Kents Cavern Large Print Guide

Kents Cavern's Exhibition

Hello and welcome! This booklet will provide information about Kents Cavern's exhibition for visitors who prefer to use Large Print.

1 - Introduction

Kents Cavern is one of the most important Stone Age sites in Europe and one of Britain's best show caves!
Whilst visiting the caverns, you'll go back to a time to when the cave was home to ancient humans sheltering from extreme weather, making fires, shaping tools and hunting Ice Age animals. As you walk through the extensive labyrinth of caverns, you'll be surrounded by 400 million-year-old rocks and spectacular stalagmites and stalactites.
All tours of the cavern are guided.

Kents cavern is both a Geological Site of Special Scientific Interest (since 1952), and a Scheduled Ancient Monument since (1957), which helps to ensure their protection for future generations, meaning the cavern has been named as an area of special interest for both its geology and archaeology research.
At the end of the tour, there is an exhibition area dedicated the Stone Age and Victorian Excavators, as well as how climate change has affected the geology and inhabitants of the cavern.

2 - Kents Cavern's Geological Journey

400 million years ago, when there were only two continents on Earth (Laurasia and Gondwana), the rock that Kents Cavern is formed from Devonian Limestone, was formed. The limestone was formed between these continents on the bed of a tropical sea below the equator by layers of sea creature bones and corals that compacted over time.

350 million years ago, during the Carboniferous period, the two continents were pushed together by tectonic plates. The force from this folded and crushed the limestone rocks which were caught in the middle. The result was the formation of a supercontinent, Pangaea.

275 million years ago, during a Permian time period, the rocks were situated north of the equator in desert-like conditions. Intense heat and dryness caused some of the limestone to crumble into fine grains of rock, which mixed with sand from the desert landscape and compacted to make the red sandstone rocks, which can be found around Torquay.

200 million years ago, more tectonic movement forced Pangaea to break apart, forcing the limestone to its current location in South Devon and creating the continents that we know today.

2.5 million years ago, in the Quaternary time period (which we're still in today), the limestone becomes exposed to surface rainwater which tracks its way underground through cracks and fissures in the rock.

Rainwater mixes with carbon dioxide gas, transforming it into an acid solution which is strong enough to dissolve the limestone walls of these cracks. Eventually, small underground cavities become larger and larger, allowing underground rivers to carve out the passageways that we see today.

3 - Climate Change at Kents Cavern

Climate change has been happening since the Earth came into existence. It has been a vital part of how life came to be on this planet. Over the last 100 million years the Earth's climate has changed dramatically, changing the landscape and affecting the people and animals that occupied prehistoric Britain.
Three species of humans occupied Kents Cavern, arriving in Britain via a land-bridge between England and France, which allowed free movement across Europe, Africa, and Asia.

Did you know?
At least five major ice ages have occurred throughout Earth's history, the earliest was over 2 billion years ago.

After an ice age around 450 thousand years ago:
Earth experienced a stage of global warming. Ice melted, raising sea levels and flooding the land bridge. Britain became an island for the first time (roughly 125 thousand years ago). Kents Cavern attracted animals such as scimitar-toothed cats, which hunted horses and deer living nearby.

20 miles from here, in a cave called Joint Mitnor, remains of animals such as straight-tusked elephant and hippopotamus have been found. As time went on the temperature began to cool again, sea ice formed around the top of the Earth and sea levels got lower.
An even larger land-bridge that stretched from England's east coast to Holland was uncovered.

About 20 thousand years ago another ice age occurred.
Animals that were not well adapted to cold climates left for warmer ones and Britain saw the return of Ice Age beasts like mammoths, woolly rhinoceros, cave bears, and cave lions. It is widely believed that during the Ice Ages most of Britain was too cold to sustain human life for long periods of time and hunter-gatherer tribes would eventually need to retreat south for warmer temperatures.

The last Ice Age ended about 12 thousand 5 hundred years ago and once again Britain became an island, restricting food sources and

forcing animals to adapt to survive. As the predatory animals competed for food, their prey diminished. They were being hunted quicker than they could produce offspring. Mammoths, woolly rhinoceros and Irish elk died while the likes of deer and horses adapted to their environment and bred quick enough to survive.

Did you know?

As well as humans, wolves and bears managed to survive in Britain after it became an island. The last bears were hunted about 1 thousand years ago and the last wolves during the early 1600s.

4 - The Climate Today

It is thought that past changes in the climate were caused by changes in the orbit of the Earth, moving our planet closer towards and further from the sun. Climate change today is a different story. Today's climate is changing around 20 times faster than it has done in the past and humans and the advancement of technology are to blame. Our climate is controlled by changes in the heat entering and leaving the planet.

So if more heat is absorbed by the planet, more ice will melt and less light and heat will bounce back to space and the planet will keep getting hotter. As temperatures rise significantly all living things will have to adapt to survive, or they will die.

5 - Surviving the Stone Age

In order to survive and thrive, men, women, and children would all play important roles within the tribe. They mastered the skills below and shared responsibilities equally.

- **Shelter Building: Stone Age people were mostly nomadic, following their food sources across Europe, never staying in the same place for too long. They learned how to build shelters from wood, large animal bones, furs and plants, when caves were not available.**

- **Hunting and Gathering: Following the animals that they were using as food across a variety of different landscapes required a range of tools for hunting. Spears and bows for large animals inland, stone slings for smaller game and harpoons and nets for fishing and trapping sea birds by the coast. As well as hunting animals, Stone Age people were experts at identifying edible wild foods and maintaining a balanced diet of meat, vegetables, and fruits.**

- **Making Fire came with many benefits, warmth, cooked food, light and protection from wild animals. It could be spread from naturally occurring fires (lightning strikes etc), made by friction (using a hand or bow drill) or it could be made by striking flint**

against rocks with a high metal concentration and using the sparks to ignite tinder.

- **Tools and Weapons were mostly made from flint stone as it breaks along very sharp edges and can be easily honed into shape with larger stones or bits of antler. Flint was used to make arrow and spearheads to hunt with as well as hand axes, knives, and scrapers to use in food and clothing preparation. Wood, bone and other types of stone were also used to make tools and weapons.**

- **Clothing was made using the furs of hunted animals, flint scrapers would have been used to clean the skins before they were sewn together using bone and antler needles.**
  Cord was made from plant fibres or animal sinew.

Did you know?

- **Stone Age people made fires here by burning moss and animal fat inside scallop shells.**
- **Evidence of people fishing nearby comes from a 14 thousand year old harpoon that was found in the cave.**
- **A 42 thousand year old jawbone found in Kents Cavern is the oldest Homosapien remains in Britain.**

Three Different Human Species

Kents Cavern is the only place in the world with evidence of occupancy from three separate human species:

- **Homo heidelbergensis (5 hundred thousand years old)**
- **Neanderthals (100,000 to 40 thousand years old)**
- **Homosapiens (42 thousand years old to present day).**

These different human species endured a range of different climates, including the Ice Age, and occupied Kents Cavern and the surrounding area with many dangerous animals such as:

- **Ancestral Cave Bear**
- **Cave Lion Hyena**
- **Cave Lion**
- **Scimitar Toothed Cat**
- **Woolly Mammoth**
- **Wolves**
- **Woolly Rhino**

Despite the dangerous animals and harsh conditions, people in Stone Age Britain didn't just survive; by mastering important skills, they were able to thrive!

6 - Pioneers of Modern Archaeology

Kents Cavern has been a place of interest for humans for nearly half a million years, as a place for shelter and survival to prehistoric people and then more recently as a place of adventure and mystery. If it wasn't for the work of two pioneers of modern archaeology, Father John MacEnery and William Pengelly, the true archaeological significance of Kents Cavern might have never been known.

Father John MacEnery

MacEnery spent some time excavating at the cave during 1825 after spotting the entrance from a chapel across the valley, and carried out the first systematic exploration of Kents Cavern.
He recovered a large collection of remains from extinct animals such as mammoth and woolly rhinoceros. Eventually, amongst these animals' bones he began to uncover stone tools left behind by the earliest people who sheltered in the cave.

MacEnery, a Roman Catholic priest, understood from his findings that humans must have been living at the same time as these extinct animals, contradicting his own beliefs which were based on the teachings of the Bible. Despite this and the controversy it might cause, he recorded his findings objectively.

MacEnery worked in part of the cave where previous explorers had broken through the floor and knew it could be argued that the human tools had been placed by modern people. He was certain that his discoveries were genuine but knew that they would never be accepted as scientific proof.

William Pengelly

The archaeologist that led 'The Great Excavation' at Kents Cavern. It was on this dig that Pengelly created the 3D grid system of excavation, a technique still used by archaeologists to this day.

In 1846, Pengelly received a grant to further explore the observations made by Father John MacEnery regarding human tools being found alongside the remains of extinct animals at Kents Cavern. Pengelly reported that they had carefully broken through an undisturbed part of the cave floor and excavations had revealed flint artefacts. He claimed that they were contemporary with ancient and extinct animal bones but the British Association for the Advancement of Science were not prepared to expose such a revelation and refused to publish the findings.

The Great Excavation

In 1865, the Great Excavation began. Pengelly devised a rigorous excavation technique to eliminate confusion about ancient remains of humans and extinct animals being contemporary.
The team worked along a datum line removing rectangular prisms called 'yards'. Each yard was removed in different layers from the cave and the contents inspected for artefacts. Pengelly was so meticulous in recording his findings that it is possible, by using his data, to pinpoint exactly where in the cave his artefacts were found today.
When the excavation ended in 1880, Pengelly had proved that ancient humans occupied the cave at the same time as extinct animals. The artefacts were deemed of such importance that they were sent to museums and collectors all over the world.

Did you know?
MacEnery wrote an account of his time at Kents Cavern with accompanying illustrations of his discoveries. It was never published, but it was presented to the Torquay Natural History Society's co-founder, William Pengelly.

Please return this guide to reception before you leave, thank you.

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