

# STAR CARR

## A GUIDE FOR TEACHERS

### Background

Star Carr is an archaeological site, about five miles south-east of Scarborough in the parish of Seamer. It lies today next to the River Hertford. It was first extensively excavated by the famous archaeologist, Sir Grahame Clark.



It is a site where a group of people chose to settle by on the northern edge of a now filled in lake, the former Lake Flixton. These were people of the Early Mesolithic and their artefacts at the site have been dated to between 11040 and 10450 BP (before present).

The Early Mesolithic occurs after the end of the last ice age. The Ice Age was at its height around 20,000 years ago and began to wane after 15,000 years ago. Britain was then occupied by Late Upper Palaeolithic peoples until a sudden cold spell between 12,900 and 11,600 years ago.

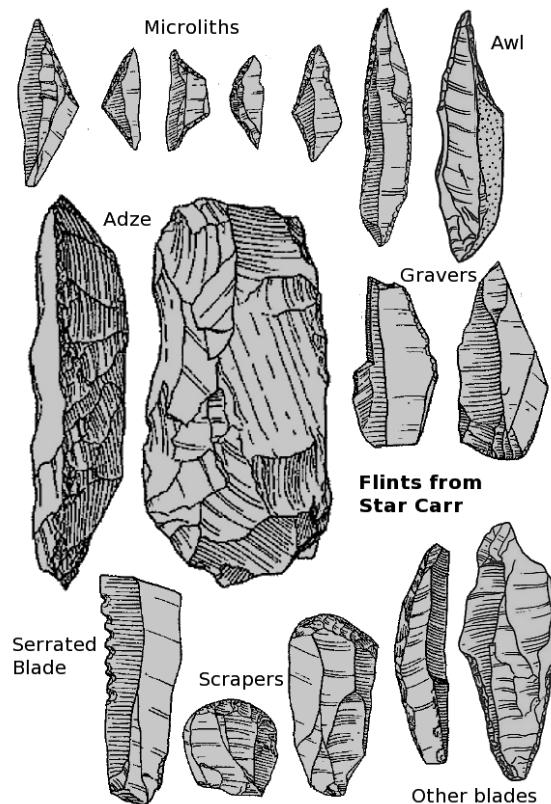
The climate warmed up again from 11600 BP, and eventually Britain was clothed in birch and pine woodland, with woodland animals like red deer, roe deer, wild boar, elk and aurochs (wild cattle). People moved back into Britain and adapted their culture to living in, and exploiting, the new woodland. This culture is the Early Mesolithic.

As the ice melted, the sea level of the oceans rose. By 11600 BP, there was still much ice to the north of Europe and America, and sea levels were lower than today. The southern half of the North Sea was still dry land and connected Britain west to east across to Denmark and Germany.

Archaeologists call this connection Doggerland. It would have been a rich place to settle with a lot of resources and people would have settled across the whole area between Britain and Denmark, and shared a common Early Mesolithic culture.

Mesolithic people used the bow and arrow to hunt, and were helped by domestic dogs. They also

fished from canoes and coracles for at sea, on rivers and lakes. They made a range of characteristic tools, including flint axes and adzes for woodworking. Their most typical stone tools are called microliths: very small blades of flint that are carefully chipped into various pointed and geometric shapes. These were used by slotting them into wooden or antler hafts. Their arrangement in the hafts could be varied. Some would be arrowheads, while others could be knives or other tools. Antler and bone were also shaped into tools, such as spear and harpoon points with jagged teeth, or wedges and scraping or smoothing tools.



The story of Star Carr is like that of many archaeological sites. As more excavations take place, new finds are made. As more archaeologists study the site, new ideas about it are put forward and old ideas are changed. This is still true today with the modern excavations led by the University of York.

### Why is Star Carr special?

Star Carr is a very special site. There are various reasons for this:

- it was where a pioneering approach to archaeology was first tried, integrating ecological and archaeological studies;
- it preserved in its peat the finds of bone, antler and wood which revolutionised our view of Mesolithic people in Britain;
- it provided the earliest evidence for domestic dog in Britain;
- it has the earliest carpentry in Europe;
- it has the earliest house yet found in Britain;

- it has more than 20 red deer antler frontlets, unique in Britain and very rare in the rest of Europe.

### **How was the site discovered?**

The site of Star Carr was discovered by a local amateur archaeologist, John Moore. Moore was one of the founders of the Scarborough and District Archaeological Society in 1947, and had begun looking in the fields of the Vale of Pickering for possible sites. He soon found a flint blade in the side of a drainage ditch in Flixton. He then found more sites in the area and began drilling into the ground to look at the soils and map the edges of the lake that used to exist there. By 1951, he had found 9 archaeological sites and defined the edges of the lake (around 2½ miles long by 1 mile wide, it would have been 8 metres deep).

Moore's fourth site was at Star Carr. Scarborough Museum put Moore in touch with Grahame Clark at Cambridge University. Clark was the foremost British expert on the Mesolithic. He had written the first survey of the period in Britain in 1932. Clark knew about the Mesolithic sites in Denmark, which were preserved under peat and had surviving wooden, bone and antler remains, which would normally rot away on most archaeological sites. Clark was keen to find a waterlogged Mesolithic site in Britain to compare with the Danish ones. In 1948, the Council for British Archaeology had published a report which identified finding such a Mesolithic site as a priority for British Archaeology. In that same year, Clark was contacted by Moore about his finds.

It was obvious from Moore's finds that Star Carr was exactly the site that Clark had been hoping for, preserved under the peat of the former Lake Flixton. All previous Mesolithic sites in Britain had only yielded stone tools, everything else having rotted away. Star Carr promised to be very special.

Moore had dug a small trench at Star Carr in 1948, and Clark excavated there from 1949 to 1951, and published the results in 1954. The site was instantly famous. This was for two reasons. The excavation recovered a lot of organic finds (bone, antler and wood) and revolutionised how people saw the Mesolithic. Furthermore, Clark had not just excavated the archaeological remains but also carried out environmental investigations and placed the archaeology into its landscape and climatic context. This was not normally done and Clark began a whole new approach to integrating archaeology and environmental studies.

### **What did Clark find?**

Clark excavated trenches within an area 21 by 24 metres across. Within this, he found archaeological remains spread over an area 15 and 17 metres. He thought he had therefore excavated the whole of the Mesolithic settlement. Later work showed he was wrong about this.

The excavation revealed an area of brushwood laid down on top of the reed swamp at the edge of the lake. Clark thought this was where people had lived. Clark was an innovative archaeologist and made use of the new technique of radiocarbon dating to date the site with one specimen of tree dated to 9488 bp (we now revise this with a more accurate measurement to 10830 BP).

Clark found the remains of many plants and animals. He also identified which could have been used for food and other uses by the people at the site.

#### **WATER PLANTS**

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
Chara sp.	green alga	
Hippuris vulgaris	mare's tail	

<i>Nuphar luteum</i>	yellow water lily	seeds
<i>Nymphaea alba</i>	white water lily	seeds, flower buds
<i>Potamogeton lucens</i>	shining pondweed	
<i>Potamogeton natans</i>	broad-leaved pondweed	
<i>Potamogeton pectinatus</i>	fennel pondweed	

#### SWAMP PLANTS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Carex rostrata</i>	bottle sedge	
<i>Carex strigosa</i>	thin-spiked wood sedge	
<i>Cicuta virosa</i>	cowbane	
<i>Cladium mariscus</i>	great fen sedge	seeds
<i>Eleocharis uniglumis</i>	slender spike rush	
<i>Epilobium palustre</i>	marsh willowherb	
<i>Equisetum</i> sp.	horsetail	
<i>Filipendula ulmaria</i>	meadowsweet	leaf flavouring
<i>Lycopus europaeus</i>	gipsywort	
<i>Menyanthes trifoliata</i>	bog bean	rhizomes
<i>Phragmites communis</i>	common reed	sugary sap, rhizomes, stems
<i>Ranunculus flammula</i>	lesser spearwort	
<i>Ranunculus lingua</i>	greater spearwort	
<i>Rumex hydrolapathum</i>	water dock	
<i>Salix</i> sp.	willow	leaves, timber
<i>Schoenoplectus lacustris</i>	common club rush	rhizomes, stems for basketry
<i>Solanum dulcamara</i>	bittersweet	
<i>Thalictrum flavum</i>	common meadow rue	
<i>Trichophorum caespitosum</i>	deergrass	

#### OPEN PLANTS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Chenopodium album</i>	fat hen	leaves
<i>Chenopodium rubrum</i>	red goosefoot	
<i>Empetrum nigrum</i>	crowberry	berries
<i>Galeopsis tetrahit</i>	hemp nettle	
<i>Hypericum</i> sp.	St John's wort	
<i>Polygonum aviculare</i>	knotgrass	seeds
<i>Polygonum bistorta</i>	bistort	leaves
<i>Polygonum persicaria</i>	redshank	leaves
<i>Rumex</i> sp.	dock or sorrel	leaves
<i>Senecio</i> sp.	ragwort	
<i>Solanum nigrum</i>	black nightshade	
<i>Stellaria media</i>	chickweed	leaves, stems
<i>Urtica dioica</i>	nettle	leaves

#### WOODLAND PLANTS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Betula pubescens</i>	birch	timber
<i>Camptothecium sericeum</i>	moss	
<i>Crataegus monogyna</i>	hawthorn	leaves, berries
<i>Eurhynchium myosuroides</i>	moss	
<i>Melandrium rubrum</i>	red campion	
<i>Pinus sylvestris</i>	pine	pollen, leaves for tea

<i>Populus</i> sp.	aspen	timber
<i>Sorbus aucuparia</i>	rowan	berries
<i>Stachys sylvatica</i>	hedge woundwort	

#### FUNGUS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Fomes fomentarius</i>	tinder fungus	tinder

#### MAMMALS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Alces alces</i>	elk	meat, antler, hide
<i>Bos primigenius</i>	aurochs	meat, hide
<i>Canis familiaris</i>	dog	help in hunting
<i>Canis lupus</i>	wolf	fur
<i>Capreolus capreolus</i>	roe deer	meat, antler, hide
<i>Castor fiber</i>	beaver	meat, fur
<i>Cervus elaphus</i>	red deer	meat, antler, hide
<i>Erinaceus europaeus</i>	hedgehog	meat
<i>Lepus europaeus</i>	hare	meat, fur
<i>Martes martes</i>	pine marten	fur
<i>Meles meles</i>	badger	meat, fur
<i>Sus scrofa</i>	pig	meat, hide
<i>Vulpes vulpes</i>	fox	fur

#### BIRDS

<i>Species</i>	<i>Common name</i>	<i>Uses</i>
<i>Anas acuta</i>	pintail	meat
<i>Buteo buteo</i>	buzzard	
<i>Ciconia ciconia</i>	white stork	meat
<i>Colymbus stellatus</i>	red-throated diver	meat
<i>Grus grus</i>	common crane	meat
<i>Mergus serrator</i>	red-breasted merganser	meat
<i>Podiceps cristatus</i>	great crested grebe	meat
<i>Podiceps ruficollis</i>	little grebe	meat
<i>Vanellus vanellus</i>	lapwing	

The archaeological finds included flint tools and waste, antler and bone tools and a few other items.

- 17,000 flint artefacts: including 426 scrapers, 336 gravers, 114 awls, 7 axe or adzeheads, 5 saws, 248 microliths
- 191 antler or bone spear or harpoon points
- 11 aurochs bone scrapers
- 9 antler tines
- 8 elk bone pins
- 6 elk antler mattocks
- 14 shale beads, 3 pieces of shaped amber, 1 perforated tooth bead
- a series of rolls of birch bark, cakes of birch resin and resin sticking to a microlith and two antler points (resin was used for sticking them to their wooden haft)
- fragments of pyrite and haematite (iron ore minerals: pyrite useful for making sparks in fire-lighting, haematite useful for making red ochre colouring)

Among the more spectacular finds were:

- a wooden paddle
- 21 red deer antler frontlets made by cutting off the top of the skull with the antlers attached



### **What is Star Carr?**

Star Carr was very similar to Mesolithic sites in Denmark and northern Germany. Clark thought that 4 to 5 families lived at Star Carr. He felt that they would have moved around the landscape from season to season. They would have stayed at Star Carr during the winter, from December to April, to live off the red deer in the lowlands. They would have followed the deer into the hills during the summer, on the North York Moors or Cleveland Hills. While at Star Carr, they would have got almost everything they needed from within a 6 miles radius of the site.

Clark thought the famous antler frontlets were either:

- used as a disguise to use in hunting, to allow hunters get closer to the deer  
or
- worn by shamans (special kinds of 'priests') in ceremonies to talk to the nature spirits.

### **Was Clark right?**

Other archaeologists looked at what Clark had found and offered different interpretations of the site.

- Seamus Caulfield 1978  
Aurochs and elk were more important for food than the red deer, but red deer was very important for its antlers.
- Roger Jacobi 1978  
Analysis of the roe deer and elk bones showed that Star Carr was occupied in the early

summer.

- Mike Pitts 1979 and others

Others looked at the finds and thought they showed that people had visited Star Carr during all seasons of the year, not only at one time of the year.

Pitts also suggested that the area Clark had excavated wasn't the whole site, only a specialist area of a larger site where people were working antler and animal skins.

- Tony Legge & Peter Rowley-Conwy 1988

A comprehensive study of the finds showed occupation mainly from late May to early July and between September and December. They thought it was mostly a hunting and butchering site used by 5-6 male hunters, and that the excavated area represented where waste had been thrown away rather than where people had lived.

- Richard Carter 1998

Two deer at the site had been killed between November and February.

- Lynne Bevan 2003

She suggested that the frontlets may have been worn by young men as part of their rite of passage from boyhood into being adults.

### **More excavations**

A team led by Tim Schadla-Hall excavated a new trench at Star Carr in 1985. Along with more flints and bones, they unexpectedly found a well-made wooden platform on the edge of the old lake. They dug more trenches in 1989. The plant remains they found suggested occupation of the site from at least April to August each year.

These later excavations found that the site was no longer well preserved. The antler and bone were in very poor condition. Drainage of the land for farming had dried out the soil, letting in harmful oxygen and bacteria, and promoting chemical reactions. The soils were now very acidic (about the same strength as stomach acid).

Results of new research were published by Paul Mellars and Petra Dark in 1998. Star Carr was shown to be one of the earliest fully Mesolithic sites in northern Europe. The new work also revised a lot of Clark's ideas about the site.

Star Carr was much bigger than Clark had thought. It could have extended for up to 150 metres along the lake shore. Clark had excavated only 5% of the site.

New radiocarbon dates spanning showed a pattern of occupation over time in two possible phases:

- 80 years occupation at 10720-10640 BP
  - a gap of 100 years
- then 130 years of occupation at 10540-10410 BP

The site was occupied from late March to early July or August and in September or October. The people began the spring in March or April by burning off the reeds at the edge of the lake each year.

Microscopic studies of traces of wear on the edges of the stone tools by John Dumont in 1996

showed evidence for a wide range of activities at the site: wood working, working skins, working antler and butchering animal carcasses.

The wooden platform was made of split planks of aspen or willow during the first phase of occupation and was most likely a trackway to the water's edge.

It is possible that the people at Star Carr sent hunting parties of 5-10 hunters on a two day walk to the tops of the North York Moors after the red deer during the summer. During winter the people might have spent time living at the coast. While there, they would have collected the amber found at Star Carr.

There are now known to be 25 Upper Palaeolithic and Mesolithic sites around the edges of Lake Flixton, but none have yielded the same kind of evidence as Star Carr.

### **The modern excavations**

The most recent archaeological study of Star Carr has been led by Nicky Milner of the University of York, along with Chantal Conneller and Barry Taylor of the Universities of Manchester and Chester. Their work took place from 2004 to 2015.

The analysis of the finds is still on-going but some early discoveries have been made.

The peat remains highly acidic and the bone, antler and wooden remains are still being destroyed.

Star Carr is one of the earliest sites of the Mesolithic and marks the beginning of more permanent occupation of Britain after the end of the Ice Age.

The site was likely used at different seasons for different lengths of time over a long period. The people were rooted to the lake edge as their special home, with frequent return and reuse of the site.

The site now extends 80 metres north and 200 metres south-east of Clark's excavation.

Clark's brushwood was later shown to be a combination of roots, natural lakeside accumulation and beaver felling of willow and aspen. Some of the branches have been cut by people and it may be also be a pile of waste from the management of trees around the settlement.

The wooden platform now extends for at least 30 metres, and was a trackway and perhaps a boat landing.

A house was found. Burnt stones marked a hearth in the middle of a depression in the ground. This had a dark soil in it which was probably a rush or reed flooring. It was surrounded by 18 post holes in a roughly circle, 4 metres across. The wooden posts had been inserted into the ground for the walls and would have been lashed together and covered with hides or reeds as a kind of thatch. The way the posts are arranged points to repair or rebuilding of the house at least once. Burnt flint also points to small fires being lit outside the house.

Bone and antler tools were being deliberately deposited in a part of the lake edge. These had been removed from their handles. Some were broken while others were intact. This seems to reflect a belief that animal remains had to be discarded in an appropriate way. Obeying such rules may helped to ensure that future hunts would be successful.

The lake was slowly shrinking and filling in with peat over time, and had begun to disappear after

around 9000 BP.

The radiocarbon dates now show the site to have been occupied for around 600 years. There are three substances that have been dated:

- charcoal from the burning of vegetation, 11040 – 10450 BP;
- antler from making and using antler tools, 11015 – 10825 BP;
- a cake of birch resin, as a glue for making tools, 10565 BP.

### **What is missing?**

Archaeologists have still only excavated as a small part of the site. There are some things we know that people had but have not been found. These include:

- the clothes and shoes people wore;
- the boats or coracles they used on the lake;
- the many wooden, leather and birch bark tools they had, such as bowls, ladles, spoons, arrows, bags and baskets;
- their burials, either buried in the ground, exposed in the forest or cremated;
- items that show how they decorated things with patterns and colours.