

DISCOVERING ARCHAEOLOGY AND THE BRONZE AGE

drawing on sites along the English Channel
and North Sea

A subject knowledge and teaching guide



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SECTION 4

The Dover Boat and Thanet Earth scheme of work:

**lesson plans for teachers
and resource sheets for pupils**

What was life like in the Bronze Age?

Using real-life archaeological digs to investigate our past

This is a mini-scheme of work aimed at Key Stage 2 pupils. As written, it is aimed at Years 5 and 6, but can be adapted for Years 3 and 4.

In preparing the scheme, we have deliberately kept the information provided for each lesson relatively brief as we do not want the lessons to become a 'script' and inhibit the creativity of individual teachers. Just like archaeologists and all good historians, we are also aiming for a truly investigative approach to be taken during the lessons and in investigative approaches we must allow for sidelines and individual interests to be pursued. Providing a prescriptive set of lessons would completely close this down.

Nevertheless, we hope this mini-scheme provides a framework from which to work in an exciting and original manner with your pupils. We believe they will enjoy the lessons and more importantly, learn a lot about the Bronze Age and how historians and archaeologists find out about the past. We also hope the same will be true for their teachers.

The four suggested lessons are all based on real archaeological digs carried out by the Canterbury Archaeological Trust. We want to immerse the pupils in the work of the archaeologists who carried out those digs and what they found out about the Bronze Age as a result.





Bronze Age burial at the Thanet Earth site (Kent, England) © Canterbury Archaeological Trust

Lessons 1 and 2 - The Thanet Earth dig (Kent, England)

A key find in the Thanet Earth dig was this incredible Bronze Age 'barrow'. At the centre was an extraordinary 'Beaker burial' of an individual laying in the 'crouch' position. With the skeleton was a ceramic beaker vessel (sadly crushed) at the feet; the tantalizing tip of a copper alloy object, possibly a knife blade or spear head just visible beneath the right shoulder; and a flat stone archer's wrist guard beneath the left arm.

Background information

Before major development work began on 'Thanet Earth' in 2007, a huge greenhouse complex just outside Ramsgate, the Canterbury Archeological Trust carried out a significant dig that lasted for over a year.

Several 'plateaux' were dug that matched the future site of the greenhouses and other new buildings. Significant evidence was found from several periods, principally the Bronze Age, Iron Age, Roman, Anglo-Saxon and Medieval periods and the finds suggested that there had been settlement at the site at all those times.

One of the areas investigated was a Bronze Age barrow. Barrows were where people from the Bronze Age buried important members of their society. Inside that barrow, the archaeologists found a grave with a skeleton and some artefacts.





Bronze Age 'barrow' at the Thanet Earth site (Kent, England) © Canterbury Archaeological Trust

Lesson 1: the Thanet Earth desk assessment

Background	Aims	Introduction	Development	Plenary	Resources
<p>A major misconception about archaeologists is that all they do is dig holes in the ground! Before doing this they first have to decide if a site is worth digging and if so, where in particular. After the dig is completed, a very significant amount of time is then spent interpreting what was found on site and analysing and writing about the finds.</p> <p>This first lesson immerses pupils in the first stage, the desk assessment, where archaeologists examine the collective sources of evidence for a site. Then based on this assessment, they decide whether or not to excavate.</p>	<p>These are the same for both lessons on the Thanet Earth dig</p> <ul style="list-style-type: none"> • To begin to understand the work of real life archaeologists through immersive and investigative activities • To develop skills of using and evaluating evidence before making decisions • To enhance skills of speaking and listening, through presenting verbal and written findings 	<p>Quite deliberately, give the pupils very little information about the Bronze Age before starting, preserve an 'air of mystery' about what they are doing and allow them to come to the information for themselves.</p> <ul style="list-style-type: none"> • Tell the children that for the next few lessons the school has been asked by the Canterbury Archaeological Trust to provide advice on a possible dig they are thinking about carrying out. • Let the children know there is a vegetable company who are thinking about building giant greenhouses on a site near Ramsgate. But the Trust thinks there may be important ancient evidence waiting to be found there. • Their job is to be archaeologists themselves and help the Trust with their work. Explain how the first thing they must do is the 'desk assessment': • Is it worth digging the site at all? If so, where? • The vegetable company will have to pay for the dig and it could cost a great deal of money. They might get very upset with the Trust if they don't find anything 	<p>In groups, provide (some or all, depending on age/ability) the following pieces of evidence (found with this scheme and on the USB pen in the Kit):</p> <ul style="list-style-type: none"> • architect's plans for new buildings • aerial photography • field walking results • documentary evidence • past discoveries • geophysical survey <p>Each group must take on the role of archaeology teams and feed back to everyone else on these key questions:</p> <ol style="list-style-type: none"> 1. Is it worth doing a dig? What evidence is there for your decision? 2. If so, where on the site shall we start? 	<p>Each group in turn should present their findings.</p> <ul style="list-style-type: none"> • Each group must provide evidence for their conclusions • Each group should take questions from the other groups about their findings <p>As a class an overall decision should be taken.</p> <p>Shall we dig? If so, where?</p>	<p>Resource A</p> <ul style="list-style-type: none"> • architect's plans for new buildings <p>Resource B</p> <ul style="list-style-type: none"> • aerial photography report <p>Resource C</p> <ul style="list-style-type: none"> • field walking report <p>Resource D</p> <ul style="list-style-type: none"> • historic documents report <p>Resource E</p> <ul style="list-style-type: none"> • past discoveries report <p>Resource F</p> <ul style="list-style-type: none"> • geophysical survey report

Lesson 2: the Thanet Earth grave

Background	Aims	Introduction	Development	Plenary	Resources
<p>The (male) skeleton found in the barrow was almost certainly someone of importance. With him were found a crushed pottery beaker, a copper alloy knife blade or spear head and a flat stone archer's wrist guard. Several scientific processes were carried out on the skeleton. These were:</p> <p>Osteological examination</p> <ul style="list-style-type: none"> • Osteoarchaeology is the study of bones from archaeological sites <p>Isotope analysis</p> <ul style="list-style-type: none"> • Isotopes are chemicals found in bone and tooth enamel. Scientists can find out, from chemicals in bone, what kind of foods people ate and, from chemicals in teeth, where people may have grown up, <p>Radio-carbon dating</p> <ul style="list-style-type: none"> • Carbon is found in all living things. When something dies the carbon 'breaks down' over time. By analyzing how much carbon has been lost in an organic object, scientists can estimate when that organic material died. 	<p>These are the same for both lessons on the Thanet Earth dig</p> <ul style="list-style-type: none"> • To begin to understand the work of real life archaeologists through immersive and investigative activities • To develop skills of using and evaluating evidence before making decisions • To enhance skills of speaking and listening, through presenting verbal and written findings 	<p>Tell the pupils that you told the Canterbury Archaeological Trust the class' decision and the Trust thought the same!</p> <p>The archaeologists have now sent you some information on the dig that took place.</p> <p>The Trust wants the pupils' help in analysing the finds.</p>	<p>At this stage, don't tell the pupils anything at all about the information, simply give the same groups as before the following information (found with this scheme and on the USB pen in the Kit):</p> <ul style="list-style-type: none"> • Photo of the barrow grave • Photos of the grave artefacts • Barrow grave excavation report • Artefact report • Osteoarchaeologist report • Isotope analysis report • Radio-carbon dating report • And the Beaker replica in the Kit (to share between groups) <p>If you want to, you could tell the pupils that this is a replica of the one found broken in the grave</p> <p>After examining the evidence the pupils can complete an archaeological report summarising the key points that have been discovered.</p> <p>Their report could be in many forms, for example:</p> <ul style="list-style-type: none"> • A written report • A powerpoint presentation to a 'special audience' • A documentary 'Time Team' style TV show • A news item for Meridian Tonight or BBC South East • A newspaper article for their local paper <p>Depending on the age and ability of the class and the time allowed for in this lesson, it is possible that the completion of reports stretches over a more prolonged period.</p>	<p>Depending on which reporting option was chosen, choose examples to examine. However, this shouldn't just be a sharing exercise</p> <ul style="list-style-type: none"> • Probe the pupils' understanding of what they've found out about the Bronze Age and about archaeology: • What have they found out about the time the person was from? • What sort of life do they think he had? • Was his life similar or different to theirs? • Has anything surprised them or interested them about the work of archaeologists? <p>After the reports are completed, let the pupils know you've received some exciting news!</p> <p>The Canterbury Archaeological Trust has been so pleased with how things have gone that they have been back in touch with information on another dig and they want their help again!</p> <ul style="list-style-type: none"> • Give the pupils a very brief introduction to the Dover Bronze Age Boat • Could the person in the grave have had anything to do with it? 	<p>Resource G</p> <ul style="list-style-type: none"> • photo of the barrow grave <p>Resource H</p> <ul style="list-style-type: none"> • photos of the grave artefacts <p>Resource I</p> <ul style="list-style-type: none"> • barrow grave excavation report <p>Resource J</p> <ul style="list-style-type: none"> • artefact report <p>Resource K</p> <ul style="list-style-type: none"> • osteoarchaeology report <p>Resource L</p> <ul style="list-style-type: none"> • Isotope analysis report <p>Resource M</p> <ul style="list-style-type: none"> • Radio-carbon dating report • the Beaker replica in the Kit

Lessons 3 and 4: the Dover Bronze Age boat

Background information

In 1992, archaeologists were working alongside construction men on a new road in Dover when they found the remains of a large wooden object. It soon became clear that the archaeologists had found something special. This was confirmed by examination, which suggested that they had found the world's oldest known sea-going boat, dating to c. 1550 BC.

Only 9.5 meters of the boat could be safely removed from the site. After many years of conservation work it was put on display in Dover museum in 1998 where it remains to this day in a specially designed Bronze Age gallery.

The information below is purposefully designed to spread across two lessons or, practicalities allowing, a significant part of a whole day.





The Dover Bronze Age boat in Dover Museum (Kent, England) © Canterbury Archaeological Trust

Lessons 3 and 4: what do we know about the Bronze Age boat and the people who built it?

Aims	Introduction	Development	Plenary	Resources
<ul style="list-style-type: none"> To use evidence to build a picture of life in the past To communicate to others why finding out about history is important To evaluate the significance of different sources of information for the past 	<p>Remind the children about the discovery of the boat and let them know it can now be seen in the Dover Museum.</p> <p>Tell the children that the Trust has carried out a series of tests and written reports on the boat and the site where it was found.</p> <p>They want the pupils' help with a problem (but don't say what it is).</p>	<p>Examine the following sources in the same groups as before (found with this scheme and on the USB pen in the Kit)</p> <ul style="list-style-type: none"> Environmental analysis report Technology report Radio-carbon dating report Photo of the boat where it was found and reconstruction image of the boat Langdon Bay Discovery report And the replica axe in the Kit (to share between groups) <p>Using the sources as evidence, in groups the pupils are to present their own theory as to what they think the boat was actually for and what it tells us about the Bronze Age and the people who lived then. <i>Each group should present their main findings to the others.</i></p> <p>Now tell the class the Trust's problem:</p> <ul style="list-style-type: none"> The Trust has been talking to Dover Museum, where the boat is on display and they are worried that not enough people are visiting it They think that many people don't know about the boat and why it's important <p>The Trust and Dover Museum want their help in a campaign to get more people to come. What ideas do the pupils have?</p> <ul style="list-style-type: none"> Scaffold the pupils' ideas in developing a PR campaign. This could include (but is not exhaustive as the pupils may have much better ideas which could be taken forward) <ul style="list-style-type: none"> Leaflets, posters, letters to newspapers, competitions etc. <p>Pupils can then work on the ideas generated. Depending on the age, ability and ideas this could be:</p> <ul style="list-style-type: none"> Each pupil produces one of the ideas <ul style="list-style-type: none"> - e.g. All pupils do the same thing, for example - a poster Different groups are given responsibility for different things <ul style="list-style-type: none"> - e.g. One group does a poster, another a leaflet etc Each group has to produce several items <ul style="list-style-type: none"> - e.g. Different people in each group have to do different things <p>Pupils should take time to plan the items before starting. Some very important questions need to be considered. Whatever they produce, their item should say:</p> <ul style="list-style-type: none"> Why the boat is important What the boat tells us about the past Why the boat is worth visiting Where/How the boat was found 	<p>Examine the pupils' finished pieces. Draw out the most successful features and why.</p> <p>Probe the pupils' understanding of the Bronze Age from <i>all</i> the lessons:</p> <ul style="list-style-type: none"> What have they found out about the time the Thanet Earth person and the Boat were from? In what ways was life different for people then? In what ways was life similar to now? Has anything surprised them? 	<p>Resource N</p> <ul style="list-style-type: none"> Environmental analysis report <p>Resource O</p> <ul style="list-style-type: none"> Technology report <p>Resource P</p> <ul style="list-style-type: none"> Radio-carbon dating report <p>Resource Q</p> <ul style="list-style-type: none"> Photo of the boat where it was found <p>Resource R</p> <ul style="list-style-type: none"> Reconstruction image of the boat <p>Resource S</p> <ul style="list-style-type: none"> Langdon Bay Discovery report The replica axe in the Kit

Optional lessons: what was the Bronze Age?

Why have these optional lessons?

The four lessons on the Thanet Earth dig and the Dover Bronze Age Boat are deliberately constructed to allow pupils to discover information and knowledge about the Bronze Age for themselves.

The aim is for pupils to become inspired about what they have discovered and come to an understanding of the past not only through the four lessons, but also through subsequent independent research.

However, there may be scenarios in which teachers might like to provide additional lessons that provide further information on this period. This might be because individual teachers feel it necessary or because the class' learning appetite has been ignited.

When would you teach them?

These optional lessons could be at any point in the unit; before, during or after the lessons on the Thanet Earth dig and the Boat. To aid the intention of children discovering and constructing historical knowledge for themselves, during or after (rather than before) may be better, but this is clearly a decision for the individual teacher.

There are six suggested optional lessons. Should I teach them all?

It is entirely down to each teacher and the characteristics of their teaching approaches, confidence in teaching history and the make-up of their individual classes. You could teach none of them or all of them. However, the intention is that if a teacher wanted to use them they would support and supplement the lessons on the Thanet Earth dig and the Boat - and not replace them.

What about the activities suggested elsewhere in the guide. Could I use those?

By all means. We genuinely want to provide teachers with choice and flexibility, enabling the Bronze Age and the work of archaeologists to be taught and amaze children of all abilities in key stage 2. They could, for example, try identifying and recording the archaeological finds in the kit. We hope that you find inspiration in any of the suggestions (or ideas of your own) to create a set of lessons that suits both you and the individual needs of your class.

Title	Aims	Information	Possible Activities
When was the Bronze Age and why is it called that?	To understand the period's chronological place in the past To evaluate why the invention of bronze was so important.	The Bronze Age immediately followed the Stone Age and the invention of bronze revolutionized life. It enabled new tools and skills to be created, thus totally changing life. This included hard wearing axes that could make houses, boats etc.; and swords, knives, farming tools etc.	As a whole class create a timeline of the main periods before and after the Bronze Age. On the playground create a human timeline to demonstrate how long ago this period was. Undertake a card sorting activity of things that were and were not possible before the invention of bronze.
Were people in the Bronze Age skilled?	To use artefacts to make deductions about the past.	A common misconception of Bronze Age people is that they were very primitive. In fact, they were capable of making things requiring astonishing skill and extensive trade links.	Look at three major Bronze Age artefacts found in the British Museum: the Ringlemere Cup, the Thames Cauldron and the Mold Cape. What do these finds tell us about the people who made them?
Where did Bronze Age people live?	To make sensible deductions on life in the Bronze Age from investigating their houses.	Another myth about people in the Bronze Age is that they lived in caves. They were actually capable of building architecturally successful and complex homes. These included lake homes on stilts and houses with two floors.	Examine some reconstructions of Bronze Age houses. See St Margaret's – at – Cliffe example illustrated in this guide. Take on the role of a 'Bronze Age architect', firstly sketching a cross section of a house designed for a customer, then listing all the tools, materials and skills that will be needed in order to construct it.
What was life like for people in the Bronze Age?	To use human remains to make historically accurate deductions.	Skeletal finds suggest life was far from easy. Infant and child deaths were high. Survival into your teens meant a good chance of living into your 20s or even 30s but it was unusual to get beyond 45. You could say it was a 'land of the young' in modern terms. Osteoarchaeologists have found evidence for arthritis and spina bifida. Infections must have been common. One infection came from eating untreated dairy foods and cattle meat and affected bone around the eye socket. Pain threshold was no doubt higher than ours and herbal and hallucinogenic remedies would have been common.	Design a display piece for a museum that has a skeleton in its archive. How should it be presented and what should the label say?
What religious beliefs did the Bronze Age people have?	To begin to understand the everyday beliefs of Bronze Age people.	Little is understood about Bronze Age religion, but it is likely there were a range of gods and religious superstitions. Stonehenge was started in the Stone Age, but completed and used during the Bronze Age. There are many theories as to its use, including: a celestial clock, an 'ancient Lourdes' for the curing of the sick and a gateway to the 'land of the dead'.	Examine the competing theories on why Stonehenge was built. Hold a class debate on which of the theories they think is most accurate. Different groups should prepare the case for a different theory and a vote should decide which is most convincing. Find out about 'hoards' in the Bronze Age. See some illustrated in this guide.
What came after the Bronze Age?	To understand the period's chronological place in the past. To evaluate why the period is of such historical significance.	Competition over land, the creation of tribal culture and the means of conflict (e.g. Bronze meant the creation of durable weaponry), meant that life at the end of the Bronze Age was very different to that at the start. Around 800-600BC a new material was spreading that further changed how people lived and gave its name to a new period of time: Iron.	Give the class a number of key events in British history, one of which should be 'the skill of making bronze was first used in the British Isles'. Their role is to order the key events to make a decision about the significance of the Bronze Age. How important do they think it is?

Resource sheets A to S

Thanet Earth site: architect's plans (sheet A)

What can these tell us?

The vegetable company asked an architect to draw a plan showing where they want the glasshouses and other buildings to go. The archaeologists can use this to see how much ground would be disturbed by the new building works.



Pink area shows Thanet Earth site (Kent, England)
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What did the archaeologists find out?

The site for the building work is 1.9 km long, from north to south and an average of 0.4 km in width, from east to west. The vegetable company want to have 7 glasshouses, 1 packing house, a research and education centre, reservoirs (to store water), a conveyor system and roadways (to move goods around) built in this space.

The glasshouses are much bigger than a garden greenhouse! They need foundations. The archaeologists think that the depth the builders have to dig with their machines would damage or even destroy any ancient objects or buildings buried in the ground.



Plan of buildings for growing vegetables
Based on an Ordnance Survey map with the permission of the
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Thanet Earth site: aerial photographs (sheet B)

What can they show us?

A photograph taken from an aeroplane of a field of crops can show shapes of ancient evidence lying beneath the ground. Crops grow well over a ditch (deep and damp for their roots) but will be weak growing above a stone wall. These differences in crop growth make patterns in the field called cropmarks.

Did they find any cropmarks at Thanet Earth?

Aerial photographs show cropmarks of circular ditches beneath the ground where the vegetable company wants to build, especially at the bottom end of their site (the southern end). The archaeologists call them ring-ditches and think they are clues that ancient burial mounds once stood there. Photos of the fields around the Thanet Earth site show there are more of these ring-ditches in the surrounding area. You can see some in this photo.



© Canterbury Archaeological Trust



Pink area shows Thanet Earth site (Kent, England).
Black rings on the pink area show where there were cropmarks
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Thanet Earth site: field walking survey (sheet C)

What can this tell us?

By slowly walking across an area of land, archaeologists can find things like fragments of pottery and coins that have been brought to the surface by ploughing. These show us what we might find if we do an excavation and how well things have survived in the ground.



© Canterbury Archaeological Trust

What did the archaeologists find?

When the farmer sold his land to the vegetable company, he had been using it to grow cauliflowers. When all the caulis had been picked and the fields were bare, the archaeologists chose an area to walk over.

First, they marked out an area measuring 25 metres by 25 metres. They divided this into smaller squares, 5 metres by 5 metres and children from Canterbury Young Archaeologist Club helped to look for 'finds' lying on the surface in each square. They found lots of flints, some fossils, some pottery sherds and a coin.



© Canterbury Archaeological Trust

Thanet Earth site: historic documents (sheet D)

What can these tell us?

Ancient maps, pictures and written records are useful sources of information and help archaeologists build a picture of what a place was like in the past.

What did the archaeologists find out?

People have been living and working near the Thanet Earth site since Anglo-Saxon times. Here is some of the documentary evidence about Monkton, a village just south of Thanet Earth.

Who owned land in the area?

In the 10th century, Monkton manor was given to the monks at Christ Church Priory at Canterbury.

Who lived there and what did they do?

Monkton is mentioned in the Domesday Survey carried out in 1086. The book lists 89 villagers, 31 ploughs, a mill, a fishery, a salt house, woodland for 10 pigs and two churches, amongst other things.

Records from 1307 show that these people worked on the land at Monkton manor:

17 ploughmen	3 stackers
4 shepherds	3 drovers
2 cowherds	1 lambherd
1 swineherd	1 sower
1 harrower	1 cheese maker

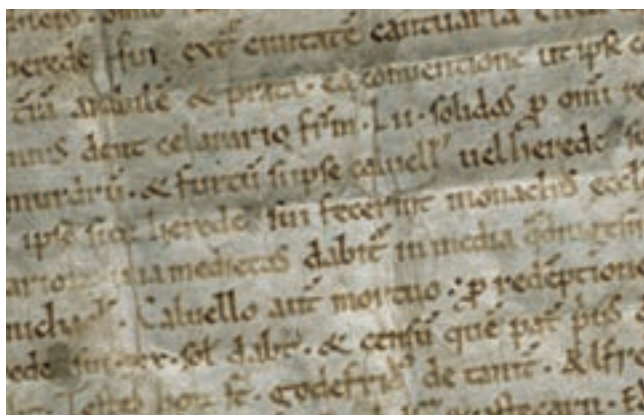
In 1322 the manor had 2000 sheep and made almost a ton of cheese.

More recent times

Maps from Victorian times show us that Monkton Road Farm was built between 1877 and 1898. It is still there today.



© Canterbury Archaeological Trust



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Thanet Earth site: researching past discoveries (sheet E)

What can these tell us?

The archaeologists search on the computer for any investigations that have already taken place in the area where the greenhouses are to be built, or nearby. If there have been some discoveries in the past, these are clues about what the archaeologists could find at Thanet Earth.

What did the archaeologists find?

There have been discoveries north, south, east and west of the Thanet Earth site. Here are some of them.

Medieval

A farm (south of Thanet Earth).
Pottery.

Anglo-Saxon

Graves with weapons, jewellery and glass vessels (south of Thanet Earth).
Buildings.

Roman

A villa (0.25 km north of Thanet Earth).
Possibly a shrine.
Pottery and personal things like tweezers.

Iron Age

Small farms.
Pottery.

Bronze Age

Ring-ditches where burial mounds once stood.
Graves (one with human skeleton, pottery, bronze bracelet and jet necklace).

Neolithic

Pottery.



Pink area shows Thanet Earth site. Red dots show past discoveries
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Thanet Earth site: geophysical survey (sheet F)

What can this tell us?

Special equipment can give archaeologists an idea of what is buried in the ground before digging it. It works like this:

The Earth has its own magnetic field. When the ground has been disturbed, by building a stone wall or digging a ditch, the Earth's magnetic field is also disturbed.

A magnetometer can detect these changes and store the information in its memory. The information is then transferred to a computer. On the screen, the stone wall or ditch shows up as a shape in the picture of the landscape.



© Canterbury Archaeological Trust

What did the archaeologists find out?

When the magnetometer was used in the fields at Thanet Earth, there were still cauliflowers growing. So they could only use it where the land was bare. The results showed several shapes including what looked like big circular ditches and maybe some graves to the west of the site. There were other interesting shapes down at the south end of Thanet Earth suggesting ancient buried remains there too.



© Canterbury Archaeological Trust

Thanet Earth site: grave 6026 (sheet G)



Red and white scale: 20 cms
© Canterbury Archaeological Trust

Thanet Earth site: grave 6026. The finds (sheet H)



The metal object © Canterbury Archaeological Trust



The stone object © Canterbury Archaeological Trust



The pottery © Canterbury Archaeological Trust

Thanet Earth site: grave 6026. Excavation report (sheet I)

This was an extraordinary discovery in Area 6 at the dig. There were 2 big, circular ring ditches, one inside the other. The widest ring measured 25 metres in diameter. These were clues (evidence) that an ancient burial mound that once stood there, known as a barrow. Some of these circular mounds of earth still exist in other places, but many have been gradually destroyed in modern times when farmers plough their land. Often the only clues are the rings. At certain times of the year they show up in aerial photographs.

At the centre of the Thanet Earth ring ditches, Laura found a grave pit with a skeleton lying on its side in a crouched position.

A pottery container lay at its feet. It was crushed but it would have been complete

when it was buried. A small stone object and a metal object were lying beneath the skeleton. A 70 centimetre gap between the skeleton and the grave edge suggested something buried there had decomposed.

The width and depth of the two ring ditches show that this would have been a very big burial mound. It must have taken a lot of people and time to build it. They would not have had tools like we do today and probably used pick axes made from animal antlers.

Twelve other crouch burials were found on the Thanet Earth dig. Some were simple graves with no mound or artefacts, others had pottery containers. None were as elaborate as this grave.



© Canterbury Archaeological Trust

Thanet Earth site: grave 6026.

Artefact report (sheet J)

The pottery

The pottery container was found in many sherds. The surfaces are a reddish-brown colour. The uneven feel of the sherds shows the pot was made by hand. The outside is covered with decoration using some kind of pointed tool. This style of pottery is known as a Beaker, used by people who lived about 3600 – 4000 years ago in the Bronze Age. We call them the Beaker People because of their pottery. Scientists have done tests on the inside surface of Beakers from other digs and found traces of a sweet alcoholic drink, like mead.

The stone object

This was found under the left lower arm of the skeleton. It measures 92 millimetres by 41 millimetres by 1 millimetre. It is made of pale grey stone, possibly from the continent. It has 5 small, neat holes, probably made with a flint tool. It is a wrist guard. An archer wears a wrist guard to protect the skin when an arrow is released. This wrist guard is quite delicate and may have been a special one that wasn't actually used.

The metal object

This was found beneath the right shoulder of the skeleton. The green colour shows it is made with copper. The shape shows it fitted into something which is no longer there. Originally this object was probably a dagger or a spear.



© Canterbury Archaeological Trust

Thanet Earth site: grave 6026. Osteology report (sheet K)

Osteology is the very close examination of bones. By studying these we can work out lots of different things about the person (or animal) they came from. These include:

- if the person was male or female;
- how old the person was when he or she died;
- if the person was healthy or whether there were any diseases;
- if the person had any injuries.

Grave 6026 is an inhumation and the bones are in very good condition. Over 75% of the skeleton is present.

Examination of how the skull and pelvis have grown and how worn the teeth are tells us that this person died between 36 and 45 years of age. Examination of 16 parts of the pelvis and 13 parts of the skull tells us that this person is definitely male.

Measuring the arm and leg bones (femur, tibia, humerus and ulna) tells us that he was around 171 to 187 centimetres tall. His muscles have left impressions on these bones and show us he had a very active lifestyle. There is no evidence for how he died.



Thanet Earth site: grave 6026. Isotope report (sheet L)

How it works

Examining bones

- Tiny amounts of the chemicals in the food we eat as children and adults are left in our bones. Scientists can examine these chemicals in bone samples to find out about a person's diet.

Examining teeth

- Tooth enamel is formed during childhood and it stores chemicals from foods we eat and water we drink when we are young. The foods take the chemicals from the soils and environments they grow in. Scientists can find these chemicals in soils and water in different parts of the world. By matching them up with the tooth chemicals they can suggest where a person may have lived as a child.



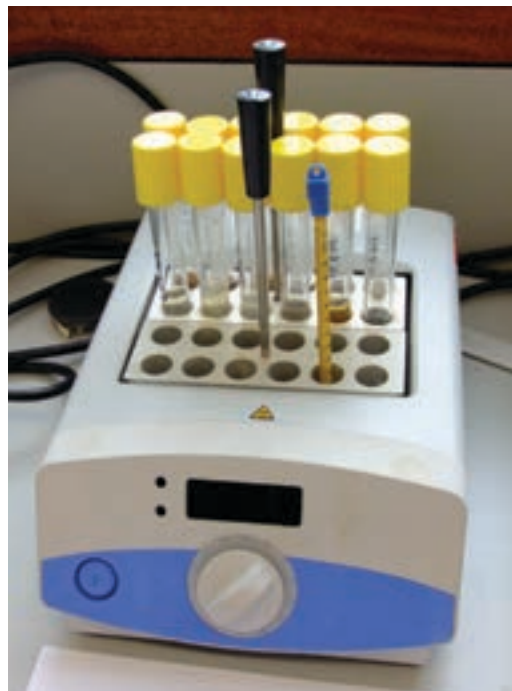
© Canterbury Archaeological Trust

The skeleton in grave 6026

Analysis of the chemicals of this skeleton's bone gave us some clues about diet. It consisted of quite a lot of meat, some plants, but not a lot of seafood.

Analysis of the chemicals in the tooth enamel matches the chemicals found in the soils at the site. This suggests the person grew up in this area.

However, our findings suggest it is also possible that this person spent some time in a coastal region of western Europe... maybe somewhere in present day Belgium or the area where Paris is now.



© Svetlana Svyatko, 14Chrono Centre for Climate, the Environment and Chronology

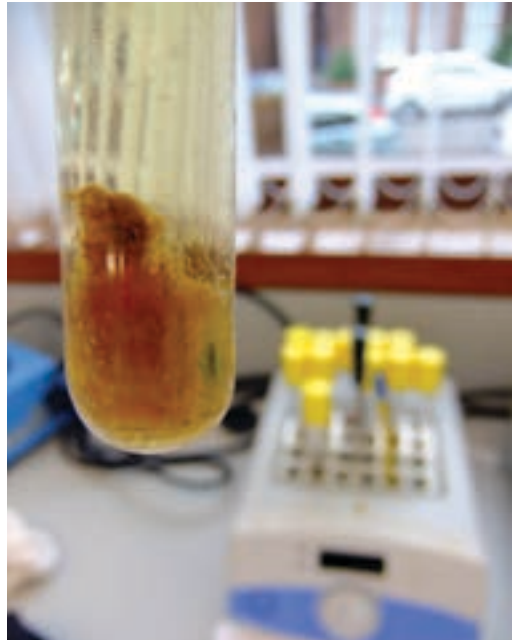
Thanet Earth site: grave 6026. Radio-carbon dating report (sheet M)

How it works

All living things contain very tiny amounts of radioactive carbon (called C-14). When a plant or animal dies the C-14 slowly decays. So when the person found in grave 6026 died, this chemical began to decay. Scientists know how fast this happens and measuring how much C-14 is left can tell them how long ago this person died.

The result from the skeleton in grave 6026

A small piece was taken from one of the bones for radio-carbon analysis. This test can tell us how old the skeleton is. The test showed that the person died 3980-4200 years ago. This was in the Bronze Age.



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The Dover Bronze Age Boat site: environmental report (sheet N)

We think that in the Bronze Age, the river at Dover was made of several channels or streams that flowed into the sea.

Archaeologists found the boat where there had once been one of these streams. It had been abandoned there 3600 years ago. But the evidence for the channels suggests that the stream would have been quite small and it would have been very difficult to actually use a big boat there.

Long ago, sediment quickly built up and buried the boat, helping to preserve it. By looking at pollen grains, seeds and small animals that were also preserved in the sediment, we can get a good idea of what the river and the surrounding countryside was like in the Bronze Age.

Finding beetles and snails tells us that the river had fast-flowing, clear water with lots of oxygen. Small pieces of plants including water-lilies, buttercups and duckweed show that there were pools of water at the river edge and the nearby ground was marshy. There were bones of tiny eels, stickleback, trout and salmon. These are all fish that like a fresh water environment.



Water lilies © David Hawgood
[CC-BY-SA-2.0 (<http://creativecommons.org/licenses/by-sa/2.0>)],
via Wikimedia Commons

Finding pollen grains in the sediment tells us that near the river was mostly grassland, with few trees. Evidence for seeds of weeds that grow among crops shows that there was some arable farming in the area.

Bronze Age people had thrown some rubbish into the river – scraps of flints, charcoal from their fires and sheep, pig, cattle and red deer bones. Some bones had knife marks showing how the animal was butchered.

On the bottom of the boat was a thin layer of sand from the shore. This possibly got there from the feet of the crew.



Brown trout © Eric Engbretson, Wikimedia Commons

The Dover Bronze Age Boat site: technology report (sheet 0)

The boat is a very good example of Bronze Age craftsmanship and the builders would have been highly skilled. The boat is made of oak and none of it is actually made of bronze.

The part of the boat that was excavated was 9.5 metres long. The archaeologists estimate that this was half or maybe two thirds of the original size. They could see it was 2.4 metres wide. Some of the boat had to be left buried in the ground.

Wood from three different oak trees was used to make the boat. Almost no knots were found in the wood so only the lower part of the trunk, where no branches grow, was used. Combined with the size of the boat, this suggests the oak trees must have been about 36m high and 1.5m thick. Trees of this size would have been over 350 years old and would have been found growing inland. Trees near the coast would have been unsuitable as sea winds would have stopped them growing straight.

The boat is made of 6 very large planks: 2 on the bottom and originally 2 on each side. Only 2 of the side planks have survived. There was probably a smaller section of wood at each end. The timbers are held together by wooden bars, wedges and giant stitches made from young shoots of yew trees. Moss, beeswax and animal fat fill the gaps in the joints to make it watertight.

The people who made the bronze tools would also have been highly skilled. By studying tool marks left in the wood we can tell that at least 5 types of bronze tool were used: 2 kinds of axe, an adze, a chisel and a gouge. Probably lots of each sort of tool were used to make the boat.

There is no evidence for saws, drills or nails being used. Bronze axes are only half as strong as modern steel axes, so the effort involved in making the boat was double that today. It is estimated that it would have taken 50 people 1 month to build the boat.



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The Dover Bronze Age Boat site: dating report (sheet P)

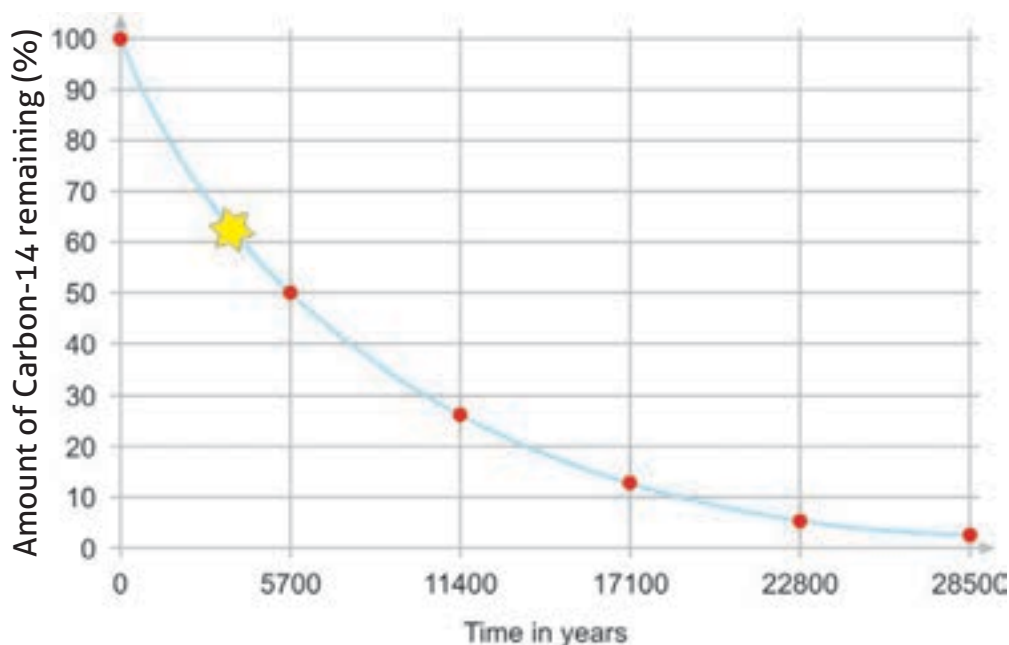
6 samples of wood were taken from different sections of the boat. Samples of the 'stitches' and the moss in the joints were also taken.

It was very important to take different samples so we could get an accurate idea of when the boat was made. Tests would also say if the bottom was built at different times or had been repaired – which may have meant it was used over a long period of time.

The samples were sent away to be radiocarbon dated. All living things contain very tiny amounts of radioactive carbon atoms (called C-14). After a plant or animal dies the C-14 slowly decays. So when the trees used for the boat were cut down their C-14 began to decay.

Scientists know how fast this takes and measuring how much C-14 is left in the samples can tell us their age. In the case of the boat all the samples tested were found to come from around 1550 BC. This is almost 3600 years ago, in the Bronze Age.

Dendrochronology is another way of dating wood. Trees add a new ring of growth every year and the size of the ring depends on the weather. Scientists have an accurate record of how much oak trees in the area would have grown each year, in this period. Only one sample of wood from the boat was suitable for tree-ring dating. It gave a date of 1742-1589 BC. The sample only showed when the tree was growing and not when it was cut down and used.



The star marks the amount of C-14 remaining in the Dover Bronze Age Boat

The Dover Bronze Age Boat site: the boat as it was found (sheet Q)



© Canterbury Archaeological Trust

The Dover Bronze Age Boat site: building the boat, 1550 BC (sheet R)



© Caroline Caldwell

Extraordinary discovery in Langdon Bay (Dover, England) in 1974 (sheet S)



© G Naessens / Boat 1550 BC

Divers from the Dover Sub-Aqua Club were out diving near the White Cliffs of Dover. They were 500 metres from the English coast when, deep in the sea, they discovered some objects.

Further investigations were made and 360 bronze objects were eventually brought to the surface!

They are now in Dover Museum where you can see them on display

What can this discovery tell us?

There were bronze axe-heads, chisels, swords, knives and spear-heads. By examining the shapes and sizes, archaeologists can say they were made in the Bronze Age. Highly skilled people must have made them. Several were types made in France.

These metal objects were made around the time the Dover Boat was made and used. Maybe there is a connection...