Cross in disturbed loam with animal bones and oyster shells. Probably RB refuse pit,

The last comment in this record should probably be ignored. This is indicated by Rye's (1965) report of archaeological investigation around the base of the

cross. Fragments of Roman pottery were found in sections on the north and south side of the base. None of them is in situ. On the north, a Roman sherd was found in disturbed sand containing broken clay. On the south a patch of clay with fragments of carbonised material contained Roman sherds and 13th century grey ware. Both sections also contained patches of loam and sand.
Rye (1965 (117)) explains the Roman finds is as follows:
«With regard to the patches of clay on the site, they underlay the loam, in parts, and were presumably, the earlier deposit. The clay contained some Roman sherds and one naturally thinks of the Roman town of Caister-by-Yarmouth [Caister-on-Sea] as the source. One piece is first century AD «Terra Nigra», an unusual find in Norfolk.»
The first century sherd, as illustrated, does not appear to be worn, so presumably Rye is suggesting that the Roman sherds came by land. In that case they probably also came accidentally – with the clay. Rye argues that this was needed to provide a foundation for an earlier cross set up to mark the south side of Grubb's Haven, the Bure outlet through the sand bar. Such clay could have been excavated only 150m away, in the marsh west of the cross, but Rye points to Caister – 2.5km away on the other side of the river – as the likely source. In this way he preserves the traditional «open estuary» hypothesis

ROMAN SITES ON THE UPPER THURNE COAST

Another source of information on the relationship between Roman finds and Upper Clay sediments is to be found on the coast north of the Flegg upland. The river Thurne now drains away from the coast to join the Bure, which then loops round before it exits to the sea (see figure 2). The sea is now separated from the Thurne valley by a line of sand dunes less than 100m wide in places, but it is likely that in Roman times the coast was further away.
Coastal erosion and advance of the sea have been significant. They are well documented at Happisburgh. A report by HR Wallingford (Brampton 2001) suggests that before construction of sea defences in 1958 the rate of erosion was approximately 0.5m/year. However, comparison of the tithe map (mid nineteenth century) and the modern map (showing the position of the 1958 defences) indicates that about 115m were lost - giving a approximate mean rate of 1m/year. Earlier rates seem to have been even higher. White's directory for 1854 reported that the sea had encroached 250 yards (230m) in the previous 70 years at Happisburgh (Trett 2004). So, over 175 years the sea advanced at slightly less than 2m/year and where sea defences have recently failed, south-east of Happisburgh, the advance continues at a comparable rate. This figure suggests that at the start of the first millenium the coast was about 4km away from its present position. Furthermore, given the known erosion of the coast at nearby Eccles-on-Sea in the last two centuries, the same is probably true of some other parts, if not all, of the Happisburgh-Winterton coast.

As a result of its advance, the sea is currently cutting through sediments, including those of the Holocene, occasionally exposing them on the beach and revealing signs of Roman occupation (figure 8).

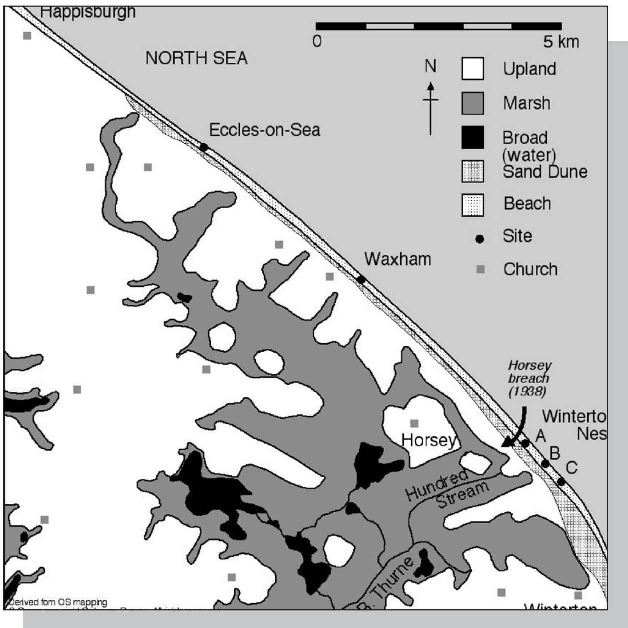

Figure 8 The upper Thurne valley, showing sites with Roman material on the Happisburg-Winterton coast.

The Eccles-on-Sea site (HER 8342) includes the church and part of the medieval and modern village. Faden's map of 1797 shows the church inside the dunes but already "in ruins". Pestell originally suggested (1993 (13)) that "... the site had its beginnings in the eleventh or twelfth, as no material has yet been found to predate this, with the exception of a few sherds of Roman pottery illustrated in Interim 1 [the first interim report] (fig. 3.1)." However, in the light of more recent discoveries of Roman material on the beach further south, he now sees the context of the Roman grey ware differently (Pestell pers. comm., e-mail, September 2005). This short linear feature filled with grey clay was originally interpreted as a possible house foundation. He now suggests that it is more likely to be a earlier feature surviving in the medieval village.

At the Waxham site (HER 32093) an area of topsoil about 400m long was exposed in September 1996, containing numerous pieces of pottery, mainly medieval. At a lower level, where erosion had taken place, several features cut into the boulder clay, pre-Holocene, subsoil were seen. The report on these (Pestell 1996) states "Fill ... is characteristically mid grey clay. One ditch yielded a large quantity of unabraded Roman greyware sherds, partly reconstructable. the size of these, and of a similar sherd from another feature, suggests that they are stratified rather than residual material. The features may, perhaps, therefore be interpreted as a system of Roman ditches."

North of Winterton, between the site of the 1938 Horsey breach and Winterton Ness, along approximately 500m of beach, a peat outcrop is described by

Lambert et al. (1960 (46)). They had little doubt that the peat exposed on the intertidal foreshore is the same as the peat found on the marsh side of the dunes, beneath the Upper Clay. They consequently used this as evidence against the idea that the Hundred Stream represents the course of the Bure and the (reversed) Thurne to the sea in Roman times

Lambert et al. also described finds of Roman material in 1939 at Winterton Ness (site A). Here, peaty clay overlies boulder clay. It contained a sherd of the mid first century AD Roman pottery, pebbles, mammalian bones, brick and wood. However there is some doubt that the finds are in situ. They are described by Lambert et al. as "embedded" in the peaty clay at approximately -0.3 to 0 m OD, but Green and Hutchinson (1960 (118)) say that the stratigraphy shows that the remains did not lie on the actual occupation site and that one piece of pottery is of Middle Saxon date.

Site B at Winterton Ness (HER 40106) was found in December 2003. Notes in the HER say:

"Ditches with Roman pottery lying stratified within them." and "Series of ditches lying at 45 dgrees to the coastline. Possibility that it is a saltern site. Looks to be covered by an ancient topsoil, also containing Roman pottery and building material. T. Pestell has seen a photograph of a waterlogged wooden structure which is probably related but difficult to tell."

Pestell (pers. comm., e-mail, September 2005) reports that the features were light grey and that he interpreted them as land boundaries, although he found it problematic that they were so close together. He also expresses reservations about the hypothetical association of these features with a saltern, saying "I was never fully convinced ... It seems to me we didn't really have the sorts of briquetage the Fens sites have produced."

Site C at Winterton Ness is the source of the most recent Roman find. On 17 February 2005 Mrs Sarah Guy and her son Richard discovered animal bones and a human skeleton. According to Edwin Rose's report in the Norfolk Historic Environment Record (HER 41181), the skeleton was in a hard mass of blackish peaty clay resting on a bed of clean grey clay. He told Mrs Guy, in a letter of 29 March 2005, that the site contained "a Roman inhumation (and therefore late Roman) with remains of a funerary meal".

The elevation of the burial cannot now be determined precisely. However, the HER record describes the site as lying "between normal high water and the dunes, although the tide had been covering it in recent weeks" and this gives a indication of its OD elevation.

Records of sea levels at Lowestoft (National Tidal and Sea Level Facility), when adjusted by the local tidal difference of 0.6m, indicate that the burial could have been as high as 1.5m OD and probably not lower than 1.0m OD. This level is significantly higher than those of other Roman finds on this part of the coast. They are in the lower part of the range of mean spring tides, between -0.9 and 0.4 m OD.

The elevation of all these sites is shown diagramatically in figure 9.

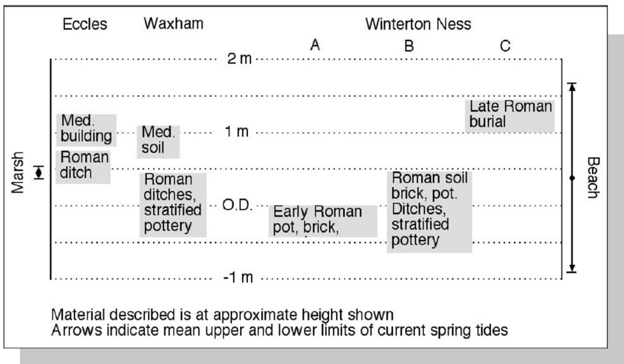

Figure 9 Elevations of sites with Roman material on the Happisburg-Winterton coast (arrows indicate range of current mean spring tides inside and outside the dunes).

The relationship between the Roman sites and the Upper Clay sediments varies. Certainly at Waxham, and probably at Eccles, ditches were dug into boulder clay that formed part of the pre-marsh upland. These ditches were then invaded by water borne grey clay within which, at Waxham, Roman pottery was stratified. Upper Clay sediments transgressed a Roman landscape while occupation continued.

At Winterton Ness the evidence at site A is ambiguous, but it is likely that early Roman activity was going on nearby, if not at the find spot. At site B the evidence of ditches filled with light grey clay containing stratified Roman pottery leads to the suggestion of a transgressed Roman landscape, as at Waxham. Finally at site C, we have the late Roman inhumation, apparently at a higher level than other Roman activity. The description of its position in the sedimentary sequence, in dark clay over light clay, could indicate that it was buried in a marsh from which marine influence had receded, at the upper surface of a clay flange. This could correspond to the upper junction of clay and organic clay in figure 5.

The nature of this grey clay near Winterton Ness was investigated further by the author, following another temporary exposure at the end of 2005 near site C.

Figure 10 Exposure of clay. Winterton Ness. View to southeast. 2 January 2006.

Figure 11 Exposure of clay. Winterton Ness (Close-up). View to southwest. 2 January 2006. Overall length of trowel: 240mm.

The clay was exposed, approximately 150m to the southeast of the inhumation, at about mid-tide level, (0.4m OD), over a length of about 50m. The clay was grey, with a reddish upper surface The close-up shows it to be darker towards the top. Thin black strips of organic material, possibly roots, can be seen emerging from the eroding clay. These appear to be the remains of plants growing in the clay. At the same level, another 50m to the southeast, was an exposure of a darker clay containing numerous brick and pottery fragments. Some of these were post-medieval brick. Others are possibly Roman briquetage. None of these finds is necessarily in situ

There is also some evidence that peat and organic clay underlay the grey clay. During excavations prior to repair of the groyne 300m southeast of the inhumation, on 1 October 2005, it could be seen that the excavating machine (near the high tide line) was digging through grey clay. The author's later inspection of the beach near the lower end of the same groyne, on 10 September 2006, revealed black organic clay and peat with remains of tree stumps, about 300mm in diameter and 500mm high, with their roots embedded in the black clay. This was an exceptionally low tide, so this former land surface, apparently a wetland wood, is now at about -1.3m OD.

There can be little doubt that the grey clay and the peaty clay containing the skeleton are an extension of the estuarine sediments that appear below the land surface in the upper Thurne valley. They are recognised there as being deposits of the Upper Clay period. At three sites on the beach, ditches in a Roman landscape were filled with the same grey clay and then, with passage of time, the clay dried out to form a land surface on which, at another site, a late Roman burial could take place.

A NEW FIND – AND A NEW HISTORY?

The finds from the upper Thurne coast demonstrate that, contrary to what tradition would lead us to expect, we may find signs of Roman land use anywhere in the supposedly "watery" area of the Great Estuary.

Further support for this theory has not been slow to come.

In August 2006 an excavation was concluded in Beccles Marsh, at a spot 300m from the nearest supposed Roman coast, (see Fig. 2 for location). The original target of the excavation was a linear wooden structure (probably a trackway) with a northwest orientation. According to preliminary information provided by members of the Birmingham Archaeology excavation team, this probably predated the Roman period and may no longer have been visible at that time. The majority of the archaeology related to this structure was found in woody peat, above which was a silty peat.

Late Roman pottery was found towards the base of the silt-rich unit, but not directly over the wooden structure. This infomation is provisional, and a report is awaited, but the discovery of late Roman pottery in such a context seems to indicate some sort of Roman land use at another place within the Great Estuary.

We must conclude that in the Roman period there was human activity on sediments of the Upper Clay. The rise in sea level that caused the introduction of the clay itself (with its associated marginal organic clays and silty peats) must have been followed by a fall that made land from the clays of Winterton Ness and the silty peat of Beccles marshes.

The causes of such sea level change are difficult to determine without further evidence, but they are probably additional to – and different from – those that have caused the 0.6mm yr^{-1} rise over the last 4,000 years. The most likely candidate could be a change in the frequency of North Sea storm surges. Sea level is a mean value, so an increase in the number of surges necessarily leads to a higher sea level.

Any change of sea level would have had an effect throughout the wetland. It is therefore possible that Romano-British people occupied temporary land surfaces on the estuarine clay. Such a surface would appear, as at Winterton Ness, following removal of the cause of any temporary rise in sea level. It must be admitted that, despite examination, such surfaces have not been seen in the clay immediately west of Great Yarmouth, but this does not disprove this hypothesis. In the Fens these surfaces are not visible in silts contemporary with the Upper Clay. Nevertheless, Roman occupation on such a land surface can certainly be inferred from the Wisbech bypass sections, as demonstrated by Alderton and Waller (1994 (Fig. 11.6)).

We should no longer be so certain that in Roman times Broadland and the site of Great Yarmouth were permanently submerged in an open inlet of the sea. The iconic representation of this feature (as in Fig. 6) has been extremely influential; and it has tightly constrained the interpretation of archaeological evidence. But perhaps we need to remember that icons are visual metaphors. Like verbal metaphors, they encapsulate complex ideas. And, also like verbal metaphors, they cannot be taken literally.

A new history would argue for a Broadland that was much more variable during the Roman period. Changes of sea level, both up and down, and possibly within a few decades, could have resulted in a temporarily dried-out marsh landscape in many places – in addition to those already known. Together with the continued presence of the Great Yarmouth bar, whose destruction is certainly not proven, this could have produced a landscape that was, at times, not very different from what we see today.

So, as the antithesis of the open estuary model, a different iconic representation is presented here (Fig. 12).

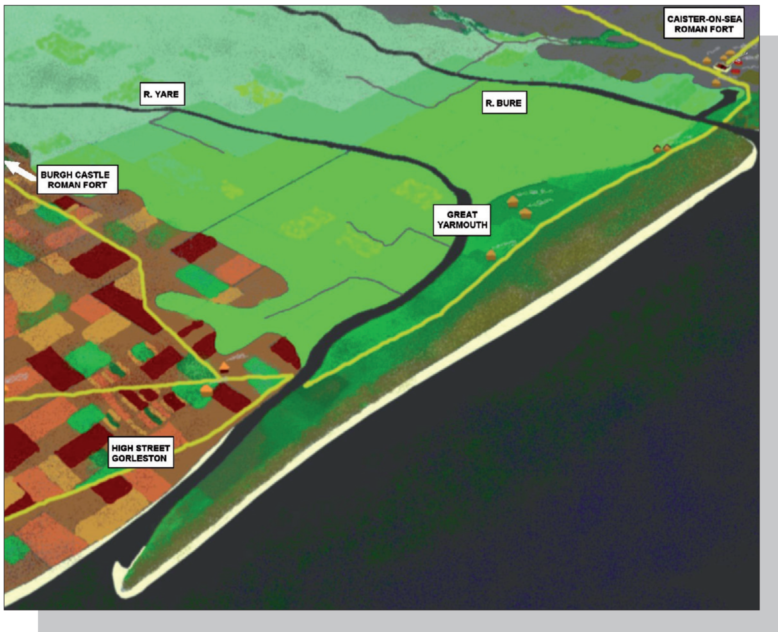

Figure 12 Reconstruction of Great Yarmouth in the Roman period.

This representation is, of course, another visual metaphor. It cannot pretend to be believable in every detail. Rather, in order to stimulate future research and debate, its intention is to pose a fundamental question.

Was Great Yarmouth really the town that grew out of the sea? Or does it sit on long-established natural causeway that, in the Roman period, was already linking the uplands to the north and south of the lower part of the Broads wetland?

BIBLIOGRAPHY

ALDERTON A. & WALLER M. (1994), «The Wisbech Bypass (Cambs/Norfolk)», in WALLER, M. (Ed.), *The Fenland Project, Number 9: Flandrian Environmental Change in Fenland,* East Anglian Archaeology, 70, Cambridge, Cambridgeshire Archaeological Committee, pp. 227-250.

ARTHURTON R. S., BOOTH S. J., MORIGI A. N., ABBOT M. A. W. & WOOD C. J. (1994), *Geology of the country around Great Yarmouth: Memoir for 1:50,000 geological sheet 162 (England and Wales),* London, HMSO.

BRAMPTON A. (2001), *Ostend to Cart Gap Coastal Strategy Study. Report EX 4342* HR Wallingford. *(www.northnorfolk.org.coastal/doc10.pdf).*

CLARKE R. R. (1941), «Norfolk in the Dark Ages, 400-800 AD, Part II», *Norfolk Archaeology,* 27, pp. 215-249.

COLES B. P. L. (1977), *The Holocene foramanifera and paleogeography of Central Broadland,* Unpublished PhD Thesis, University of East Anglia.

COLES B. P. L. & FUNNELL B. M. (1981), «Holocene paleoenvironments of Broadland, England», in NIO S.-D., SCHÜTTENHELM R.T.E. & VAN WEERING, TJ.C.E (Eds.), *Hoocene marine sedimentation in the North Sea Basin,* Special Publications of the International Association of Sedimentologists, 5, Oxford, Blackwell, pp. 123-131.

CRACKNELL B. E. (2005), *"Outrageous Waves" : Global Warming & Coastal Change in Britain through Two Thousand Years,* Chichester, Phillimore.

DARLING M. J. & GURNEY D. (1993), *Caister-on-Sea Excavations by Charles Green, 1951-55,* East Anglian Archaeology, 60, Gressenhall, Norfolk Museums Service.

GEORGE M. (1992), *The Land Use, Ecology and Conservation of Broadland,* Chichester, Packard Publishing.

GODWIN M. (1993), *Microbiozonation and microbiofacies of the Holocene deposits of east Norfolk amd Suffolk,* Unpublished PhD Thesis, University of East Anglia.

GREEN C. (1973), «Excavations on the Town Wall, Great Yarmouth, Norfolk, 1955», *Norfolk Archaeology, 35*, pp. 109-117.

GREEN C. & HUTCHINSON J. N. (1960), «Archaeological Evidence», in LAMBERT J. M., et al. (Eds.), *The Making of the Broads: A reconsideration of their origin in the light of new evidence.,* R, G, S, Research Series, 3, London, John Murrray, pp. 113-146.

LAMBERT J. M., JENNINGS J. N., SMITH C. T., GREEN C. & HUTCHINSON J. N. (1960), *The Making of the Broads: A reconsideration of their origin in the light of new evidence.,* R. G. S. Research Series, 3, London, John Murrray.

PESTELL T. J. (1993), «Archaeological Investigations on the Foreshore of Eccles Beach, Norfolk - A second interim report», *Norfolk HER, 8342*.

PESTELL T. J. (1996), «Exposure of Archaeological Features on Waxham Beach, Norfolk», *Norfolk HER, 32093*.

ROGERSON A. (1976), «Excavations at Fuller's Hill, Great Yarmouth», in WADE-MARTINS P. (Ed.), *East Anglian Archaeology Report No. 2,* Gressenhall, Norfolk Archaeological Unit, pp. 131-245.

RPS CLOUSTON (1998), *73-75 Howard Street South, Great Yarmouth,* Abingdon.

RYE G. C. (1965), «Midsands Cross, Great Yarmouth», *Norfolk Archaeology, 33*, pp. 114-118.

RYE G. C. (1980), «Great Yarmouth - Blackfriars Church», *Norfolk Archaeology, 37*, pp. 208.

SHENNAN I. (1994), «Coastal Evolution: Controlling processes», in WALLER M., *The Fenland Project, Number 9: Flandrian Environmental Change in Fenland,* East Anglian Archaeology, 70, 81-84, Cambridge, Cambridgeshire Archaeological Committee, pp. 47-48.

SHENNAN I. & HORTON B. (2002), «Holocene land- and sea-level changes in Great Britain», *Journal of Quaternary Science, 17*, pp.511-526.

TRETT M. (2004), *History of erosion and defences at Happisburgh: extracts. (www.happisburgh.org.uk/campaign/history),*

WALLIS H. (1995), *Bryants Quay Great Yarmouth to Caister-on-Sea Watching Brief,* Norfolk Archaeological Unit Report, 147, Gressenhall, Norfolk Archaeological Unit.

WELLS C. E. & WHEELER B. D. (1999), «Evidence for possible climatic forcing of late-Holocene vegetation changes in Norfolk Broadland floodplain mires, UK», *The Holocene, 9.5*, pp. 595-608.

ACKNOWLEDGMENTS

Many thanks to:

Bryan Wheeler for permission to use diagrams and data shown in figures 4 and 5; James Steward, Time and Tide Museum, Great Yarmouth; (http://www.museums.norfolk.gov.uk) for permission to include the reproduction in figure 6; Kristina Krawiec and Tom Hill of Birmingham archaeology for information on the excavation in Beccles Marshes.

AUTHOR

J W M Peterson
School of Computing Sciences, University of East Anglia, Norwich NR4 7TJ, UK
j.peterson@uea.ac.uk