Kendal Flood Risk Management Scheme

PEOPLE & PLACES
PAST & PRESENT



Volumn 2

Living on the Edge: Buried at the Edges.

Background

Work to construct a flood scheme to better protect 1,920 homes, 2,250 businesses and make them more resilient in the future has uncovered the industrial and economic foundations of a Cumbrian town.



Finds uncovered during the construction of Kendal flood sheme are of considerable archaeological significance and their recovery and subsequent analysis can tell us a great deal about the past lives of the inhabitants of Kendal.

The Government is funding multi-millions of pounds of investment in the Kendal Flood Risk Management Scheme (FRMS), to protect property in Kendal and across the river Kent catchment. The flood scheme excavations in the area of Parish Church and Waterside uncovered more about the industrial and economic history which formed the foundation of trade and business in Kendal.

This e-book takes a deep dive into the findings, their implications and the reconstruction from the fragmented skull discovered by archaeologists, the woman named Agnes by the people of Kendal.

Uncovering the past

Following on from volume 1, the discovery of human remains whilst excavating the foundations of the new flood defences, we are now looking at what the archaeologists found that has added to the knowledge of Kendal's past.

The 66 individuals of varying ages were carefully removed by Environment Agency and contractor archaeologists. The key evidence these human remains provided was confirmation that a place of worship has been on the site of the Parish Church in Kendal earlier than previously recorded.

Osteoarchaeologist, for SLR Consulting Ltd, Megan Stoakley worked to reconstruct the fragments of one skull which enabled John Moores University in Liverpool to make a reconstruction of the woman – known as The Kendal Woman.

Following a public vote, The Kendal Woman was named Agnes, and her full image was unveiled in the Parish Church at an event on November 25, 2025. Megan Stoakley gave a presentation on her work and findings, at the public event, and this e-book captures the information she shared.

Technology bringing past to life

Because they sat beneath the churchyard wall for centuries, most of the skeletons the team uncovered had been crushed and archaeologists worked to piece together their stories. However, one woman's skull survived in a good enough condition for scientists at Liverpool John Moores University's Forensic Arts Unit to rebuild it and, using computer technology, reconstruct a first draft of what she looked like.

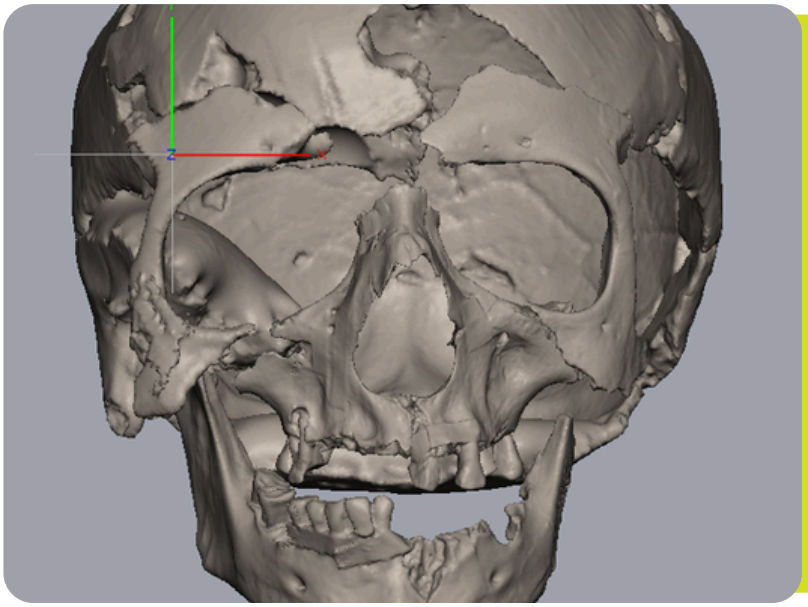
While we will never know her real name, her teeth and bones do tell part of her story. Today, however, we call her 'Agnes - The Kendal Woman'. Agnes was roughly 50 years of age. Ancient DNA extracted from her bones, and isotope analysis of her teeth suggest she had been born and probably spent her whole life living inland. It's likely indeed that she was born in or around Kirkby in Kendal (Kendal' s name in the 1200s) and spent most, if not all, of her life in and around the town.

As soon as she was discovered, it was very evident she was not buried in a coffin but had likely being laid to rest wrapped in a linen shroud.

Her burial, on the outer edge of the churchyard, coupled with the lack of coffin suggests she occupied a lower position in the fledgling town's social order. Analysis of her teeth and bones support this theory, pointing to a relatively poor diet, which comprised of grains supplemented by vegetables, fruits and (when available) meat, fish, and dairy products.

Bread would have been an important part of her diet, and she probably ate dark-coloured stone ground loaves. Her teeth were in a poor condition, which was unsurprising as there was no access to any form of dentistry.

The condition of her teeth also stemmed from eating the stone ground bread of the period which was known to contain quantities of grit and so caused considerable dental wear.



Reconstruction of the skull of the Kendal Woman - Agnes

Her bones suggest she led a hard life, and the reconstruction shows the ruddy complexion of one who has worked outdoors extensively, probably in the fields which would have surrounded the town.

A break in her left arm points to a fall from height; this likely occurred in her youth as the fracture healed cleanly and it is not thought to have caused her issues later in life. What did cause her pain was chronic osteoarthritis. Her life of manual labour will have put considerable strain on her joints and this, coupled with her age and sex (women are more likely to develop osteoarthritis than men) resulted in the onset of this condition.

In her later life she would likely have relied on care, this may have been provided by close family, the broader community and possibly the church. Medieval churches often provided charity to parishioners and did accept and promote the use of natural herb and plant-based remedies.

Agnes would have worn simple, loose-fitting clothing coloured with readily available natural plant dyes to produce muted browns, greys, yellows, and dark greens.

Medieval women of all social standing tended to cover their hair for a variety of reasons (modesty, social status, fashion, and practicality). With Agnes, practicality and durability is likely to have been the principal reason.

She would have worn linen or woollen clothing and her head covering by a simple cap to protect her hair from the elements, keep it hair cleaner and make it easier to manage while working outdoors.

We can't say how Agnes died but her age at death suggests a woman cared for, if not by family, then by church and community. The Christian Church no doubt played a significant role in her life and her burial within the churchyard, even on its fringes, would have offered her the opportunity of respite in the afterlife.



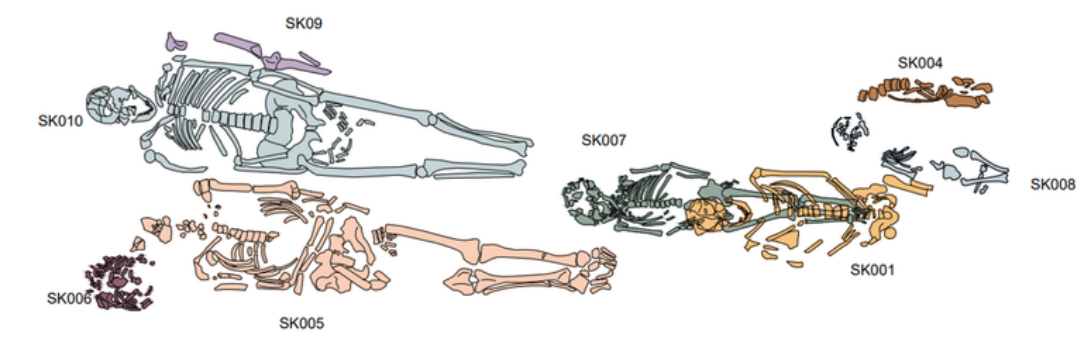
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Radio Carbon Dating

The burials were originally thought to be of later post-medieval to Victorian, date based on stratigraphy - the order and relative position of the archaeological remains. However, Radio Carbon Dating of the remains dates them medieval - with at least two phases of burial - the first from the 11th-13th Century and the second from the late 12th to around the 13th Century.

Radio Carbon Dating is a scientific method used to determine the age of organic materials (up to approximately 50,000-60,000 years old) by measuring the decay of the radioactive isotope carbon-14. The method is important in archaeology to date human remains and artifacts. The Radio Carbon Dating of the skeletons in Kendal provide the area had been a religious site earlier than previously believed.



Diet and Isotopes

The human remains have provided evidence of what people living in Kendal ate during the 1200s.

Isotope analysis in archaeology is a key scientific technique for reconstructing past human diets, migration patterns, and environmental conditions by measuring isotopic ratios (carbon, nitrogen, oxygen, strontium, lead) in organic and inorganic remains.





All the individuals found in this archaeological dig in Kendal were found to have eaten an omnivorous diet, based on terrestrial carbon protein. In archaeology, terrestrial carbon protein refers to the carbon developed from land-based food sources (plants and animals) that is found in human or animal bones. From the study of the bones, archologists can find the evidence for what the person ate when alive.

From the Kendal human remains, there was no evidence of marine consumption, such as fish or shellfish. As well as identifying the diet, the scientific testing of the bones also provides information on the individuals' social status.

Five of the individuals had lower carbon and nitrogen isotopes, they were of lower social and economic status. Lower nitrogen values particularly suggest a lower consumption of animal protein. This typically indicates a diet based on wheat, barley, tubers, and fruits and with minimal input from marine resources or high-trophic-level aquatic foods. Someone from a lower social-economic background would have eaten this type of diet.

Origin of the people

As well as being able to identify the diet and social status of the individuals discovered by the archaeologists, scientific investigations of the bones can also identify the origins of these people.

The skeleton of a middle-aged man showed higher levels of animal protein, which indicates he came from a different social status or geographic origin - somewhere other than Kendal.

The bones from a child, which evidence suggested was younger than 9 years old had higher oxygen isotopes. This is evidence that they were non-local, and possibly from the west coast of Britain, either the Hebrides or Wales.

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Health conditions

From the skeletons uncovered, archaeologist have been able to identify the health of the individuals.

The dental conditions overall were poor with calculus, a hard mass formed by minerals within the body and gum disease. The skeleton of a boy, around 10 years old had AMTL, Antemortem Tooth Loss, the loss of teeth that occurred during an individual's lifetime, rather than after death. He also had signs of abscess.

With the lack of dentistry and diets including bread made with flour that included particles of stone, due to the process of grinding the wheat between two millstones, the poor condition of the teeth was expected.

Osteoarthritis was found in ten of the individuals, the most common form of arthritis, causing joint pain, stiffness, and reduced mobility due to the breakdown of protective cartilage. It is a degenerative joint disease, often called "wear and tear".

Another female, adult skeleton also showed osteoarthritis in the hip, this could possibly have been cancer. From the evidence found, she would have needed crutches to walk and would have been extremely painful.



Severe osteoarthritis of hip found in one of the skeletons, possibly cancer.



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ISchmorl's nodes (slipped discs) were also found in one skeleton. These are common spinal lesions where the soft centre of an intervertebral disc herniates or pushes through a defect in the bony endplate into the adjacent vertebra. And one adult female skeleton had Intervertebral Disc Degeneration (or Disease), a pathological condition of the spine. All these conditions would indicate the hard, physical work both male and female people undertook to survive.

In the skeleton of a pregnant female, tapeworm casings were found, showing she had been carrying the parasites whilst alive. The soft tissue of one older, adult male showed a lower arm and on another adult an ankle injury, while on one of the female skeletons there was a healed fracture on the arm.

Laypeople would have turned to the church for alms and pain relief. Most "hospitals" run by the church were actually alms houses, providing a place to rest, warm meals, and basic nursing care (washing linen, feeding) rather than curative medicine. Monks and nuns staffed these, treating patients' souls as well as their bodies. The church cultivated medicinal herbs in specialised gardens.

Monastic houses provided spiritual comfort to pregnant women. Among the skeletons uncovered was one of a young mother, 19-20 years old and her unborn child. She would have been visibly pregnant at the time of her death.

The inclusion of mothers and their babies who died in childbirth were not usually permitted to be buried in graveyards, consecrated ground. Pastoral and spiritual conscience may have won over in the end for this woman, and she was buried on the edge of the graveyard.

There was a high number of skeletons of perinates (unborn) and neonates found in this location away for the main grave yard. This is not unusual for the medieval period, as unbaptised infants were not permitted to be buried in graveyards.

'Agnes' The Kendal Woman was in her early 50s when she died. She was around 4ft 11inches and was suffering from osteoarthritis. She had a healed fracture on her upper left arm and severe dental. She was the only skeleton from which a cranio-facial reconstruction could be carried out from. Megan Stoakley, the Osteoarchaeologist for SLR Consulting Ltd physically reconstructed, in-house the skull, and specialists at Liverpool John Moore University created the digital cranio-facial reconstruction using an Artek scanner.



Findings from the burials

The discovery of the 66 individuals buried on the edge of the churchyard indicated that the 35 adults and 31 children, the young mother and unborn baby and high number of children remains indicated illicit burials.

The way the individuals were discovered would be in lines with eaves-drip burials, the medieval custom of interring infants and small children next to churchyard foundations. This was practiced during the 7th–12th centuries AD throughout Britain.

Finally laid to rest

On May 22 eight caskets with the remains of the 66 individuals found were placed in the Bellingham Chapel of Holy Trinity Kendal Parish Church for the public to pay their respects before a private reburial of them, led by Vicar of Holy Trinity Kendal Parish Church, The Revd Canon Shanthi Peiris. A simple plaque remembers the oldest residents of Kendal who have provided the current citizens with more details of the history of their town.



Kendal Flood Risk Management Scheme

Kendal Flood Risk Management Scheme will better protect businesses and homes and adapt further to the changing climate – protecting lives and livelihoods from flooding and enhancing the ability to recover quickly.

The Kendal Scheme received European Union funding and is delivered by the Environment Agency, designed by Jacobs and WSP.

The contractor undertaking the on-site works in the Parish Church area and on other part of the scheme are VolkerStevin Ltd and the archaeological investigations are undertaken by staff from Wardell Armstrong.