

“The origin of the Sarsen stones in Boxford, Suffolk”

by Roger Loose for The Boxford Society.

At the centre of Boxford, a medieval wool village, stands this fine sarsen. It lies at the end of the Croft, an old trackway opposite the White Hart, and was probably put there as a mounting block. Because it is so obvious and impressive it has caused much discussion as to its origin. This stone and the unlikely local theories about its origin have led me on a fascinating search for the truth. On the way I have discovered at least a dozen other sarsens in the village itself and I have so far recorded over 150 around the parish, mainly on private property. This is remarkable, for in Suffolk large, hard stones are rare indeed. It is a county mostly covered in glacial till and outwash from the Anglian ice sheet, which left clay and sands often mixed with broken flint nodules and small pebbles deeply covering the underlying chalk.



This stone is particularly interesting because it has a bumpy “mamillated” surface, unlike many of the others in the village. It closely resembles a sheep according to my grandchildren. Interestingly 19th century geologists originally called these stones “grey-wethers” using an Old English word coined by the farmers of Wiltshire because they resembled their sheep. Next to it, but nearly hidden by plants in this picture, is another smaller, smooth stone of similar type incorporated into the corner of the building, probably as protection or a boundary marker.

These stones have been found over centuries and placed for various purposes within the area. You can find several in and around Butchers Lane and more along Swan Street poking through the pavement and now obstructing the footpath. These and others to the left of the entrance to Wynne House and at the “pinch” in Stone Street were probably placed to protect the walls and houses so close to the edge of the road. There used to be one at the end of the bridge next to the Post Office, but it was removed in 2009 when the bridge was rebuilt. It is likely that the attractive stone (see photo below) now at the other end of the bridge beside the entrance to the Surgery is that same stone relocated. You can currently see two or three small ones in the Box river bed next to the Surgery driveway. A recent placement is the War Memorial stone near the Fox and Hounds at Groton. This was originally found by the plough in 1972 about 500 metres away in a field between Butchers Lane and the Groton Brook. It is very a fine specimen, as is the mounting block nearby at Groton Church entrance, and the several placed outside houses along Groton Street.

Most sarsens are too heavy to have been moved very far by man in past times. They were dragged

to their present locations by horses or, more recently, tractors and diggers. As we have seen in Boxford, they were useful as boundary and way markers, horse mounting blocks, protection for the corners of buildings from passing carts and occasionally as foundation stones. In Roman times the stone was possibly used for querns to grind corn. However, they are reported to be rather unsatisfactory as a building material, being too hard to shape easily and because they are said to attract the damp.

Often sarsens have a yellowish or dark brown “patina” or finish on them, like that in the picture below, taken beside the Surgery entrance next to the bridge in Boxford. This staining was deposited when iron minerals were brought to the surface of the rock and left behind by evaporating water in hot, dry, climatic conditions millions of years ago when the rocks were exposed and weathered. They frequently have quite small conical holes in the surface, which occasionally go right through. These are undoubtedly natural and some geologists believe they may be the result of the weathering out of iron concentrations formed by iron rich water at the time the rocks were being cemented. There is however no trace of iron in or around the holes. From my own observations I prefer the other view, that they are fossil plant root holes. The plants must have grown on the young sands as they emerged from the sea. The holes are often filled with a fairly soft, whitish, natural “cement”, presumably deposited later from a younger cover of rocks above.



“Sarsen” is an old Wiltshire name from the Stonehenge area, possibly derived from the word Saracen meaning “heathen” stones. They are now more formally called silcretes by geologists. They are found in many places in South East England around the rim of the London Basin, particularly where the young Tertiary rocks are to be found overlapping the chalk. Geologically speaking, this includes the extreme southern part of Suffolk where Boxford lies. Mostly they are today found as single stones, except where man has brought them together. However, several large ones have been found here lying close together in a short row, forming a single layer about half a metre thick. This one from that row lies in the valley bottom close to its source.



As I have said, large, hard stones are very rare in Suffolk and in other parts of the London Basin. Because such stones were considered unusual in past times, they were often revered or feared and dragged to prominent or significant places, the best example being the outer ring at Stonehenge. These stones were the subject of superstition, myths and legends. They were probably part of pagan worship too in the very distant past. It is thought that some in Hertfordshire may have originally marked sites of prehistoric tribal religious meeting places which were subsequently adopted as sites for churches. Indeed, Pope Gregory in AD601 said in a letter to those bringing Christianity to Britain: “Do not destroy these stones the heathens venerate, but incorporate them in the churches you build, thus will the heathens more readily come to you”.



The Groton War Memorial sarsen, dedicated November 2000

Records show that they were often thought to be “devil stones” and were deliberately destroyed by fire or explosive. One superstition in Essex was that they “grew” in the soil. They were therefore destroyed in case they blocked rivers or destroyed crops when they became larger. The Boxford parish records reveal that in 1548 “a great stone was removed from the river for use, at the cost of 2d”. We do not know what it was used for or where it was placed.

Where did the sarsens in Boxford really originate? It is often said locally that they are “erratic” boulders carried by the ice sheets from some distance away. Whilst a few may have been moved very short distances by ice, most are definitely local in origin and were part of the “solid” geology beneath Boxford. They show no signs of the typical scratches that would normally be visible on “erratics”. Had they been dragged and ground along under the ice meeting sharp flints and other rocks in the clay such scratches should be visible, even though the sarsen is very hard,.

Sarsens occur in situ, often in patches, just above the chalk strata buried below Boxford and in similar geological locations to the South and East in Suffolk and Essex and the rest of the London Basin. Ipswich has a collection of over 300 found when the dock was excavated in 1845 and again when piles were driven for river defences in 1975. They are not found to the North or West of Boxford, from which direction the ice sheet came. The strata in which they were laid down do not continue above the chalk in that direction. The ice sheet could not therefore have picked sarsens up “upstream” of Boxford and dropped them as “erratics” as it moved across the area. They therefore have their origin directly in the rocks under the parish.

How were sarsens formed? They were first laid down about 55 million years ago early in the Tertiary Period, initially as sand, when this part of the England was a shallow, tropical sea with a very humid climate. Geologists are now confident that these sandstones were formed at the

beginning of the Eocene epoch and they occur towards the base of the strata known as the Woolwich and Reading Beds. There was considerable global warming around this time caused by the release of carbon (probably from the sea) which raised temperatures by around 6 degrees Celsius. Global warming inevitably caused a major rise in sea level which provided ideal shallow water conditions for the deposition of these fine-grained sandstones.

When the sea eventually retreated, the sandstones were exposed at the surface under very hot conditions. Similar exposure probably happened again much later in the Miocene epoch around 20 million years ago. At the surface they were soaked in silica rich groundwater percolating through loose sediments and rising upward under these hot conditions. The silica was precipitated and a chemical reaction took place which cemented the sandstones to form the very hard silica based rock we recognise as sarsen or silcrete. The rock is patchy in occurrence probably because the silica rich conditions needed to produce it were patchy. Some of these rocks are more than 90% silica, hence their density and hardness.

It is possible that when they formed, quite significant patches of South East England were briefly covered with this rock which was later broken up and largely destroyed by weathering and erosion. The large, hard broken rocks which remain have often fractured naturally along fairly straight joint planes and the result is sometimes a roughly cuboid shape. They often have at least one “flat” side or edge and can be slab-like.

The remaining exposed stones were later covered by other newer, softer rocks which were in turn weathered and partly eroded. Quite recently in geological time – less than half a million years ago – the Anglian ice sheet covered the whole area to a considerable depth as it spread across East Anglia from the North and West. The sarsen stones and other younger rocks were covered by very thick Glacial Till laid down by the ice and outwash deposits as it melted. In this part of Suffolk this cover often consists of sands and gravels as well as clay. During the melt, powerful rivers flowed vigorously South East in this part of Suffolk towards a much lower sea level. They cut deep valleys into the weak glacial deposits and the solid rocks below, exposing the sarsen stones and other rocks in the valley sides and bottoms. Meltwater, high rainfall and an absence of vegetation also led to much movement of gravels and sands on the valley sides thinly covering the stones.

More recently our much slower rivers working to a higher post-glacial sea level have tended to fill these valley floors with alluvium also helping to cover the stones. As a result sarsens are usually discovered around Boxford just below the surface very close to rivers and streams and even in the bed.



A farmer's collection of sarsens gathered over many years

The origin of the often very attractive and unusual “mamillated” surface sometimes seen on sarsens is uncertain (same derivation as “mammary”, meaning breast-like). One possibility is that it happened during silica cementation and was caused by expansion during crystallisation. A highly unlikely theory is that the sandstone was originally deposited onto a pock-marked, scoured surface which moulded the under surface of the new layer of settling sands before cementation. This seems to be disproved by our “sheep” stone in Boxford and others I have seen, since several faces can show mamillation, not just a single face. I have also noticed from the few rocks found more or less in situ that it is most frequently the upper surface which is mamillated.

Man has found these stones during the digging of pits and quarries over the past 1000 years to find chalk, sand and gravel for agriculture and building. After removing the covering layer of glacial material in South Suffolk, quarrymen will have sometimes found sarsens before reaching the “older” chalk below. At Fyfield Down west of Marlborough in Wiltshire these rocks were found in very large numbers close to the surface during prehistoric times. It is thought that they were dragged 18 miles for the construction of much of the outer ring of standing stones and lintels at Stonehenge. Clearly the sarsen had great mystical significance. There are more sarsens at Stonehenge than there are “Bluestones” which form the inner ring and were brought 240 miles from Pembrokeshire's Preseli Hills in Wales.

Occasionally, around Boxford, stones of the same geological age and origin as sarsens take the form of “Puddingstones”, but they are rare here. So far I have found only two in the area that I can positively identify. They are called Puddingstones because they contain many water-worn, rounded flint pebbles cemented with silica and resemble a plum pudding. Geologists call “concrete-like” sedimentary rocks of this type with rounded pebbles “conglomerates”.

In much of Hertfordshire and parts of Essex there are many occurrences of “Puddingstones”. They have been dragged to significant places including high points and churchyards and clearly have been much revered in the past. Puddingstones were formed in similar conditions at about the same time as sarsens, but around the edge of a very shallow sea where rivers had brought down many small, well-rounded, water-worn flint pebbles from the eroded chalk. These were further worn by the wave action and washed up onto the beach in a matrix of sand as we often see on Suffolk beaches today. Like sarsens, they too were cemented into a very hard dense stone by the silica rich

groundwater when they were later exposed by falling sea level.

Post script:

Since the initial publication of a shorter version of this article in the Box River News in April 2012, I have received information on sarsen locations from many local people for which I am very grateful. Several people have told me about where some local sarsens were actually found in situ, undisturbed by man until their recent discovery – usually the result of deep ploughing, when tractors superseded horses. These stones mainly came from the valley of the River Box or its tributary valleys, for example, the Groton Brook. This confirms my view that, around Boxford at least, they have normally been unearthed, both in the past and recently, from just beneath alluvium on the valley floor or the sand and gravels on the valley sides.

It makes one realise how many more must still lie buried beneath a half a metre or more of soil, undisturbed for millions of years.