# MEDIEVAL SUFFOLK AND ITS NORTH SEA WORLD: ARCHAEOLOGICAL APPROACHES AND POTENTIAL

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THIS PAPER SEEKS to explore the situation of Suffolk within the context of the North Sea world from an archaeological perspective, in the period between the twelfth and early sixteenth centuries.[1] It will examine some of the recent discoveries on mainland northern Europe which have a resonance with work, or potential work, in Suffolk, and will also discuss a sample of the innovative techniques and methodologies now being applied to sites, artefacts and ecofacts in order to extract new information.

It is perhaps useful at the outset to examine the concept of the 'North Sea World'. Historiographical referencing of this term came to regional prominence as recently as 2010 with a conference organised at the University of East Anglia in Norwich. Subsequently published in a volume edited by David Bates and Rob Liddiard, it brought together a range of essays which, in the words of Liddiard's introduction, represented 'an attempt to place East Anglia in the broader geographical and social context within which it has long been recognised to have played a part'.[2] Contributors to the conference were both archaeologists and historians, and the resulting book was divided into three sections: general overviews; medieval trade and economy; and more specialised 'influences and links', such as funerary evidence from pre-urban Ipswich and Flemish artistic connections with East Anglia.

In seeking here to concentrate more closely upon medieval Suffolk rather than East Anglia as a whole, this paper will have a sharply archaeological focus. There is a key reason for this; the paper aims to illustrate how the rich documentary background for medieval Suffolk can be both supplemented and broadened by archaeological evidence, specifically with regard to the county's maritime hinterland. This last word, hinterland, has to be used with care in English; *Hinterland* is, of course, a German word in origin and one deployed more specifically in German historiography than its use in Britain. In Germany it describes the broad economic system within which a town existed, whereas the immediate area supplying that town with its resources of food and other sustaining supplies, such as fuel, is called the *Umland* or surrounding countryside.[3] As this division of definition is not available in English, it can cause problems; exploration of hinterlands through documents alone usually results in an analysis of the *Umland* environment, the quotidian supply of any given community.[4] This paper seeks to investigate hinterland in the German sense, using archaeological data to examine evidence for the impact upon the county of Suffolk both economically and socially through products and influences from the wider North Sea region.

The significance of Suffolk's hinterland, simply in commercial terms, has recently been highlighted by Nicholas Amor in his book on the Suffolk clothier where he points out that, subsequent to the Black Death in the mid-fourteenth century, 'the surviving population and GDP of those lands that now comprise Belgium, France, Germany, Italy and the Netherlands, all key markets for English cloth-makers, [was] ten times larger than England's'.[5] Any Suffolk engagement with this enormously greater market would necessarily mean that the county became influenced by the wider North Sea world.

What is meant by 'North Sea World'? Liddiard explores the historiography of the term, highlighting conflicting views as to which areas should or should not be included within this subregion of north-western Europe. He notes 'its lack of general appeal to historians', a

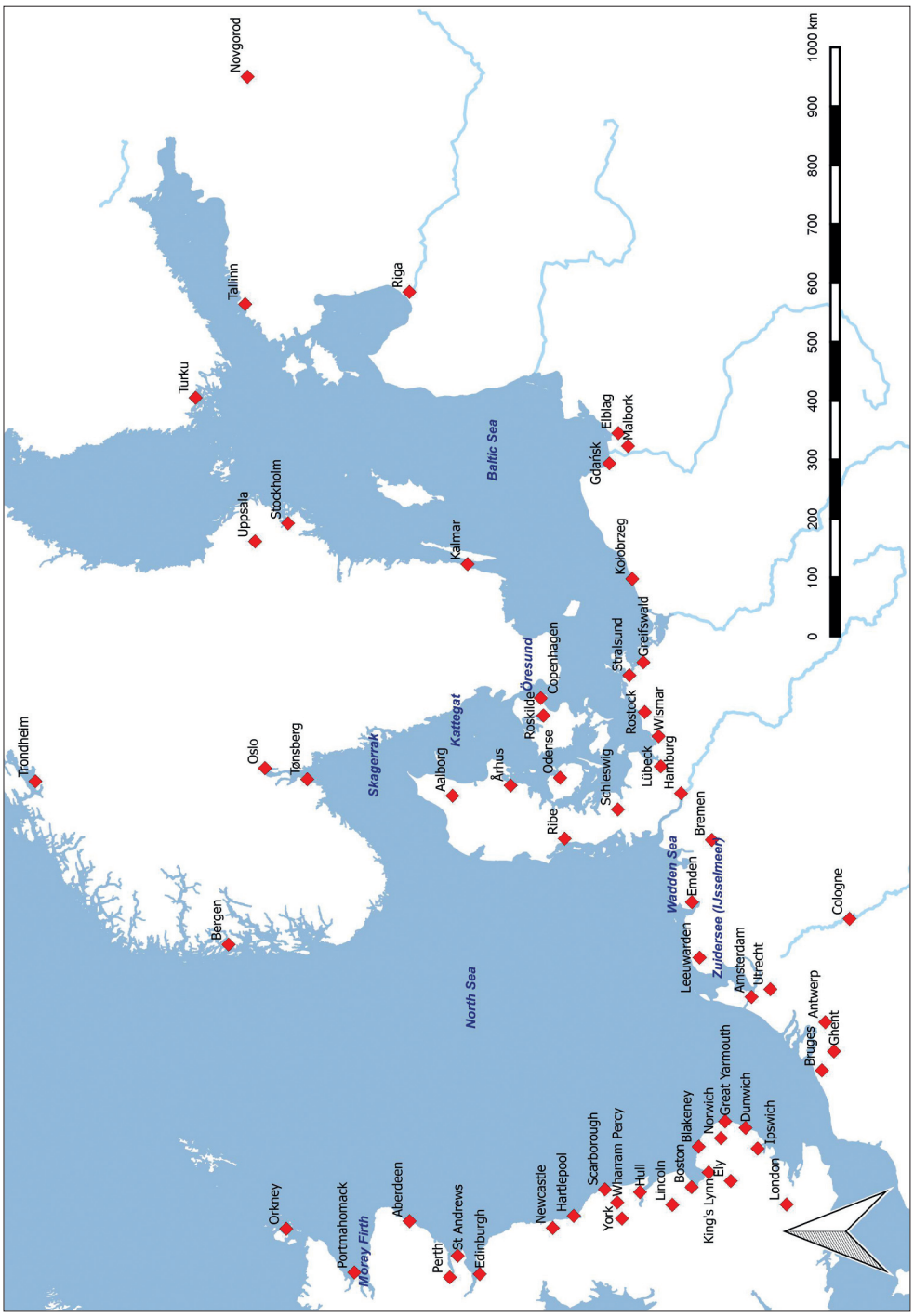


FIG. 17 – The medieval North Sea world (*map: Dirk Rieger*).

'shared narrative' missing between a traditional English medieval historiography which has tended to look south to Normandy and France, while similarly German historians have frequently focussed on German links, through the Holy Roman Empire, with Italy.[6] It is possible, as an archaeologist, to adopt a more welcoming approach, both in concept by emphasising the study of hinterlands associated with the North Sea littoral, and practicality, by exploring the types of resources and commodities which were available within the North Sea region, and which could be exploited by resident and commercial communities. This leads to a North Sea world or region which extends from the Thames estuary in the south to Iceland in the north, and from the Moray Firth in the west to Estonia in the east (Fig. 17). Suffolk, at different times in the Middle Ages, was linked to all of these areas, its clothiers engaged heavily with London, Flanders and the Baltic, and its fishing and commercial ships with Iceland.[7]

One of the attractions of studying the region is the increased awareness that such study brings of the influences of landscape and resources in the various hinterlands of the North Sea, influences which were often similar and brought similar social responses. Examples can be readily seen in both urban and rural contexts. The heathland known as the Suffolk Sandlings, for instance, brought into existence by intensive husbanding of sheep, has its parallels in the Campine region of Brabant (on the Belgian/Dutch border) where sheep grazing was also important.[8] Suffolk sheep led to fostering of the cloth industry as noticeable in the surviving urban fabric of towns such as Lavenham and, similarly, Flemish sheep contributed to the growth of urban centres in the Low Countries. As an example, in a slightly different landscape context, the probability exists that disastrous flooding of the Yser basin in Flanders in the first half of the eleventh century created salt marshes upon which sheep farms could be established. The wool of the sheep could be transported to nearby Ypres for processing and cloth manufacture via the river Ieper, a trade prosperous enough for the river to be canalised.[9]

Pastoral farming of sheep in medieval Suffolk has been well-served by historians (a good recent overview is that provided by Mark Bailey), but the potential contribution of archaeological evidence to a greater understanding of the processes involved in both sheep-rearing and the commercial trade in wool is increasingly available, notably from sites across the North Sea.[10] At Wurt Hessens near Bremerhaven for example, excavation of a *terp* mound uncovered well-preserved timber structures which were interpreted as four farmsteads grouped around a central area with a large wooden tank forming a sheep-washing facility. This dated to the thirteenth century and was clearly associated with wool processing.[11]

However, other archaeological work can challenge the concept that sheep production was solely concerned with wool production. At a slightly earlier site in Flanders called Oude Werf near Ostend, geophysical and geochemical survey, micro-topographical study, grid-based fieldwalking and subsequent excavation located an area of sheep herding where it seems likely that the sheep were slaughtered for meat rather than wool. The evidence for this was the kill-off age range for male sheep and glossed historical evidence for such coastal sheep-rearing sites known as *maresci*. Previously considered to be seasonal sites for wool production, the archaeological evidence now suggests that these *maresci* formed permanent sheep-rearing locations producing both wool and meat.[12]

The Oude Werf site was controlled by the count of Flanders and it is probable that coastal sites in Suffolk known to have been under institutional control, such as estates held by Leiston Abbey at Minsmere or Sizewell, will contain archaeological evidence of similar installations. Management of sheep in such coastal areas also required other capital investment; there is documentary evidence from Langenhoe, across the county boundary south of Colchester, for fourteenth-century expenditure on 'bridges, hurdles and raised causeways that were constructed in the salt marshes to allow sheep to escape at times of exceptionally high tide'.[13]

Tangible archaeological evidence for the keeping of sheep may, however, prove difficult to discern; as an example, while there is documentary evidence for sheepfolds in medieval Suffolk, it is likely that they may have often consisted of hedges and ditches rather than built structures.[14]

Nevertheless, the studies undertaken at Wurt Hessens and Oude Werf show the potential for the acquisition of a deeper understanding of individual rural sites through interdisciplinary archaeological investigation. Similarly, it can also be argued that the range of archaeological work currently in train around the North Sea has the potential to provide even greater contributions to consideration of the medieval period. Given the economic and time costs of archaeological work, it is important that such activity does more than illustrate the known historical record. It needs to ask questions that cannot be addressed by documentary sources and it needs to adopt methodologies which both provide new evidence for existing paradigms and enable new syntheses of understanding to emerge. The rich topography and archaeology of Suffolk can be utilised to assist this process.

An example of new approaches enhancing the history of the county has been provided by recent work at Dunwich, the medieval port almost entirely lost to the sea (Fig. 18). Here archival research, terrestrial archaeology and underwater survey utilised a range of techniques, partly exploring remains of the medieval town, but also working to plot the eroded coastline back to *c.*1000 AD in a methodology entitled 'hind-casting'. The likely extent of medieval Dunwich was reconstructed through assessment of Coastal Change Analysis (CCA) and Bathymetric Change Analysis (BCA). These techniques suggested a town of some significance, approximately 1.8km$^2$ in area, and identified major ruins on the seabed, all of which:

> went through a similar process of abandonment, partial or complete demolition, progressive collapse down a cliff, and progressive passage through the beach and inner sand bank until exposure in the trough between the inner and Dunwich sand banks.

In producing a map of the results, the summary report was able to claim that 'uncertainty in the locations is low in model terms'.[15]

Dunwich is not the only North Sea port to have been lost, either to the sea itself or to coastal change. In Flanders a major research project was initiated in autumn 2018 by the University of Ghent exploring the Zwin ports, the medieval outports of Bruges such as Damme, Monnikerede, Hoeke, Mude and Sluis (Fig. 19).[16] The Zwin estuary provided the principal trade link for Bruges but it gradually silted up at the expense of the city and with the complete loss of several of the outports. Landscape change in this low-lying area has been so profound over recent centuries that even the line of the Zwin has been controversial, much discussion focusing on analysis of historical sources or the results obtained by soil scientists. Multidisciplinary archaeological work is now clarifying matters.

The application of landscape archaeological techniques including analysis of aerial photography, the use of LiDAR and geophysics, together with DGPS-mapped fieldwalking, UAV (or Unmanned Aerial Vehicle: that is, drone)-mounted 3D photogrammetry and even molehill prospection are providing highly detailed new datasets.[17] The molehill survey was undertaken at the site of Monnikerede and its methodology consisted of examination of a total of 742 molehills, the earth being sieved with a 12mm sieve, finds being divided and quantified into object categories (pottery, building material, stones and organic material). It was a low-cost, time-efficient project and recovered data which could be analysed at both site and specific feature level, but it obviously had some drawbacks; areas of buried structures, for instance, clearly inhibited mole activity because of their impenetrability for burrowing

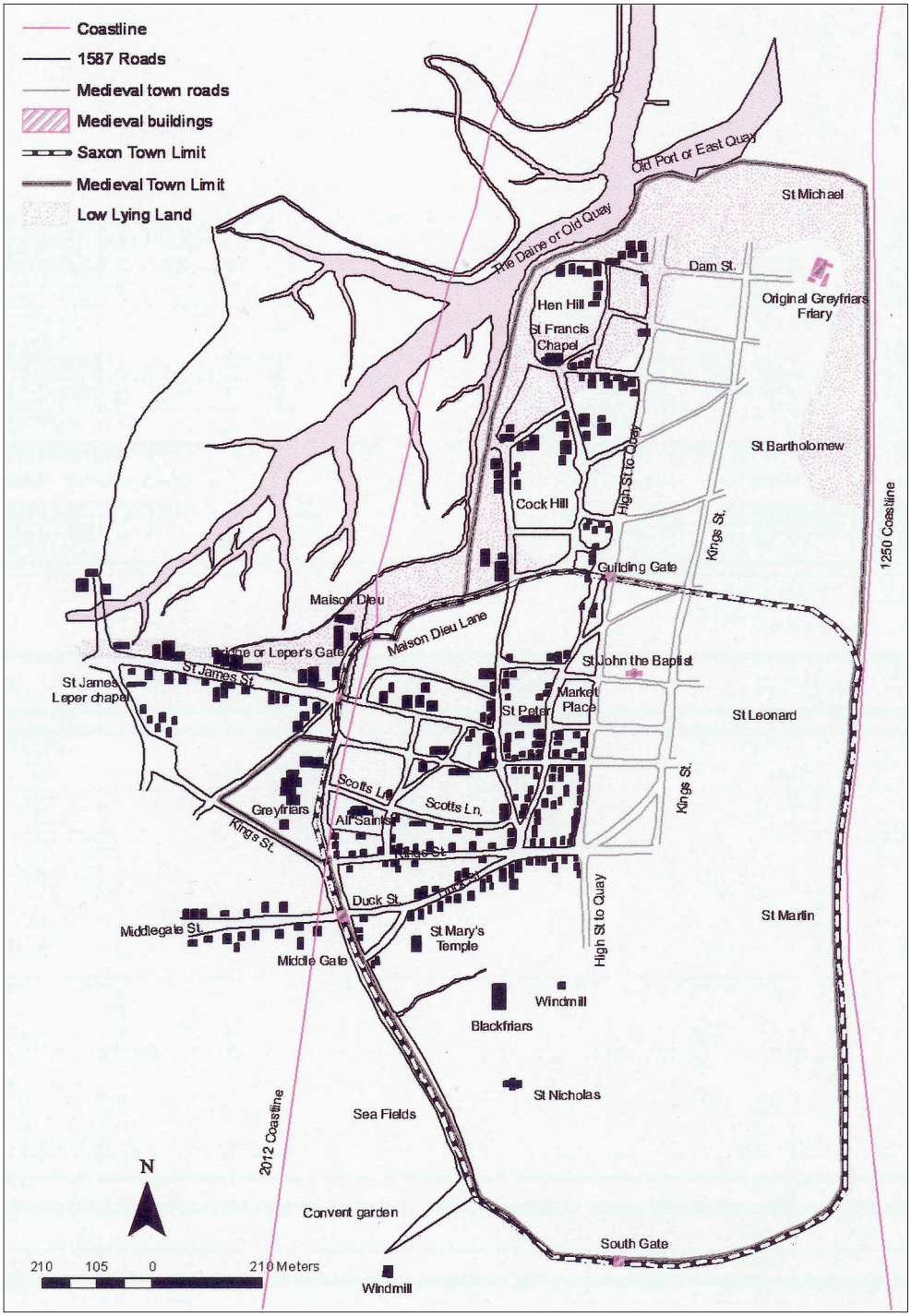


FIG. 18 – Reconstruction of the lost medieval port and town of Dunwich (*image: Sear, Murdock, LeBas, Baggeley and Gubbins 2013, Fig. 50, 118*).

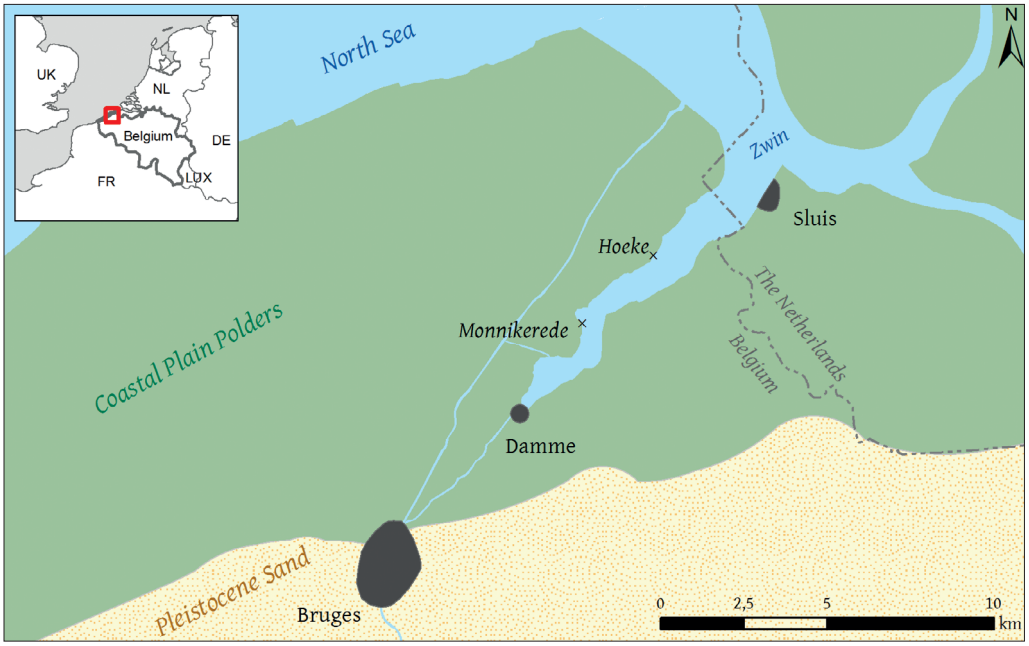


FIG. 19 – Reconstructed map of the medieval Zwin estuary below Bruges showing sites of lost ports (*image courtesy of Jan Trachet* ).

mammals.[18] Allied to other research such as geophysical work, however, it has been possible to suggest ideas about the settlement's development through time.

Similar diverse approaches to the study of a coastal settlement have been adopted at Walberswick in Suffolk where a programme of test-pitting, landscape survey and artefact analysis has resulted in an appraisal of both the development of settlement morphology and of the likely changing economic fortunes of the village. There was a perceived shift of settlement northwards from an area south of Stocks Lane and Seven Acre Lane, probably before the fourteenth century, followed by a later medieval shift westwards to concentrate on the area around the extant parish church. The shifts were no doubt associated with coastal change, but artefacts suggest that, notwithstanding disruption, the village 'continued to thrive as a relatively successful settlement and port'.[19] Finds from test-pitting and other recorded locations include pottery from the Netherlands, Germany and France in the fifteenth century implying a degree of trans-North Sea trade to supplement the documented fishing trade of Walberswick which extended as far as Iceland.[20] The test pit results were also interesting when compared with other data across East Anglia; Walberswick and Southwold were both amongst the ten per cent of locations that produced higher quantities of artefacts from later medieval deposits (post-Black Death) in comparison to the perceived slump seen in other communities, an observation linked to 'the presence of a commercial base'.[21]

The techniques in use in the Zwin estuary perhaps offer a way forward for obtaining greater understanding of the lost Suffolk port of Goseford at the mouth of the river Deben. The historical evidence of this elusive, if once clearly important port has been examined recently by Peter Wain. He concludes that 'an untried area of investigation is archaeological' and he points a way forward through both cartographic study and examination of the LiDAR map of the area. This latter illustrates the former deep water channel of the Deben in this area with the surviving 'King's Fleet' to the south and the 'Queen's Fleet' to the north, 'these early

waterways … key to the creation of this unusual early port'.[22]

Coastal change elsewhere led to the decline of ports such as Orford on the river Alde where the gradual growth of the shingle bank of Orford Ness isolated the town to its detriment as a port.[23] However, coastal change leading to the loss of a medieval port could also be a different process to that at Orford, Dunwich or in the Zwin estuary. An example is that of Lowestoft, a town where infilling of the foreshore has effectively removed the context of buried medieval activity by isolating the sea from the historic town. Medieval Lowestoft, relocated to a clifftop site in the fourteenth century, stood above the North Sea margin which can now only be glimpsed beyond industrial sheds at the foot of the slope. However, the surviving topography of the town still indicates its connection with maritime activity. The sinuous line of High Street, extending along the cliff, was (and remains) connected to the ancient foreshore area by a series of natural gullies or *scores*, surfaced and revetted as the town grew. These routes were complemented by distinctive terracing of the soft cliff below the High Street houses. This colossal process (some 1000m in length and in three steps down the slope) has been described recently, the construction 'certainly a matter of years rather than months, and it was probably carried out and completed before the house plots were set out and erected'. This seems extraordinary and would indeed have required a 'great deal of organisation and effort'.[24] To date, archaeological investigation of the process remains to be undertaken, but an indication of the type of activity that was probably required can be suggested by work elsewhere across the North Sea.

The apparently corporate medieval activity in Lowestoft is paralleled by the deliberate infilling of an extensive embayment of the river Trave in Lübeck in the thirteenth century. Here, at Große Petersgrube and Dankwartsgrube, archaeological excavation has revealed land reclamation, probably undertaken between 1210 and 1250, of the side and foot of a hill-slope. The resulting potential for the substantial quantities of infilled material to subside or slide was inhibited by a grid of horizontal timbers above which buildings were constructed (Fig. 20).[25] While the infilling process is unknown from documents, there is an interesting linguistic parallel between the kindred developments in Lübeck and Lowestoft: at Große Petersgrube, it is likely that the drying-out process for the marshy riverine environment was helped by drainage channels or *Grube*; in Lowestoft, the soft glacial cliffs had been gouged by rainwater channels which became the access *scores* (from the Old Norse *skor* meaning 'notch').

In Flanders, as well as site investigative work, the Ghent researchers are also re-examining more traditional areas of study such as painted depictions of the Zwin landscape. An important example of this is a mid-sixteenth-century painting by Peter Pourbus which has often been used for illustrative effect in discussing Bruges and its hinterland, but never previously examined with care by archaeologists. The painting is a large-scale map of the liberty of Bruges, commissioned by the city in 1571. Examination of the map involved three stages: digital processing of the painting; attaching the map elements to a geodatabase; and analysis. It used the technique of georeferencing to assign spatial coordinates to unreferenced but inherently spatial data and a technique known as Digital Thematic Deconstruction (DTD) which systematically transcribed and categorised cartographic or iconographic elements. Preliminary results are promising; as an example, a low mound depicted and marked by Pourbus as '*scaperie* [sheep farm]' was previously unknown but georeferencing meant that, although it was painted in the sixteenth-century unembanked wetlands, the surviving soil impression could be located within the now embanked polders on the Digital Elevation Model (DEM) soil and hydrology map of Flanders.[26]

Such techniques are also available in Suffolk. Digitisation of Joseph Hodskinson's 1783 map of the county has already been undertaken with publication both in paper form and online.[27] Its relatively simple approach to landscape features, together with known inadequacies in

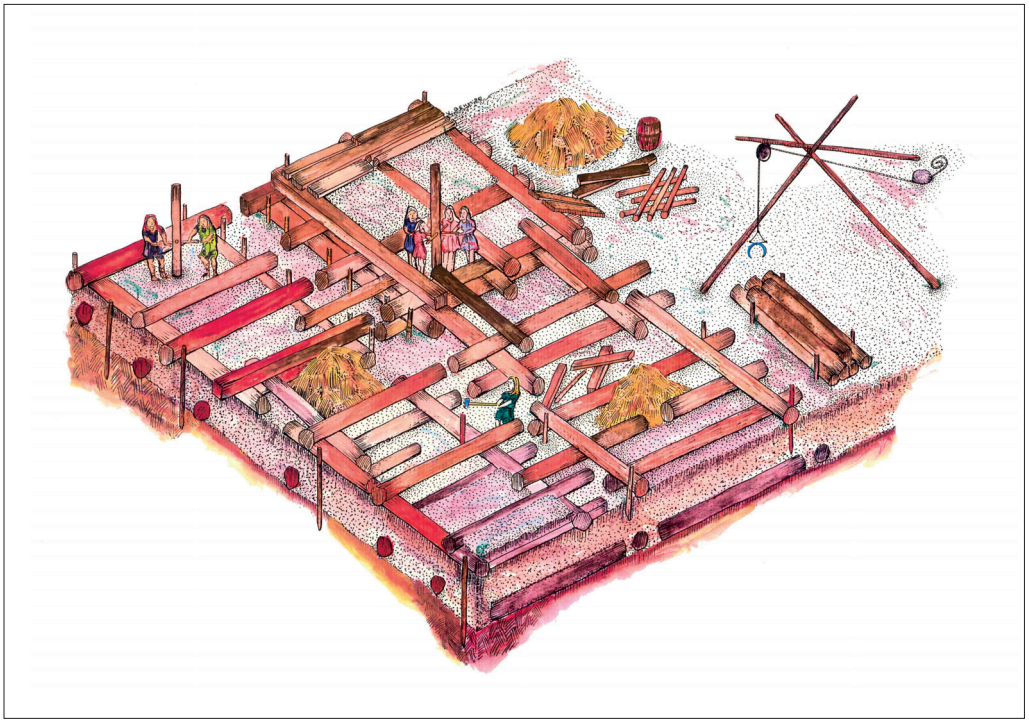

FIG. 20 – Reconstruction of boxlike infilling to effect settlement area of Große Petersgrube, Lübeck in the thirteenth century (*image: Bereich für Archäologie Lübeck*).

certain areas (as at Felsham where a 'blob of woodland … just south of the village centre' is considered by a local historian to be 'completely inaccurate') are nevertheless clearly depicted by the digital transfer and offer potential for more detailed analysis.[28] Such work could be complemented by similar digitisation of estate and other maps with comparison to modern survey as in the soil mapping used in Flanders. To date, application in Suffolk has generally been more restricted, an example being comparative visual examination of an area of Breckland near Wordwell using OS mapping and air photography.[29] It is tempting to believe that a more intensive interdisciplinary approach would produce useful results in terms of landscape use and settlement distribution.

Another aspect of research in the Zwin area has been that of analysis of stones recovered from rural sites and located within standing medieval buildings. Many of these proved to be glacial erratics of Balto-Scandic origin. A particular assemblage of thousands of such stones has been discovered at the lost port of Hoeke (where many are now incorporated into a pathway at a farm on the site). Hoeke in the medieval period was a small harbour with the staple for stockfish and quite probably a focus of German Hanseatic trade (the Lübeck Maritime Law of 1299 is the first reference to the location, *to deme Hoke*). A further interesting group of limestone boulders has been provenanced to the coastal area south of Berwick-upon-Tweed and linked to known trade between Scotland (of which Berwick was the principal port until lost to England in the fifteenth century) southward to Hull and King's Lynn before going on towards Bruges.

The most likely reason for such exotic stones finding their way to Flanders was as ballast which had to be removed if ships were to be repaired, or if the ballast was replaced with a

different kind of ballast such as sand. There is documentary evidence for the ballasting of Flemish ships with sand which was undertaken by specialised workmen called '*ballastvorers* [ballast carriers]'. In 1408 Hanseatic merchants in Flanders were given three specific locations for extracting ballast sand, two of which were close to Hoeke where a field is still known as '*De Zandpitten* [the sandpits]'.[30] Archaeological evidence for such extraction of North Sea tidal flats sand has now been recovered from the Baltic north German harbour of Wismar where paleontological analysis of fourteenth-century ballast sand noted distinctive North Sea subfossils within the material. The quantity uncovered had been loaded in a single location as it was an unmixed pure deposit; it comprised between twenty and thirty cubic metres of sand and may reflect dumped ballast of a single cog trading between the North Sea and the Baltic.[31]

The importation of ballast to East Anglia has also been documented. Geotechnical analysis has provenanced Balto-Scandic stone ballast used in the town wall of King's Lynn, a primary source being the western Estonian archipelago.[32] In Suffolk, examination of the church of St James at Dunwich suggests a Balto-Scandic provenance for igneous and metamorphic stones seen there and at least one ballast erratic is easily visible in the porch of Holy Trinity church, Blythburgh.[33] At the site of the Greyfriars, Dunwich, 'exotic clasts, mostly rounded' of igneous and occasional metamorphic rocks and probably derived from ships' ballast, were recorded during archaeological work in 2008.[34]

As well as ballast, there was a thriving trade in stone around the North Sea in the medieval period, both as building material and in the form of commodities. Foremost amongst this was material from the tufa and lava quarries near Andernach in the Rhineland. Much of the stone quarried and exported from here was controlled by the great Romanesque abbey of Maria Laach where recent research has indicated that, as well as stone, export of the masons themselves and also Romanesque design took place (possibly explaining the form of the tufa-built cathedral of Ribe on the western coast of Denmark).[35] The abbey seems to have relied upon individual merchants to market its stone, but these individuals used locations such as Cologne, Utrecht and Deventer, all ports with North Sea access and ties to Suffolk locations such as Ipswich where stone is documented amongst imports.[36]

Meinrad Pohl, who researched the Maria Laach material, has also considered the trade in medieval lava quernstones.[37] Importation of lava into East Anglia has been studied in Norfolk through examination of the incidence of lava as a building material in the churches of the county. The resulting map is useful for indicating the preponderance of Rhenish trading activity in eastern Norfolk, the majority of the churches furnished with such stone having access to Great Yarmouth, a major trading partner of the Rhineland, in contrast to those locations nearer to King's Lynn where the main focus of trade was on the Baltic.[38] A similar survey in Suffolk would presumably yield equally interesting results. Excavation data already exists for lava finds, as at High Baxter Street, Bury St Edmunds (where lava quern fragments from Germany were supplemented by the discovery of a German blue-grey handle from a twelfth- or thirteenth-century Paffrath pottery vessel) and Stowupland.[39]

Caen stone from Normandy has been identified in a number of medieval Suffolk buildings, both ecclesiastical and secular, such as at St James's church in Dunwich and the abbey at Bury St Edmunds, or as seen in excavations at Old Walton Hall in Felixstowe.[40] The quantities of imported material could be startling; at the end of the Middle Ages, Cardinal Wolsey imported 120 tons of Caen stone for his new college in Ipswich in September 1528 with a further 1000 tons expected before the following Easter.[41] The stone-carrying ships would have berthed nearby in the area south of the church of St Mary-at-the-Quay.

While St Mary-at-the-Quay is outwardly a late medieval building, its origins probably date around the time of the Norman Conquest. Interestingly, the architectural style of the churches of Norfolk and Suffolk in the late eleventh and twelfth centuries has been shown to have been

influenced by continental precursors. In a consideration of the distinctive round-towered churches of East Anglia, Stephen Heywood notes that the quadrant pilaster found in the storeyed radiating chapels of the great buildings of Bury St Edmunds Abbey and Norwich Cathedral are also known from some thirty per cent of round-towered parish churches. Citing examples of church architecture from other regions bordering the North and Baltic seas, such as Schleswig-Holstein in former Denmark, Lüneburg Heath in north Germany and Scania in southern Sweden, Heywood notes that the:

> great churches of East Anglia are very much part of the northern European taste for the turreted skyline and, in the case of Bury, the western transept is also a reference to the northern empire ... The round towers of East Anglia, seen in this context, are a very evident part of a North Sea culture which comes from the migration of peoples and the constant traffic of trade across these waters.[42]

He sees imperial (that is Holy Roman Empire) evidence in the ruined church at South Elmham where he considers it possible that the building was designed to be a conscious echo on the part of Bishop Herbert de Losinga, to intend an:

> upper storey [as] a tribune in the German manner from which the bishop would participate in the services which were being performed in the nave and chancel from a separate, elevated position.[43]

Here, two lower doorway arches supported a wider tribune arch as at Susteren near Aachen.

Ecclesiastical influence was a two-way process. Suffolk and the east of England may have been influenced by Germany, but East Anglia almost certainly influenced early church construction in Scandinavia. This was in timber, as had been the case for nearly all churches in Suffolk and Norfolk before the early twelfth century. No timber church of this date has yet to be excavated in Suffolk although it is documented that the shrine of St Edmund was a 'very large building constructed of wooden planks'.[44] In neighbouring Norfolk, however, the discovery of a previously unknown timber-built church beneath the north-east bailey of Norwich castle in 1979 has led to an assessment that this 'Norwich-type' of church was formative in the development of later stave churches in Norway.[45]

The influence of the North Sea as a conduit for contact with the continent and its resources can also be seen from furnishings still extant in Suffolk churches. The Suffolk Chests project has been examining a number of surviving medieval chests located in churches, extracting micro-cores as with the chest from the church of St Mary the Virgin, Poslingford. Here, it was established from dendro-provenancing that the oak from which the boards of the chest are made was grown in the Baltic region, probably in the area of modern Poland, with construction most likely in the last quarter of the thirteenth century.[46] Similarly, work on chests from Mendlesham suggested a date for both items before *c.*1425 using timber (pine in these instances) from northern Poland. It is possible that the chests originated as merchants' chests; 'customs accounts for the east coast refer to Hanseatic merchants bringing in cargoes with chests containing trenchers and bundles of linen', while a chest very similar to those at Mendlesham survives in St Leonard's church in Zootleeuw in Flemish Brabant. This Belgian chest has a merchant's mark on the lid.[47]

Recent work on timber provenancing suggests that for much of the medieval period, imported Baltic timber was generally in the form of boards for the construction of ceilings, chests and panelling. An example may well be the timber lining of a pit located at Star Lane/College Street in Ipswich in 2007 where the barrel staves used seem to have been of Baltic pine.[48] Similarly, a waterfront revetment excavated at Bridge Street in Ipswich, dated by dendrochronology to post 1303, was constructed of north German (presumably Baltic) oak.[49]

It was only in the later sixteenth and seventeenth centuries that constructional timber from the Baltic began to be imported. This perhaps dovetails with emerging evidence for the *export* of Suffolk timbers, albeit only to elsewhere in England, as seen in analysis of timbers from the Mary Rose where there is a distinct probability that some at least of the timbers used in the ship's construction around 1515 came from eastern England, and Suffolk and northern Essex in particular.[50]

The use of brick in medieval buildings in Suffolk almost certainly originated with imports from the Low Countries or Germany. An account roll of John Barnard, a merchant of Ipswich as well as controller of great and petty customs in the port, survives and, *inter alia*, mentions imports of brick and tiles at the end of the fourteenth century.[51] The former were described as 'wall tiles', some 42,000 being imported between 1396 and 1398 with 41,000 paving tiles. Other early use of brick in Suffolk, such as at Wingfield, the seat of the de la Poles (earls of Suffolk), might have been influenced by the brick kilns of Hull.[52] One of these was owned by the de la Pole family and transportation of bricks by sea from Hull is perhaps likely.[53] Such importation gave way to more local manufacture in the fifteenth century, as seen at Grimwade Street in Ipswich where two tile kilns were uncovered by excavation.[54]

There is surprising evidence from Suffolk that some surviving higher status secular buildings may owe their form to continental prototypes. At Letheringham Lodge, work by Edward Martin has noted the similarity of the building's location and decorative design to moated buildings in Flanders. The structure has been dated by dendrochronology to 1472–5 and it too lies within a small moat, being jettied on all four sides. It is thought to have functioned as a type of banqueting house within a park.[55]

Such architectural influences probably arose through commercial contact, often shown by pottery sherds recovered from excavations, such as those of Normandy gritty ware, Saintonge ware (from south-western France, probably associated with the wine trade), Dutch redwares and Raeren stoneware found at Star Lane/College Street, Ipswich.[56] Durable archaeological material, such as this pottery, bricks and tiles, is regrettably much less evident for the most extensive trade of Suffolk with continental Europe, that of the export of wool and cloth as known from documentation. Such perishable goods will hardly ever survive within an archaeological context. However, it is nevertheless possible to see physical representation of the trade through objects such as cloth seals which were affixed to cloth in order to attest to its provenance and quality. Alnage seals were especially important for signifying that the latter had passed inspection and occasionally alnage seal matrices are found, such as a fine medieval copper-alloy example which was offered for sale in 2019. It contained a Latin inscription which read 'S' VLNAG PANNOR' I' COM' SVFF' and could be construed as an abbreviated form of 'SIGILLVM VLNAGARII PANNORVM IN COMITATV SVFFOLCIE', which translates as 'the Seal of the Alnagers of Cloths in the County of Suffolk'.[57] A metal-detected find, it was reportedly found in north Hertfordshire, presumably lost by a travelling official.

While metal-detecting has become a present-day additional recovery mechanism of medieval artefacts, other contemporary archaeological activity is linked to the application of innovative techniques and processes to revolutionise traditional approaches to questioning. The range and scope of such work currently in train at various locations around the North Sea is astonishing. A few examples: in Scandinavia gas chromatography-mass spectrography and the use of a scanning electron microscope has provided chemical and biological analysis of tars and caulks from three late and early post-medieval ships, demonstrating use of heat-altered pine tar as well as that of birch bark tar, a methodology not previously seen in Scandinavian shipbuilding;[58] aDNA studies from teeth of the London Charterhouse cemetery burials have isolated the *Yersinia pestis* bacteria, linked to both pneumonic and bubonic plague;[59] at St Catherine's cemetery in Eindhoven, Netherlands, isolation of a genetic variant

from medieval burials is being used to help to develop gene therapies for combating HIV;[60] and palynological analysis of peat blocks discovered by excavation at the abbey at Ename in Flanders contained mosses and heathers from the type of raised bog which seems to have existed where the abbey held an estate near Kluizen, some twenty-five miles to the north on the other side of Ghent.[61]

This last example clearly indicates how archaeology can transform understanding of the exploitation of localities and possibly even wider areas. Mark Bailey has summarised some of the documentary evidence known for peat cutting within Suffolk, noting that the largest turbaries were in the north-east of the county, but also the importance of peat cutting and its export via specially cut channels or lodes on the edges of Fenland.[62] Some two-thirds of the extensive parish of Lakenheath consisted of peat fen and it can be expected that export of this product fed the hearths of locations such as the monastery at Ely, merchants of Lynn and towns and institutions further afield. Lakenheath, for example, was referred to as 'Lakingahethe' in Domesday Book (1086) or 'Laking hythe'. A 'hythe' was a landing place or an inland port and Suffolk hythes, together with their associated lodes, have been mapped by the Fenland Archaeological Project.[63] Extensive evidence for medieval salt-making was uncovered in King's Lynn in 2002–3, a practice which required salt-rich mud being washed through peat turves as filtration.[64] Palynological analysis of the peats located in Lynn might determine whether Suffolk peats were sourced for this industrial activity.

An exciting new analytical technique is that of utilising isotope analysis. This is widely known to be demonstrably useful for demographic purposes and indeed received coverage on BBC Television in 2010 when a 'History Cold Case' project undertaken by the University of Dundee identified a medieval skeleton found in the cemetery of the Ipswich Greyfriars as that of a thirteenth-century individual who originated from the area of modern-day Tunisia.[65] Perhaps less well-known is analysis of fishbone. Recent work conducted both at Cambridge and in Flanders on well-dated medieval assemblages of fishbone from sites in London, Norwich, Great Yarmouth, Antwerp and Mecheln has established a so-called 'fish event horizon' in and after the later eleventh century when marine fish consumption increased dramatically. It became evident from research that ruthless exploitation of local stocks meant that medieval long-distance trading in marine fish became more and more necessary.

This increase in fish consumption was almost certainly associated with the growth in urban populations at the same period but its results were profound both for fish stocks and the medieval economy. The research identifies a systemic change in resource acquisition with increased understanding of the environmental impact upon medieval ecosystems. As an example, it has been noted that by the late thirteenth and early fourteenth century, 'more than half of the cod specimens from London [can be] attributed to a source beyond the southern North Sea'.[66] In other words, given the available technologies at this period, the southern North Sea was already over-exploited and it is perhaps not too much to state that the origins of the modern fish stocks crisis can now be seen to have been in the Middle Ages.[67]

This fishbone research offers much that could be utilised profitably on assemblages from Suffolk. As an example, an analysis of medieval provisioning of Ghent in Flanders noted that variations in fishbone assemblages may well reflect the differing socio-economic contexts of the early *portus* and the monastic area around the church of Sint-Pieter.[68] Comparative assessment of fishbone assemblages from different parts of settlements such as Ipswich could be equally informative, although here it is interesting to note Pam Crabtree's observations with regard to animal bone where she compared Middle Saxon faunal assemblages with Late Saxon and early medieval assemblages and found 'no appreciable change through time'. She drew the conclusion that, contrary to her earlier hypothesis that Middle Saxon Ipswich relied upon royal food renders, the assemblages indicate that a market economy had been working

throughout.[69] It will be interesting to see her detailed analysis in her forthcoming monograph on provisioning Ipswich in the *East Anglian Archaeology* series.[70]

For the later medieval period there is now informative historical research both locally in Suffolk and in Iceland for fish exploitation. Amor has noted individuals such as Henry Gotkens of Ipswich 'who braved the cold waters and rough weather' around Iceland in the 1480s while, in the sixteenth century, Henry Tooley, also of Ipswich, is known to have financed ships visiting these northern waters. In Iceland itself, Vésteinsson has surmised that the late medieval fishing industry did not develop locally, probably due to conservative local landowners. These sought to ensure a population that was dependent upon a farming economy, one which could be controlled more easily than that of sea-fishing.[71] There is much here upon which archaeological research could build, seeking to determine socio-economic and environmental data from well-dated Suffolk assemblages.

Recent research has noted that, as well as fishing having an impact upon resources, so too the exploitation of rabbits shows how late medieval commerce could change landscapes and environments. Archaeological survey has now mapped extensive warrens on the lighter sandy soils of north-west Suffolk. These Breckland rabbit warrens or *coneygarths* were often monastically owned, but secular families such as the Warennes were also major investors in such agri-industrial estates. The surveys of warrens have identified earthwork banks of turf which marked the perimeters of the enclosures, as well as probable complex entrances acting as trapping banks, and 'clapper' areas which were warrens constructed within which the rabbits themselves could live. The surviving banks at Brandon and Eriswell are remarkably intact with many topped by gorse to further inhibit attempts by rabbits to escape. The warreners occupied lodges to keep watch on the rabbits with one such lodge recorded at Brandon in 1368. Surface archaeological survey of its site was undertaken in 1989 and a newly roofed, two-storey flint structure at Mildenhall warren still stands. Large quantities of rabbit pelts were exported to the Low Countries and the Baltic; it is known that some 12,000 rabbit skins were sent to Flanders in 1365.[72]

The county of Suffolk, bordering the southern North Sea, occupies a geographical position that is closer to continental Europe than to most localities elsewhere in Britain. This short paper has sought to summarise some of the potential archaeological data for exploration of medieval connections across the North Sea and also the types of new evidence which are being used to investigate sites, artefacts and ecofacts. As has been seen, the range of evidence is often comparable between Suffolk locations and those elsewhere in northern Europe. It is indeed tempting to view the North Sea not as a sea at all but more of a lake, one with different but often very similar lakeside communities around its edge. In 2013 Tom Williamson published a map of the region viewed *from* the north rather than *towards* the north as is more common.[73] It enables much easier consideration of this 'lake' concept, with eastern England and the Low Countries leaning towards each other rather than away, and encourages appreciation of both geographic proximity and the consequent cultural stimuli that helped to foster interaction. Understanding of this interaction in the medieval period is being enhanced by new, often interdisciplinary, approaches on both sides of the North Sea and can bring great rewards, as illustrated by the data now available for the use of fish resources in the past which offers access to knowledge of systemic change both in resource provision and in the economics of past commercial fishing. The work in the Zwin estuary of Flanders, which is enabling exploration of the immediate environs of Bruges, has approaches which could also be utilised in Suffolk. Similarly, at Dunwich techniques employed for the underwater exploration of a lost settlement may well have application for work in the Netherlands where a large number of wrecks are known off the island of Texel.[74]

Ipswich has featured much in the foregoing and it is perhaps appropriate therefore to

conclude with observations concerning Ipswichian individuals and an artefact which is both an artistic and a technological example of trans-North Sea interaction. Henry Tooley was buried in St Mary-at-the-Quay, Ipswich, as was another early sixteenth-century merchant, Thomas Pounder. The fine memorial brass to Pounder and his wife survives, and its very existence underlines the links of Suffolk with the North Sea world.[75] It is not an English brass, but a Flemish one, medieval Flanders having long been notable for the quality of such memorials. The production centre was Tournai from whence brasses were sent to Germany, Poland, Sweden, Norway and Denmark as well as to England.[76] This splendid artistic survival, from the end of a medieval period that saw timber, stone, bricks and other continental materials and resources benefitting the county, is further testimony to the role of Suffolk and its citizens as integral parts of the greater European economic and cultural world.

## NOTES

1 I am very grateful to Abby Antrobus for her helpful comments on a draft of this paper.
2 Liddiard 2013, 7.
3 Perrin 2002, 11.
4 Galloway 2005 is full of interest on the rural hinterland of towns, but the maps alone in his paper illustrate the essential localness of much of the discussion.
5 Amor 2016, 67.
6 Liddiard 2013, 6.
7 Amor 2011, *passim*.
8 De Keyzer and van Onacker 2012, 2ff.
9 Verhulst 1999, 108.
10 Bailey 2007, 214–19.
11 Siegmüller 2010, 67–70; Ayers 2016, 12–13 and fig. 1.4.
12 Ervynck *et al.* 2013, 153–62.
13 Rippon 2000, 203.
14 ' … in 1462, one John Becon was fined for erecting a sheep-fold on demesne-land where he had no right to do so …', Dymond 1974, 205.
15 http://www.dunwich.org.uk/resources/documents/dunwich_12_report.pdf, 126–128 (Accessed 16 July 2019).
16 Image taken from https://biblio.ugent.be/publication/8644182.
17 Trachet *et al.* 2015.
18 Trachet *et al.* 2017.
19 The river Blyth broke through to the sea at Walberswick in 1249, Bond 2007, 156; Collins 2017, 73.
20 A lost account book transcribed in 1754 apparently contained the information that Walberswick had '13 barks trading to Iceland, Farra [presumably the Faroë islands], and the North Seas' in 1451, Power and Postan 1933, 173.
21 Lewis 2016, 7933.
22 Wain 2016, 582 and fig. 217; for a detailed assessment combining historical and scientific research, see Bailey *et al.* 2021.
23 Bailey 2007, 87.
24 Butcher 2016, 91.
25 Gläser 1999, 84; Ayers 2016, 155.
26 Trachet 2018.
27 http://www.hodskinsonsmapofsuffolk.co.uk.
28 http://felshamhistory.blogspot.com/2012/04/hodskinsons-map-of-suffolk.html.
29 http://www.breckslandscape.co.uk/assets/files/researchToolkitFullRes.pdf.
30 De Clercq *et al.* 2017, 727, 729 and fig. 11.
31 Ansorge *et al.* 2011, 161–73.
32 Hoare *et al.* 2002, 91–105.
33 Dixon 2005, 15–16.
34 Boulter and Everett 2009, 4.

35 Pohl 2014, 267.
36 Amor 2011, 118.
37 Pohl 2010.
38 Ashley *et al.* 2009; Ayers 2016, 22 and fig. 1.8.
39 Antrobus 2009, 213; Timberlake 2019, 80–1. The Stowupland material is thought to have been imported through Ipswich.
40 Dunwich: Dixon 2005, 15; Bury St Edmunds: Antrobus 2009, 87; Felixstowe: Fairclough 2008, 405.
41 Page 1975, 143.
42 Heywood 2013, 268; see also Heywood 2012.
43 Heywood 2014, 183.
44 *construxit per maximam miro ligneo tabulato ecclesiam*, Arnold 1890–6, I, 19.
45 Ayers 1985; Ahrens 1994, 41–3.
46 See 'Archaeology in Suffolk 2007', *Proc. Suffolk Inst. Archaeol.*, **41**, 541.
47 Simpson 2008, 58–9 and fig. 4.
48 Heard 2014, 19 and plate 2.
49 Hillam 1985.
50 Bridge 2012, 2831 and fig. 1.
51 Amor 2011, 50–1 and 72.
52 Ayers 2016, 100.
53 Allison 1969, 57.
54 Amor 2011, 101–2 and plate 2.
55 Edward Martin, pers. comm., within lecture available online, http://www.letheringhamlodge.com/lectureletheringham-lodge-a-tudor-wonder/ (Accessed 27 April 2015).
56 Heard 2014, table 4; earlier imports include a Frisian *Kugeltopf* and a Flemish greyware storage jar of probable mid-eleventh-century date from burned cellared buildings at the Buttermarket, Ipswich, Blinkhorn 1991.
57 https://hansonslive.hansonsauctioneers.co.uk/m/lot-details/index/catalog/38/lot/15446?url=%2Fm%2Fview-auctions%2Fcatalog%2Fid%2F38%3Fpage%3D4.
58 Abstract for conference paper by Laura White of the Institute of Nautical Archaeology, Texas A&M University, USA given at the 13th International Symposium on Boat and Ship Archaeology held in Amsterdam in 2012, http://european-maritime-heritage.org/docs/conferences/ISBSA13%20Program.pdf (Accessed 11 November 2015).
59 http://www.crossrail.co.uk/news/articles/new-research-shows-crossrails-charterhouse-skeletons-were-black-death-victims (Accessed 18 January 2015).
60 Pringle 2007, 45–9.
61 Deforce *et al.* 2006, 141–53; Jongepier *et al.* 2011, 77 and 79–80.
62 Bailey, 2007, 93–4.
63 Spoerry 2005, 94 and fig. 5.4.
64 Cope-Faulkner, 2003.
65 http://www.bbc.co.uk/pressoffice/pressreleases/stories/2010/05_may/02/history.shtml.
66 Barrett *et al.* 2011, 1522.
67 Numerous papers have been published on the fishbone research; Barrett and Orton 2016 provides an excellent overview.
68 Van Neer and Ervynck 2016, 161–2.
69 Crabtree 2018, 104–5.
70 Crabtree 2021; initial information on the assemblages of fishbone from Ipswich is available online via the Archaeology Data Service for the main phases of excavations between 1974 and 1990, including reports and site archive data, https://archaeologydataservice.ac.uk/archives/view/ipswich_parent_2015/downloads.cfm?archive=Text.
71 Amor 2011, 183; Webb 1962, 71ff; Vésteinsson 2016, 75–7.
72 Ayers 2016, 79–80 and fig. 3.3; Bailey 1988; Mason 2010; Pluskowski 2013, 169–71.
73 Williamson 2013, map 1.
74 Vos *et al.* 2019, map on 28.
75 Blatchly and Northeast 2014.
76 Ayers 2016, 95.

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