

Neolithic Geography and *La Manche*

David Field

English Heritage

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***Nu-mohk-muck-a-nah* and the Great Flood**

During his journey along the Missouri in the first half of the nineteenth century, George Catlin described the annual ceremonies commemorating the great flood recorded in the mythology of the Mandan Indians. In the centre of the village was a wooden structure over two metres in height made of planks and bound by hoops called 'the big canoe' and thought to be a representation of the boat that came to rest on a mountain after the flood had subsided. The ceremony began when a representation of the first man, Nu-mohk-muck-a-nah approached the village to much feigned consternation and after being recognised and welcomed, entered a ceremonial building which, duly swept and cleaned had green willows placed on the floor along with animal and human skulls. He then approached each household in the village and related the flood story, explaining that he was the only survivor and that it was necessary to sacrifice stone tools to the river in order to avoid a further flood. Having obtained a pile of axes and knives from the villagers, they were placed in the ceremonial building until eventually thrown into the river during the final part of the ceremony. Catlin noted that the place chosen was a high bank on which the ceremony would appear impressive alongside a deep part of the river where recovery would have been difficult (Catlin in Matthiessen ed 1989, 152-4).

Examples of this sort of behaviour can be found from the Mesolithic onwards along the Thames, although whether the reason for deposition is similar to that recorded by Catlin will remain unknown. During the Neolithic, for example, clusters of stone and flint axes, apparently quite evenly spaced, have been located along the river from Kingston in Surrey to Chelsea (Adkins and Jackson 1978). Formerly considered to have been losses from boats, or at fording places, or during battles, explanations of ceremonial deposition are more readily accepted today. Artefacts are also frequently encountered in other wet contexts, marshy areas or fen environments: a depositional practice which is widespread within and beyond the region, although actually not published widely. The jadeite axe from Breamore, Wiltshire, for example, appears to have been deposited in marshy ground adjacent to the River Avon and it maybe that the example from Canterbury come from a similar context along the Stour (Cambell Smith 1963). Examples of these axes were in use on the continent during the fifth millennium with coastal and riverine distribution in the southeast *could* mark out our earliest (pre-monument) Neolithic.

Such deposits in marshes and wet places are frequently found on the continent, notably in Denmark and the Netherlands, both in protected areas such as inlets and fiords along the coast and inland around lakes and marshland, (Davidsen 1983; Fischer 2004, 28; Wentink 2007). Koch (1999), for example, has described a series of offerings in Denmark, including whole pots and axes that were placed in open shallow water in what were then lakes and streams. Sometimes skeletons of animals and humans are found nearby. Two of the humans had cords around the neck implying that they may have been strangled before deposition in the water. One lay next to a canoe that had been fixed in position by vertical poles with a fire at one end and it was suggested that it may have initially been placed in the boat. Occasionally wooden platforms at the riverbank are found in association.

Floods

Myths similar to those recorded by Catlin may have been widespread. In 1665, during a French expedition to Lake Superior, for example, the local people were said to regard the lake as a spirit, and offered it sacrifices (Dods 2003). There were also practical concerns; disruption, obvious concern for safety and livelihoods, may mean that unlike the annual Nile flood, these events were far from welcomed and resulted in the 'appeasement of water deities' Brown (2003).

Catastrophic floods were not, of course, confined to North America or to the Middle East. One factor potentially creating turbulent times in the North Sea area may have been the tsunami, thought to have been created by a landslide off the coast of Norway that inundated the coast of east Scotland and Northumberland at c5800calBC (Long *et al* 1989). This must certainly have reached well into Doggerland but it is unclear as yet whether its effects were felt in North Kent. Certainly the repercussions will have been felt in terms of displaced individuals and tales of destroyed settlements and livelihoods.

Accounts of dramatic storms and floods certainly occur in historic documents. A storm of 1099AD, for example, is mentioned in the Anglo-Saxon Chronicle '*In this year also at Martinmas, the incoming tide rushed up so strongly and did so much damage that no one remembered anything like it before*' (trans Garmonsway 1953, 235). It was probably this that was interpreted by Giraldus in his *Itinerarie of Wales* and subsequently seized upon by Lambarde in 1570 for his *Perambulations of Kent* to explain the apparently flooded Goodwin Sands which, '*being sometime maine land and of the possession of Earl Godwyne was then first violently overwhelmed with a light sand, wherewith it not only remaineth covered ever since but is become withal a most dreadful gulfe and ship swallower, sometimes passable by foot and sometimes laid underwater...so that it might be said either sea, or land, or neither or both*'.

In one way or another, the impact of water might have been the single most important influence on the lives of Neolithic people in south east England, both in terms of an overriding spiritual and symbolic relationship and also in its effect and influence in shaping the very form of the land. The south east is surrounded on three sides by water and the coastline itself is extensive, while rivers dominate a considerable part of the land mass. Thus in terms of geography, both rivers and coast provide important points of reference. The location of springs provides a definitive reference observation or back sight, while the river itself always leads to the sea and provides orientation. Tilley (1994) describes the pathways alongside watercourses in Australia, while in Papua New Guinea, Siberia and probably elsewhere, territories were based on river basins (Jordan 2001). It may be worthwhile considering Neolithic settlement in this light.

Flooding of the channel

Bryony Coles (1999) emphasised that Doggerland was a place and not simply a land bridge whereby people accessed Britain. She suggested that the former coastal landscape would have been undulating in a manner similar to that of Jutland, though any precision in plotting ancient coastlines is difficult as, while providing a guide, bathymetry does not provide all the detail; isostasy and eustasy and the rate of rock erosion also play a significant role. Coles therefore cautiously described her maps as 'speculative'. She argued for a chain of hills leading northwest from the Dogger Bank, but considered it likely that there will be other glacial moraines and so on. Indeed long tunnel valleys, originally created by water beneath glaciers are present to the southwest of the Dogger Hills.

The coastal areas, particularly the estuaries support a great variety of resources today (Edwards & John 1998: Doody 1998: Irving 1998: Pawson & Robson 1998a and b: Tasker 1998: Evans 1998: May and Law 1998a) and they are likely to have done so in the past. Initially, these are thought to have attracted people but as the coastline receded, the focal point will have shifted until Doggerland was left as a series of islands. The occupants of these places, always more numerous than those of the interior, moved as well, some shuffled with the coastline, others shifted inland to absorb or displace those already living in those places (Coles 1999). Towards the later Mesolithic, the receding coastlines, diminishing islands and river estuaries will have, relatively speaking, been highly populous with almost all economic niches occupied. Increasingly, there may have been similar problems inland. Jacobi (1981), for example, described Hampshire towards the end of the Mesolithic as a land where there was little room for newcomers.

The configuration of the shrinking islands between East Anglia and the Dutch coast highlight the possibility of contact with, or memory of, TRB settlements north of the Rhine. The typical rectangular sectioned axe is present in Britain; although rare it has a widespread distribution, although examples are invariably written off as lost or jettisoned by recent travellers and collectors. Some may be, but several derive from reasonable contexts, including one from peat in Yorkshire, two from barrows where they were presumably curated into the Bronze Age, and crucially one from beneath the central mound of Julieberries Grave, Chilham. Given this situation and due caution, there is no need to doubt the authenticity of the find from Canterbury or others further inland.

Regarding the Channel, the general view is that the river system was carved much earlier in the Pleistocene (Gibbard 1988; 2001; 2007: Hamblin *et al* 1992), perhaps during the Cromerian or Anglian Stage (Hamblin *et al* 1992, 75). It may have been at this time that the Straits of Dover were established by the overflow from a glacial lake, and the chalk ridge, cut when ice sheets in the North Sea blocked drainage of the Rhine northwards and a lake formed dammed by the chalk ridge. Successively, the col was eroded and the waters finally cut through the chalk to form a cliff lined valley into which the Rhine and other rivers subsequently drained. The Rhine was further directed along this course during the Wolstonian by glaciers in the Netherlands and was joined by the Meuse and Thames and their combined influence, sometimes referred to as the Greater Rhine, resulted in cutting of the Lobourg Channel to accommodate it. The rivers returned to this course during the Devensian but rising sea-level slowly flooded the banks until c 5800bc a marine connection between the North Sea and the Channel was established (Eisma, Mook & Iwan 1981).

Several tributaries feed into the northern Lobourg channel, among them submerged lengths of the Sussex Rivers Adur and Ouse, all bracketed in the west by a major palaeo-tributary, the former River Solent that joins the main channel to the east of the Isle of Wight. Hamblin *et al* (1992) suggest that these channels may date back to Anglian or Cromerian in origin. Off Sussex, the palaeo-channels of the rivers Adur, Ouse, etc., can be traced to their former confluence beneath the sea. Work by Sanjeev Gupta of Imperial College London has recovered extraordinary detail of the palaeo-channel of the Arun, complete with river terraces, and even the valleys of tributaries cutting through the bedrock ridges on either side of the ancient river valley (Gupta *et al* 2004).

Before this marine contact, the North Sea and English Channel were simply separate embayments in the North European coastline, separated by a stretch of low land in the area of the Dogger Bank. It is likely that the tide in the Channel would have responded in a similar manner to that in the Bristol Channel today, being funnelled up into an every narrowing river valley. In probability the tidal range would have been enormous and like the Severn, there

may have been a bore (Garry Momber pers comm.). The tidal range would have allowed access to extensive mud flats and encouraged a great deal of foreshore subsistence activities. With full marine contact, the nature of the Greater Rhine river system is likely to have changed dramatically, with the North Sea tide influencing that of the Channel for the first time. The full tidal range would have been lost and communities relying on coastal subsistence forced to seek alternatives. Further, tidal turmoil is likely to have initially disturbed the plankton and consequently much of the food chain.

The extent to which high topographical positions still remained above the surface is open to conjecture. Most of the rocks between eastern England and the adjacent mainland are relatively soft and easily sculpted, dissolved or washed away by tidal scouring. Only the durable properties of seams of flint and chert present in the chalk and Greensand are likely to have retarded the process. The Frisian Islands off of Netherlands and Germany survived, and further out into the North Sea, Helgoland (Holy Land). Alongside the widening Channel it is just possible that an island survived off Dungeness.

For communities along the coast, the irregular surges of sea-level rise demanded appropriate responses to the changing Channel environment. By the Neolithic, much of this area, formerly occupied, must have been underwater, and we can envisage the need for an incremental moving inland, with high water events sending ripples of activity into the interior. Islands, increasingly abandoned, may well have continued to be useful stopping points, left as 'stepping stones' between Britain and the Continent. In such a context, it might be necessary to re-think traditional explanations of material culture found in the region. Two Michelsberg style axes (*ca.* 4200–3600 BC) dredged from the seabed of the Brown Bank off the Netherlands (Jan Glimmerveen pers comm.) may have been an export on its way to England (but it could equally have been travelling in the other direction). However, the Brown Bank, would have been 10m deep in water when this apparently significant object was deposited, and another plausible suggestion might well be that, like the river deposits, it was deliberately deposited in an area which in recent memory had been dry land.

Geomorphology and natural earthworks

Within this kind of geography it is clear that the river valleys became of great importance in terms of a settlement conduit. The nature of such valleys change dramatically according to the position upstream and the width of the flood valley that was available for utilisation, but there was another landscape, that created by the river itself. Brown (2003) pointed to the liminal nature of riverine islands and how they have often been treated as 'no mans land' or ritual places, while Bradley (2000), Richards (1996) and others have highlighted the riverine location of henges in the later Neolithic. The plan form of Marden, in Wiltshire, where the river is incorporated into the circuit mimics an ox-bow lake and it could easily be that, given the shortage of known henge sites, meanders or ox bows in the lower Thames provided a similar role. If one sees the purpose of ditches as, say, keeping evil spirits away, then water channels could act in a similar manner. Indeed Brown argues that channels provide 'natural ring ditches' and it is perhaps easy to imagine how curved silted channels perhaps with natural levee banks alongside might be perceived as former earthworks or as templates for mimicking nature with human constructions. Other monuments occupied the valley floor. Silbury Hill is the major site, but the triple ditched barrow at Irthlingborough, contemporary with the construction of Silbury III, and containing 184 cattle skulls is, as Brown pointed out, located on an island in the Nene along with several other barrows. Lockington, with no grave goods, but rich secondary deposits (Hughes 1996), is surrounded by palaeochannels. And there is evidence that Wessex river valleys carried a larger number of round barrows than is generally recognised including the famous Upton Lovell golden barrow, just one of a cemetery of seven on the lip of the riverbank alongside the River Wylye. The shifting nature

of Holocene rivers makes it unlikely that existing islands such as Magna Carta Island, Tagg's Island, Eel Pie island took their present form in the Neolithic, but the braided nature of the Thames in some places in the Neolithic as suggested by Penn and Rolls (1981) is likely to have left a good number of shifting islands at any one time. Place names such as Isleworth, Battersea, Chelsea, Thorney, Putney, Bermondsey, remind us of the presence of recently obscured islands while names such as Mortlake and Brentford help illuminate the riverside topography. The nature of the landform is that it continually shifts, changes and transforms. Nothing is static.

Beavers

There is a tendency to reconstruct past landscapes as though *Homo sapiens sapiens* was the only species in it and that environmental impact was all that of prehistoric farmers, but there is another contribution to the morphology of the river valley. In a volume about the earthworks of North America written in 1894 Lindesey Brine (1996) described the effects of beavers around Lake Superior. The enormous dams, one eighty metres in length and nearly two metres high, that blocked the rivers and created lakes within which a lodge was built. The lodge was 2.5m diameter and shaped like a rounded beehive with the floor well above water level, the exterior comprising inter-twined sticks while the interior was plastered. Two entrances led to the river bank and a third to the middle of the pond. In order to obtain the correct timber, the beaver dug canals into the nearby woodland along which they would float trunks. One such channel noted by Brine was a metre wide and was traced for half a mile. But Brine considered the greatest effect on the landscape was that the dam changed the character of the surrounding area and made it swampy, eventually killing the trees that were left. When the lodges were abandoned and the rivers resumed their normal course the land dried out and became fertile grass meadow. These 'beaver meadows' were sometimes of considerable area and one area described was said to have supplied enough fodder for cattle that supported the local mining settlements. One was said to supply 50 tons of hay annually.

Writing of wetland in more recent times, Dods (2003) thought that beaver represented a common agent of change that linked wetland and forest. Trees are cut by beaver, while natural water channels are blocked and diverted. The influence of beaver on the landscape is therefore profound. The construction techniques, cutting and moving timber for structures and dwellings are mimicked by humans and it is of no surprise that their relationship with humans extends to beliefs of metaphorical shape shifting between the species, at least among indigenous north Americans. The life of the hard working beaver is considered to provide a role model for human society. While noting certain unmistakable differences when contrasting beaver and Inuit constructions, Ingold (2000) pointed out that beaver inhabit 'an environment that has been decisively modified by its forebears, in building dams and lodges.....the same goes for human beings'.

Bryony Coles has written of the effects on the riverine landscape of Beaver and according to her catalogue, they were certainly present in Neolithic contexts alongside the Thames at Eton Rowing Lake, Runnymede, Offham, Friars Oak, Sussex, Mar Dyck, Essex and Dorney, Bucks. They may have been responsible for the cluster of timber and brushwood in a channel of a braided river at Kingston-upon-Thames (Serjeantson *et al* 1992). We therefore have a situation where part of the flood plain of various rivers was probably already occupied and modified by animals in the Mesolithic: landscape change in such cases was therefore started by animals rather than humans.

We can get a general idea from Jordan's work (2001) on Saami societies of the intricate manner in which people in this period might have utilised whole drainage systems, as well as the complex symbolism that was probably involved in the designation of and value given to

different places in the landscape. In Britain, it was not just belief and mythology that might be influenced by the rising tide, but settlement patterns and everything else along with it. Theoretically, containing the greatest resources and being well placed for all manner of communications, the areas around the mouths of rivers are likely to have been congested, but can we for example, detect ripples of activity moving up river valleys and into the interior and overtopping into the uplands as difficulties increase? The process envisaged is similar to Stephen Jay Gould's theory of Punctuated Equilibrium, whereby waves of activity occur at intervals between periods of consolidation. The impact, both along the coast and inland, are of course difficult to model, but given that the southeast is a good place to study the repercussions of climate change and build on the work of the underwater mapping, it should be possible to construct models for testing. It may even be possible to identify a *friction* horizon further upstream where the ripples of immigrants and new ideas repeatedly have an effect on the indigenous of that area.

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