

1.2 BROAD CHARACTER: INDUSTRY

1.2.3 CHARACTER TYPE: PROCESSING INDUSTRY

REGIONAL PERSPECTIVE: EAST ANGLIA

INTRODUCTION: DEFINING/DISTINGUISHING ATTRIBUTES

The main processing industry in modern day East Anglia is the food processing industry. This is partly a result of the dominance of agriculture in the region but also because of the prevalence of water which is crucial for many such industries. As a result a number of food processing centres are located on the coastline including the large Birds Eye complex at Lowestoft.

Chemical works are seemingly rare in East Anglia, although a large chemical works is situated on the edge of Walton Backwaters in Great Oakley. This produces the cetane improver 2-ethyl hexyl nitrate, and also provides specialist explosives handling services. The factory is famous for its fatal explosion of 1928 which killed five people.

Iron and steel works are equally rare but can be found in the larger port towns such as Harwich and Great Yarmouth. The lack of iron and steel works may be attributable to the fact that East Anglia has never become heavily industrialised.

As a matter of necessity there are numerous sewage works in the area, close to the water sources, although most tend to be removed from areas of natural beauty. Locations include Caister, Kessingland and Sizewell on the open coast, on the banks of the Alde and Stour and at Ditchingham and Brundall in the Broads area.

Spoil and waste dumping sites can be found offshore, particularly around Harwich Haven and include a site at the Inner Gabbard and a disused dump near Roughs Tower. The Inner Gabbard site is used for dumping annual dredging spoil from Harwich Harbour and is being used for the development of the port of Felixstowe.

There are no nuclear reprocessing installations in the region and lime and salt working industries are limited to historical examples. Other processing industries include small examples of water works and saw mills.

HISTORICAL PROCESSES; COMPONENTS, FEATURES AND VARIABILITY

Processing industries in East Anglia have traditionally been small scale and associated with agriculture. The region has been dominated by agriculture since the medieval period and did not undergo Industrial Revolution on the same scale as other regions. This has been attributed to many factors including the lack of fast-flowing watercourses on a gradient which could be used to power water mills (Williamson 2006).

Perhaps the earliest maritime-based processing industry in the region was salt production which may have begun in the Bronze Age (Hegarty and Newsome 2005, 55) but was certainly in existence in the Iron Age. Salt-working sites were originally located on the edge of the tidal zone, probably just above the reach of maximum high spring tide (de

Brisay 1975; Fawn 1990). Containers were used to collect brine and were then heated to boiling point, evaporating the water and eventually leaving crystallised salt.

The industry expanded considerably in the late Iron Age and Roman periods and is represented in the coastal landscape of Suffolk and Essex by 'Red Hills'. These are mounds of industrial waste reddened by fire, sometime surviving as reddened patches of ground which can be up to 60 m in diameter. Salt was essential to the Roman economy, used for preserving meat and fish, for tanning and for making garum (fish sauce). It is believed that the origin of the word 'salary' is related to the partial payment of Roman soldiers in salt. In addition some roads and ports may have been built specifically to ensure the provision and transportation of salt (www.heritage-key.com).

The presence of extensive salt marshes in north Essex and Suffolk made the area ideal for salt production and these are the core areas for Red Hill survival. It has been suggested that their distribution reflects the Iceni/Trinovantes boundary (Hegarty and Newsome 2005, 57), although this is conjecture.

Approximately 400 Red Hill sites have been identified in Essex as a whole and 60 in north east Essex, although only c 30 have been found in Suffolk which has a smaller area of saltmarsh. The sites are more commonly situated in southern Suffolk including the Blyth, Alde, Ore, Orwell and Deben estuaries and the Alderton to Hollesley marshes. A possible site was identified at Easton and would be the most northerly example (Good and Plouviez 2007, 38). Although it is possible that more northerly examples may have been lost to erosion, the cliff dominated coastline would not be suitable for salt processing (Hegarty and Newsome 2005, 58). In north Essex numerous Red Hills are concentrated around the Naze/Hamford Water area.

Salt production in the region continued into the medieval period and Domesday records a number of salt pans along the coast including 118 salt works in south east Norfolk. These were essential to the herring fishing industry in this area and intricately linked to peat extraction in the Broads which provided fuel for the process. One was also known to have been constructed as part of Henry II's development of Orford in the 1160s.

Salt processing declined but did not disappear in the post medieval period (Williamson 2005, 42). A saltworks was founded in Southwold in 1660 by charter of King Charles I to support the fishing industry. Here brine was channelled by a wind pump into evaporating pans (www.southwoldmuseum.org). The saltworks was at its peak in 1750 with a warehouse at Blackmore Wharf capable of holding more than 1000 tons of salt (Williamson 2005, 43).

The salt and fishing industries were hit hard by the salt tax of 1702-1825 which made it cheaper to import salt from the continent. However Southwold continued to produce salt and the Free British Fishery was established there in 1770. The works discontinued in 1893 but staved off complete closure until 1900 by exploiting the tourist industry – offering brine therapy as a bath house (www.southwoldmuseum.org).

During the late medieval period a major textile industry developed in East Anglia as a result of the local wool resource and the proximity to the ports of the North Sea and estuaries which allowed easy transportation. Woollen cloth was

produced on a large scale in South Suffolk and North Essex as early as the 13th century but expanded enormously over the 14th and 15th centuries (Williamson 2006, 64). The principal manufacturing district for wool was the Stour valley.

By the 14th century wool exports were in decline and the cloth industry became key. This was facilitated by proximity to the continent from where specialist Flemish wool craftsmen were encouraged to emigrate to England, avoiding war and floods, principally by Edward III who was married to a Flemish princess. Different types of cloth production became widespread, including worsted production in eastern Norfolk, named for the village of Worstead. Linen was also produced from hemp on a large scale, mainly concentrated on the Waveney valley.

A second wave of Dutch workmen fled from religious persecution in the 1600s and settled in East Anglia bringing further prosperity to the cloth industry. At this time the industry became dominated and somewhat crushed by the clothiers of London; however Norwich stood alone and thrived into the 1850s.

With this exception the East Anglian textile industry ultimately went into decline in the 18th century when cloth production became mechanised in northern Britain. East Anglia did not have the fast flowing watercourses or coal to keep up and rejected changes to the old processes such as the Spinning Jenny.

The legacy of the once prosperous wool and cloth industries can be seen in the built environment in the region, particularly around the Stour valley. A string of soaring Perpendicular 'wool churches' extends from Lowestoft, through Covehithe, Kessingland, Blythburgh, Southwold and Walberswick.



The post mill at Thorpeness

As outlined above grain production dominated East Anglia for centuries resulting in two processing industries for flour and malt. Both were once again facilitated by proximity to the North Sea and estuaries which supplied an endless supply of water and a mode of transporting the goods.

Windmills were a late addition to the grain processing industry in East Anglia (Williamson 2006, 70), although a simple form of windmill called a post mill was used from the 12th century in which the entire body turned to face the wind. Water mills were the main form of processing grain in the medieval period.

A tidal mill existed in Woodbridge from the 12th century and is mentioned in an early charter when Baldwin de Ufford granted the tithes of the mill to the Austin Canons of Woodbridge Priory. The present structure was built in 1793 and its working life ended in 1957. It is the last tide mill in England whose machinery is still capable of grinding corn. The tidal range of the Deben here is 3-4 m and a large quay was located close to the mill.



View of the Tidemill at Woodbridge and historic boats

Grain production increased in the 18th and 19th centuries in order to feed the expanding population of the industrial north leading to technological developments in grain processing. Tower mills were introduced, in which the cap of the mill could be turned into the wind and in the late 18th century the fantail mill was created, turning the cap automatically into the wind. In 1807 Norfolk engineer William Cubitt invented the 'patent sail'. Southdown mill in Great Yarmouth, built in 1812 was 31 m high and probably the tallest in Europe at this time (Williamson 2006, 71). Water mills were also revolutionised as wheels became larger and more complex, necessitating complex schemes of engineering to create larger mill ponds. This resulted in the characteristic East Anglian mill; large and weather boarded with a large mill pool (ibid, 73).

Malt production became significant in the 19th century, although numerous small malthouses were in existence before the 18th century. Manningtree became a major centre of the Essex malt industry in the early 19th century due to its proximity to the Stour estuary, with five sites in operation by 1875.

Barley was delivered and malt dispatched by boat from the docks. This was later eclipsed by the huge multi-storey maltings in adjacent Mistley.

The enormous Snape maltings was built on the River Alde in the 1800s, at the already busy port of Snape. Malt was traded from here on Thames Barges to London and the continent. The maltings is now famous as a world renowned concert hall with a suite of shops and galleries, following its closure in 1960.



The converted Snape Maltings complex

Smaller processing industries were also established in the area in the post medieval period, taking advantage of its coastal and estuarine facilities.

Copperas, found as nodules on the coast and in river valleys, was one of the foundations of the modern chemical and pharmaceutical industries (Williams and Brown 1999, 21). It was used in the metallurgical industry and extensively in the textile industry which was so important to this area. Copperas was used to make chlorine, used as bleaching agent in the 17th and 18th centuries and as a dye fixative for woollens. Other uses include as printers ink, a tanning agent for leather and in the manufacture of gunpowder (<http://www.eng-h.gov.uk>). The copperas industry is considered to be the first heavily capitalised industry (Williams and Brown 1999, 21).

The copperas industry was centred on Harwich and Ramsey, near Walton and has left its mark on the landscape in terms of place names. For example, the area around Wrabness on the bank of the Stour contains regions known as Copperas Bay and Copperas wood. A large area of seabed just offshore of Frinton is also known as 'Copperas Ground'.

A coprolite (fossilised animal dung and bones) processing industry also developed on the Suffolk coast in the 19th century. Coprolite is located between the London clay and the later crag deposits which exist in the region and is phosphate-rich therefore making good fertiliser when processed. Although there was a recorded case of coprolite spreading in 1717 near Levington (Simper 1986) the industry took off in the 19th century when an efficient refining process was discovered which efficiently extracted the phosphates.

Shipping records from Ipswich indicate that in the late 1800s coprolite was a major import (ibid), presumably originating in the surrounding countryside. Stonner Point in Waldringfield on the banks of the Deben became a centre for coprolite shipping after a quay was built by Thomas Waller of Sutton Hall c. 1850 specifically for this purpose.

The coprolite industry was very profitable for a short while and two major manufacturers existed in the area – Edward Packard and Joseph Fison. The first Packard factory was in Snape on the Deben but moved to Bramford near Ipswich. This was also the site of the Fison factory and the two were amalgamated in the early 20th century, becoming the industrial giant Fisons. The coprolite industry declined in the late 19th century, possibly as a result of the influx of cheap raw materials from abroad although there was some suggestion that the supply had become exhausted (Berridge 2004).

A cement making industry was established in the 19th century on the basis of processing locally obtained septaria from deposits such as Beacon Cliff and Cobbolds Point, Felixstowe. Septaria was gathered, broken up and burned in kilns to form fine cement powder. By 1835 there were five factories in Harwich. However as a result of the mining, Beacon Hill headland rapidly eroded and Harwich harbour silted up. The works were closed in the 1860s, partly as a result of the damage and partly because of the rise of the Portland Cement industry on the Thames (Essex County Council 1999). However a cement works was constructed at Waldringfield on the Deben estuary in 1872 and was described as an ‘industrial inferno’ before closing in 1907 (Edwards 1991, 46).

Small scale lime production was also present, as attested by place names in the region such as Lime Kiln Farm and Lime Kiln Cottages. Beaumont Quay was constructed in Hamford Water in 1832 at the head of a cut, taking advantage of a straight, deep channel. The land was owned by Guys Hospital who used the stone of the demolished London Bridge to build the quay. A lime kiln was constructed shortly after the quay and survives in the modern landscape.

Brick production was also carried out using locally sourced clay with centres at Ipswich and Aldeburgh as well as numerous smaller examples.

VALUES AND PERCEPTIONS

Overall, the processing industry in East Anglia, which has been so intimately connected to the coast and estuaries, is somewhat overlooked today. The textile industry is revered in some quarters and the town of Lavenham in Suffolk stands almost as a monument to the industry. There are remnants of the industry in Norwich and its significance is illustrated by the creation of the Norwich Textiles

project (<http://www.norwichtextiles.org.uk>). However for the majority of the community, this along with the later post medieval industries are all but forgotten.

Specific features rather than landscapes remain important such as the tidal mill at Woodbridge and Snape Maltings. The perception of the latter has been drastically altered due to its role as a concert hall and tourist attraction.

More modern industries such as chemical works and sewage plants are often viewed as blots on the landscape, noisy, smelly and sometimes dangerous.

RESEARCH, AMENITY AND EDUCATION

Some research has been carried out into the small processing industries on a local level such as coprolite and copperas. However there is scope for much larger studies into these industries and use within the education system as case studies.

The salt industry is well researched and understood, however more evidence is identified by processes such as the RCZAS and NMP. The Suffolk RCZAS found five salterns in estuarine sites to add to the known record.

The Norwich Textiles project is a good example of both research and education. This is collaboration between Norfolk Museums & Archaeology Service and the Norwich School of Art and Design. It involves local researchers and curators contributing to providing a comprehensive resource on the long standing textile industry in Norwich. In addition, students and practitioners working within a modern textiles environment have created a contemporary perspective on the Norwich textiles story (www.norwichtextiles.org.uk).

Most modern processing industries are amenities in some way and particularly sewage works. Although they may not be popular they are critical to local communities.

CONDITION AND FORCES FOR CHANGE

Most of the industries discussed above are no longer in existence in their original form and surviving features are rare.

Red Hills are relatively common and well recorded and a number of water mills are preserved and maintained. Remnants of the textile industry are limited to the built environment in the form of the wool churches and domestic dwellings in settlements such as Lavenham and Manningtree. Some industries have completely disappeared including coprolite, and copperas.

Some industrial complexes have been converted to other uses, most notably Snape Maltings which is a successful tourist centre.

RARITY AND VULNERABILITY

As discussed above a number of these processing industries have disappeared altogether. Remains of coprolite extraction pits and associated infrastructure have been identified but most are within arable fields which have been ploughed.

Although much is known about the Roman salt industry in the region, Red Hills are also often at risk from cultivation. An increasing number of reclaimed marshes are ploughed resulting in salt working sites remaining only as cropmarks (as identified during the Suffolk NMP project) or being removed altogether.

Some features are particularly rare including the Snape maltings complex which to some extent preserves elements of the old industry.

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