Discovery, Innovation and Science in the Historic Environment

RESEARCH

Historic England

ISSUE 22

Welcome...

...to this issue of Research magazine.

In this issue we present a selection of articles about research that we commission from other organisations to help us and the sector to better understand and protect England's historic environment or to help inform how the sector functions. We also showcase a project that illustrates our partnership work with other UK agencies.

In 'Understanding the Staffordshire Hoard', Jenni Butterworth of Drakon Heritage, co-author of a recent book on the subject summarises results from 10 years of research into the country's largest Anglo-Saxon treasure.

Richard Brunning of Southwest Heritage Trust shares findings from investigations into two very important wetland prehistoric sites, prompted by their potential vulnerability to climate change. These are:

- Glastonbury Lake Village- England's best-preserved Iron Age settlement
- and the Sweet Track, the UK's oldest wooden trackway.

For Disability History month we commissioned Cath Poucher to report on the experiences of disabled people working in the heritage profession to help inform efforts to make the sector a more inclusive workplace.

Adam Kilgour and Franky Lau give a sneak-peek behind the scenes of a GIS project to open up access to our rich maritime heritage for researchers as part of the multi-agency 'Unpath'd Waters' consortium programme, which Historic England leads.

Lastly, we give you a thematic round-up of the latest additions to our Historic England Research Reports database so far in 2022.

John Cattell
National Head of Research
with Historic England.

Front cover image: The Staffordshire Hoard helmet reconstruction.

We are the **public body** that **helps people care for, enjoy** and **celebrate** England's **spectacular historic environment**

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Previous issues of Historic England Research can be viewed online at: **http://bit.ly/HEresearchbackissues**

ISSN: 2058-1858

Product Code: HE0077

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Understanding the Staffordshire Hoard

Above: The pectoral cross, decorated with gold filigree and a central garnet gem. © Potteries Museum & Art Gallery, Stoke-on-Trent

10 years of research has revealed new insights into the nation's largest Anglo-Saxon treasure.

Treasure

The Staffordshire Hoard, the largest collection of Anglo-Saxon gold and silver ever discovered, was found in a field by a metal-detectorist in 2009. Acquisition through the Treasure process by Birmingham City Council and Stoke-on-Trent City Council began a ten-year journey to conserve and study this remarkable assemblage. The results of the research were published in 2019, and with the publication of a popular book earlier this year the research project has now drawn to a close. This article explores what we've learnt.

The collection

The hoard is composed of more than 4,000 fragments, which together make up around 700 individual items, making this much larger than the number of metalwork finds from Sutton Hoo, Suffolk. Only two of these are complete or near complete objects; one a gold cross pendant, known as a 'pectoral cross', designed to be worn around the neck, the other a significantly-damaged jewelled cross intended to be carried or to stand upon an altar.

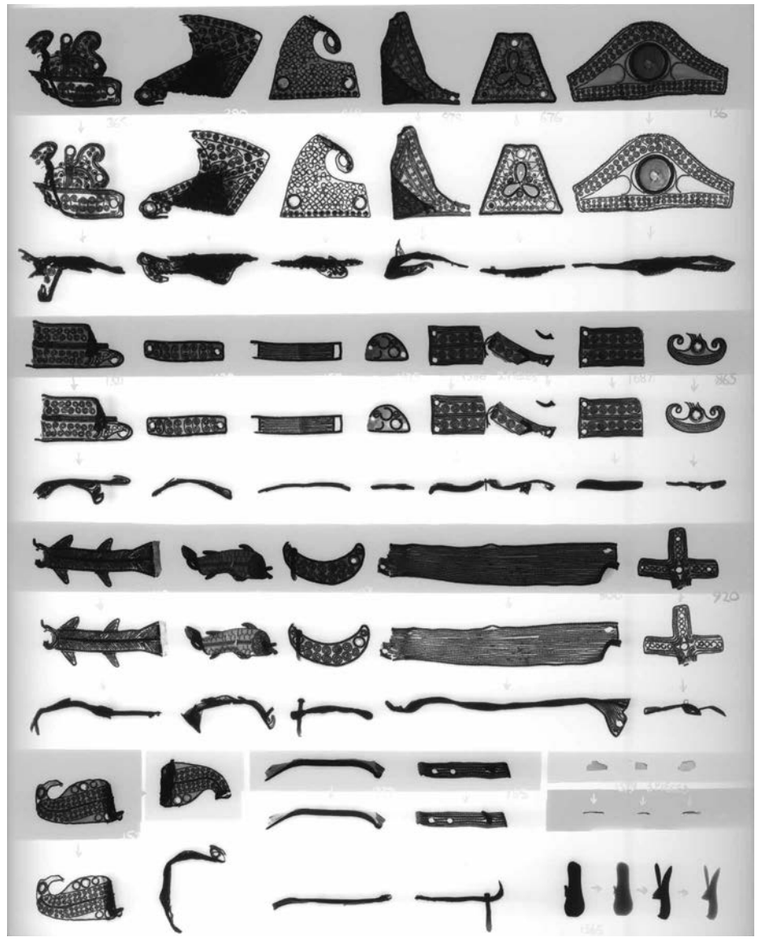
The rest are all parts of larger objects that had been broken up and only certain parts included in the deposited hoard. The majority are precious metal fittings from the hilts of elite weapons, but the hoard also contains decorations from other prestigious and religious objects, such as saddles, books and reliquaries (caskets for items of religious significance). Around one third of the collection, by fragment count rather than weight, derives from one gilded helmet.

There are no objects that definitely represent women or domestic life, and even as a battlefield collection, it is highly selected, missing many of the items associated with elite male dress of the period. As an example, the hoard probably contains fittings from over 100 weapons, but only three small buckles that might have decorated associated weapon harness or costume. >>

Above left: Some of the research team studying and reconstructing the die-impressed sheet. © Birmingham Museums Trust

Above centre: Sword pommel with a staring face. This is one of the oldest objects in the hoard. © Potteries Museum & Art Gallery, Stoke-on-Trent

Above right: The soft gold decoration on this pommel shows tool damage from when the sword was broken up. Luke Unsworth © Potteries Museum & Art Gallery, Stoke-on-Trent



Left: The collection was x-rayed during the research project. Courtesy of Lincolnshire Archives, Lincolnshire County Council

Few people in 6th- and 7th-century England would have had the resources to commission objects like these, which were probably the preserve of kingly and princely leaders.

The hoard objects in time and place

A combination of investigative conservation, scientific analysis and archaeological and art-historical study suggests that although the hoard objects were buried together, around AD 650-675, each object's story varies prior to that.

Lead archaeologist Chris Fern identified four phases of manufacture within the hoard. The oldest objects are a small number of silver weapon fittings, dating primarily from the 6th century AD: they probably came from what were considered to be 'heirloom swords' by the time they were buried, and many are heavily worn. Most of the gold objects are classed into two phases: filigree-decorated sword fittings dating about AD 570-630, and then a later group around AD 610-650 which includes the larger prestigious objects, such as the Christian objects and saddle furnishings. Finally, another small group of silver weapon fittings decorated with gold mounts in a distinctive 'Early Insular' style show little wear and date from about AD 630-660, not long before the hoard was buried.

Few people in 6th- and 7th-century England would have had the resources to commission objects like these, which were probably the preserve of kingly and princely leaders. They were vital symbols of status and tools of power, providing gifts to reward loyalty and for political exchange.

Even within this elite collection however, the style and quality varies, allowing 'kingdom styles' to be identified, suggesting that the objects were made in different places.

A small number of objects are made of higher-quality gold and with an exceptional level of craftsmanship. They share many similarities with the burial goods excavated at Sutton Hoo, and it is likely that some were made in the East Anglian royal court.

At the other end of the scale, some objects display a relatively poor level of technique and may originate in places with less-accomplished metalworking traditions.

The late group of 'Early Insular' style objects show both Anglo-Saxon and Celtic influences and may originate in Northumbria or another northern region. >>

The helmet reconstruction

The possibility that the hoard contained the remains of a helmet was known from the earliest discoveries, which included a pair of cheekpiece-shaped items. It also contains thousands of fragments of die-impressed silver sheet, much of which scientific analysis showed was originally gilded. A ‘research project within the research project’ reassembled the sheet fragments, resulting in a rich scheme of panels showing marching and kneeling warriors and zoomorphic designs, as well as individual priestly and horsemen figures. Working from detailed scale drawings made by the research team, Birmingham Museums Trust and The Potteries Museum & Art Gallery, Stoke-on-Trent used traditional and computer-aided techniques to recreate the helmet as it might have looked before its total destruction prior to burial. The reconstruction provides a tangible reminder of just what an impressive collection of prestigious display objects the now-fragmentary hoard once represented. >>

Top left: Reassembled hilt fittings displaying ‘Early Insular’ style. Cotswold Archaeology © Barbican Research Associates

Bottom left: Aerial view of the burial mounds at Sutton Hoo, Suffolk, burial place of the East Anglian royal dynasty. © Historic England Archive 27829_003

Left centre: Illustration of the seax (single-edged knife), one of the objects showing highest quality craftsmanship in the hoard. © Chris Fern

Above right: The Staffordshire Hoard helmet reconstruction. © Birmingham Museums Trust

Above: Set of three gold and garnet sword hilt fittings decorated with animal motifs. Luke Unsworth © Potteries Museum & Art Gallery, Stoke-on-Trent

Significance

With more than 100 weapons, mostly swords, represented in the hoard, part of its importance undoubtedly lies in its size. Hoards are rare for this period generally, and a cache of weapon parts of this scale has changed our ideas about the nature of Anglo-Saxon armies and their weaponry. It prompts more questions, for example about the size of armies and the proportion of elite warriors armed with swords in them. However, the character of the objects making up this large hoard is also significant. The weapon fittings include many sets of matching fittings, decorated with tiny animal motifs or repeating interlace and swirling patterns. Prior to the discovery of the hoard, there were very few examples of similar sword hilt sets: the collection has therefore changed our perception of weaponry and patronage in the period.

It is perhaps the early Christian objects that are some of the most significant. The hoard contains a number of crosses – the pectoral cross , possibly once worn by a high status cleric, a jewelled altar cross, and what is probably the arm of another cross, inscribed with a Latin biblical inscription from **Numbers 10:35** 'Arise, O Lord, and may your enemies be torn apart and those who hate you will flee from your face' (trans. Prof R Gameson). There are also precious metal and garnet fittings that most likely adorned religious books and reliquaries, and one priestly headdress. Few, if any, parallels, survive for these objects; they give us new insight into the material culture of the earliest Christian Church in Anglo-Saxon England. They show a vibrant artistic tradition, drawing in the flowing, rhythmical animal designs of earlier pagan metalwork to decorate new types of sacred objects.

Below left: Part of the Staffordshire Hoard. Luke Unsworth © Potteries Museum & Art Gallery, Stoke-on-Trent

Why was it buried?

Analysing its components has not solved the mystery of why the hoard was buried where it was, but it has enriched our understanding of the context. The burial spot was within the kingdom of Mercia, and its date – AD 650-675 – represented a key time in the history of both the kingdom and the nation. Penda, a vigorous king, had increased Mercia's power through alliance and competition with its neighbours: many of the hoard objects probably originated in the workshops of those neighbours, perhaps carried to Mercia over many campaigns and through many political acts, such as marriage, other political alliances, fealty and over-lordship, giving and taking of tribute.

When he was slain in battle in AD 655, Penda was the last surviving pagan Anglo-Saxon king, Christianity having swept across England in the preceding half-century during which most of the objects were made. The hoard objects thus represent, in physical form, the artistic traditions and ideas of a period of profound political and religious change across England, and their burial coincides with the turbulent time of struggle within Mercia that followed Penda's death ■

The author

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Jenni has worked on and off on the Staffordshire Hoard programme since 2010. The Staffordshire Hoard research project (2010-2019) was funded by Historic England and the museums that care for the collection (Birmingham Museums Trust and the Potteries Museum & Art Gallery, Stoke-on-Trent), and was managed by Barbican Research Associates.

Further information

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Fern, C, Dickinson, T and Webster, L 2019 **The Staffordshire Hoard: an Anglo-Saxon Treasure** The Society of Antiquaries of London

Barbican Research Associates 2019 **The Staffordshire Hoard: an Anglo-Saxon Treasure** [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1041576

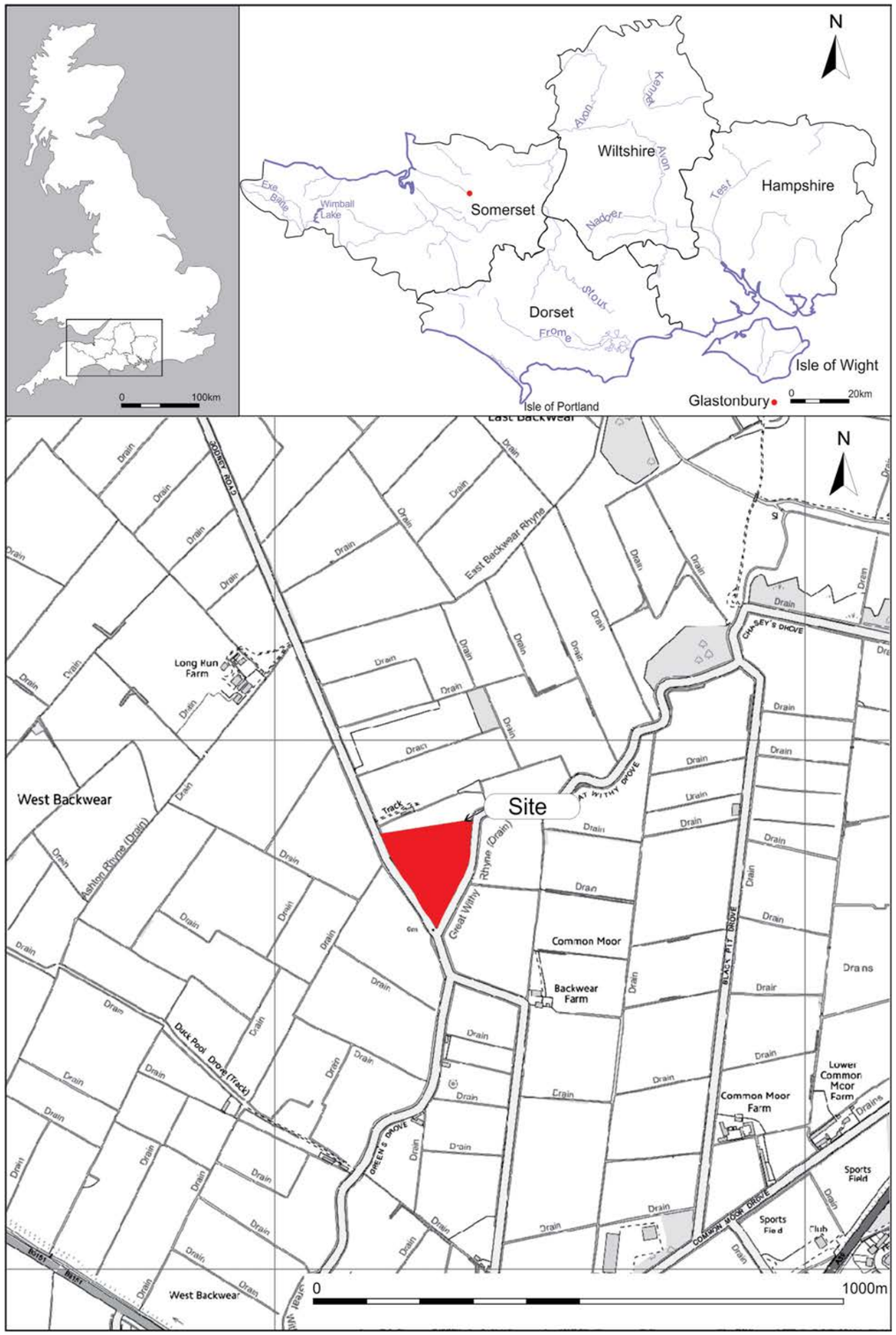
Analysing its components has not solved the mystery of why the hoard was buried where it was, but it has enriched our understanding of the context.

Uncovering the secrets and vulnerability of Glastonbury Lake Village

Researching and protecting England's best-preserved Iron Age settlement.

This project was the first investigation of the heart of this iconic site since 1907 and allowed a new understanding of its date and character and the prospects for its preservation. It was commissioned by Historic England from South West Heritage Trust. >>

Reconstruction image of the lake village.



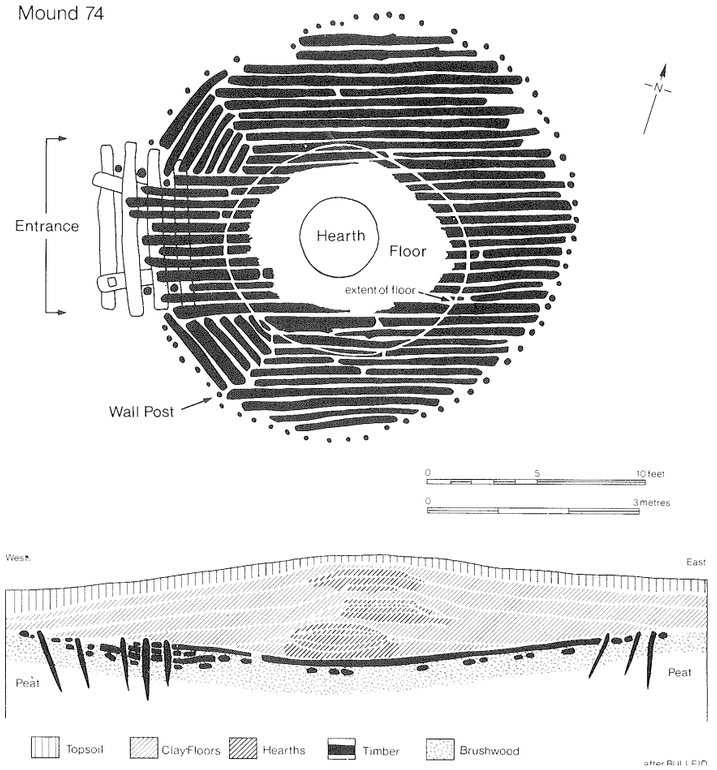
Above left: The location of Glastonbury Lake Village. © South West Heritage Trust

The Lake Village

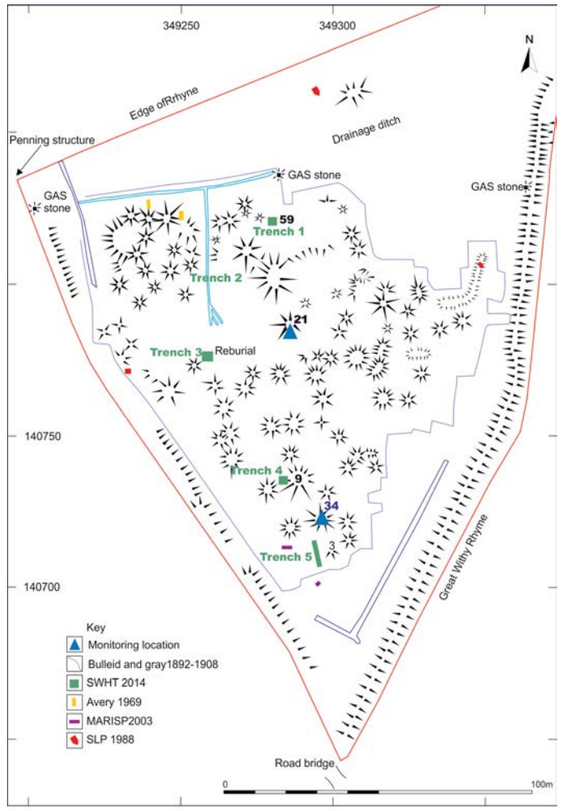
Glastonbury Lake Village is an Iron Age settlement located in the floodplain of the River Brue in Somerset. It was discovered in 1892 by a local antiquarian, Arthur Bulleid, who, inspired by reports of the wetland villages found in alpine lakes, sought their equivalent in Somerset. The site he found, had been buried in waterlogged peat and clay for two millennia, making it the best-preserved Iron Age settlement that has ever been discovered in the UK. Excavations between 1892 and 1907 revealed that the Iron Age inhabitants had brought in over 1,000 tons of clay to create 90 dry mounds in the swamp, upon at least 40 of which roundhouses were created. The houses and floors were frequently rebuilt, forming occupation deposits over a metre thick, containing a fantastic array of everyday material culture, crucially including wooden items such as bowls, boxes, baskets, wheels, ladders, tool handles and complex pieces of joinery that almost never survive on archaeological sites.

Excavation is destruction

Bulleid and his co-director, Harold St George Gray, excavated the entire settlement, including each habitation mound. They left a collapsed palisade and some wall posts *in situ*. Later small-scale fieldwork, in 1969, 1988 and 2003, only examined the periphery of the site, at the edge of the previously excavated area (see site plan), leaving open the question of exactly how much *in situ* evidence had survived the early excavations in the central area. It was also known that Bulleid and Gray had reburied some of the worked timbers on the site, but no one knew if they had survived this long-term reburial experiment. Previous hydrological monitoring – that is to say, checking the variations in the water table – had suggested a potential threat to the preservation of the site due to desiccation, but to gauge the extent of that threat it was necessary to know the exact height of the surviving *in situ* wooden remains in relation to the water table. >>



Above right: Plan and section of mound 74 by Arthur Bulleid. © South West Heritage Trust



Far left: Plan of the site showing the five recent keyhole trenches (in green). © South West Heritage Trust

Near left: Excavation of a sequence of collapsed palisades at the southern edge of the settlement. © South West Heritage Trust

Below right: A small wall stake of a roundhouse showing cracking caused by desiccation. © South West Heritage Trust

Expanding knowledge

Alongside these questions of preservation, there remained uncertainty over the date and duration of the site, with some conflict between the available information from radiocarbon dating and artefact typologies. The project aimed to address the research and preservation questions through keyhole excavations in five locations, including three habitation mounds, part of the palisade surrounding the settlement and the probable site of the reburied wood.

What was left behind?

The first surprise was the quantity of material left in the backfill of the original excavations. Although it was removed rapidly by spade in the recent fieldwork, the large number of artefacts recovered, if extrapolated across the site, suggest that this previously-excavated material could contain 6,900 sherds of pottery, 3,500 fragments of daub and 16,000 pieces of animal bone.

In the areas of the habitation mounds, the sequence of successive clay floors and hearths had been almost completely removed, usually leaving only the wooden foundations beneath.

What happens in a roundhouse?

In one trench a small patch of an early roundhouse floor surface survived *in situ*. Micromorphological analysis – the microscopic study of the deposits – detected layering that was not visible to the naked eye, consisting of two trampled floor surfaces, followed by the renewal of the floor using clay from a nearby freshwater source (the analysis revealed traces of freshwater algae).

A mix of peat taken from elsewhere and redeposited in the roundhouse with charred elements and herbivore dung overlaid that and was in turn covered by a dense layer of woodchips.

This complex sequence of activity can be interpreted as probably taking place within a few weeks or months, providing an exciting glimpse into the life of a roundhouse that can only be revealed on sites with such exceptional preservation. This shows short, discrete bursts of activity in addition to the periodic renewal of walls and floors every decade or so.

Samples from between two roundhouse mounds revealed pottery and bone fragments, wood, daub, charcoal and significant quantities of burnt grain of spelt wheat, barley and oats. This shows the mixture of everyday detritus that accumulated across the settlement, even though large midden deposits found at the edges of the settlement showed that most ‘rubbish’ had been dumped into the surrounding wetland. This new evidence using modern sampling adds to our knowledge – the early excavations did not record much about activity between the habitation mounds.

Not a house for life

In one trench the original excavations had removed all trace of the roundhouse that was there. In another the first wooden foundation as well as the posts that formed the walls had been left intact. The posts were surprisingly small, formed from young poplar or willow roundwood of 15-54 millimetres diameter, and were spaced 20-25 centimetres apart, with traces of wattlework woven between them.

In another area, where the previous excavations had revealed a sequence of nine successive roundhouse floors and walls, only some of the wall lines survived, again formed of small roundwood. It was possible to work out which posts related to the successive phases of rebuilding. This meant that Bayesian statistics (a method of combining scientific dating and stratigraphy by probability theory) could use the knowledge of those relationships to narrow down the dating results. >>

A sequence of eight successive palisades at the edge of the settlement allowed a similar statistical exercise.

The scientific dating results, from 67 new radiocarbon measurements, showed that the settlement was first occupied in 190–160 cal BC (68% probability) and the last constructional event probably took place in 75–45 cal BC (68% probability). It was therefore in use for a minimum of 75–135 years (95% probability). As some habitation mounds had nine successive roundhouses on them, this suggest that the life span of the buildings was only about a decade, not surprising when such slender posts were used in their construction.

What does the future hold?

As part of the project, new water control structures were installed by the Somerset Drainage Boards on one side of the site, helping to retain water in the summer months. The fieldwork provided information on the height of the *in situ* undisturbed archaeology and this was compared to water table monitoring data. Most of the remains were so far below ground that they were safe from desiccation in normal summers, but the wood that had been excavated and then reburied by Bulleid was slightly higher and therefore more at risk from desiccation.

The future climate change predictions for South West England include more occasional extremes of hotter drier summers, as we have already experienced in 2022. This means that the survival of this unique site, our clearest window onto Iron Age life, will be increasingly at risk over the coming decades.

The project has demonstrated that a wealth of archaeological evidence has survived the 'total' excavation of the site by Bulleid and Gray.

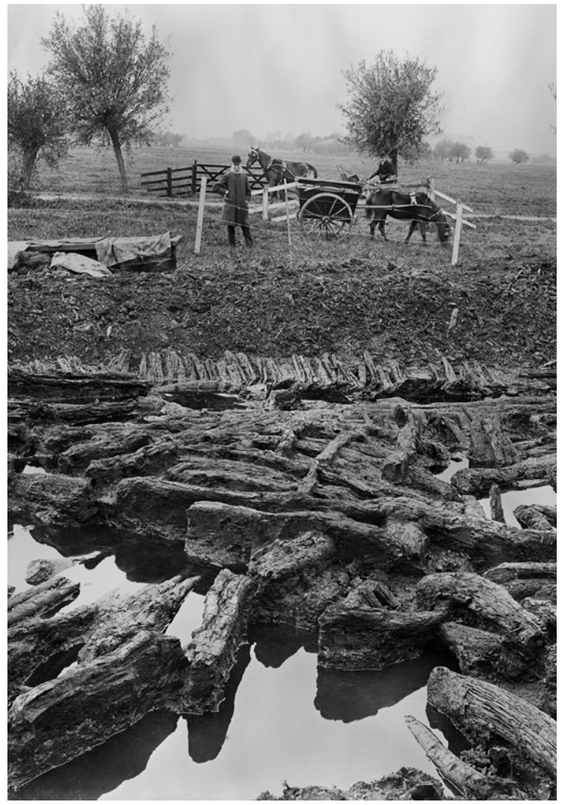
The structure of the roundhouse walls has been clarified, showing the use of small local roundwood, and the character of the settlement both within and outside the houses has been analysed for the first time with modern methods.

The new dating evidence shows the brevity of the settlement as a whole and the short lifespan of individual houses, dissolving our preconceptions of long lived buildings and reminding us that the prehistoric archaeological record is a vast conflation of infinite short lived actions, lasting seconds, minutes, or hours, rather than the more usual archaeological examination of changes occurring over centuries.

Wetland settlements such as Glastonbury Lake Village are important because they can release archaeologists from the tyranny of poor preservation and allow the fuller complexity of past human life to be revealed ■

Below left: Timber reburied in 1907 – the longest successful reburial experiment in the UK. © South West Heritage Trust

Below right: Photo taken at the Bulleid excavation in 1907. Source: Historic England Archive, BB72/02822.



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Richard has been the Levels and Moors Archaeologist for 16 years initially for Somerset County Council and then for SWHT. He has over 25 years experience of working in wetland archaeology in England, Scotland, Wales and Ireland and has written many specialist reports on waterlogged wood and helped to produce the Historic England guidelines on waterlogged wood. He is Chair of the Severn Estuary Levels Research Committee. He has played a leading role in developing many research and management projects in the Somerset Levels and establishing effective research collaborations with a range of universities and other partner organisations such as Historic England.

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Film re-creating the settlement https://www.youtube.com/watch?v=aT3w4Cq2-Pk&list=PLJGgq9_om1eJ2LinZZE2MEgqfFMAEOzgm&index=6

Another film featuring Richard https://www.youtube.com/watch?v=3-yffdYfmTk&t=64s

The Sweet Track and climate change

Trialling preservation at UK's oldest wooden trackway.

This project examined the condition of one of our oldest Neolithic monuments and assessed its vulnerability to future climate change.

The Sweet Track

The Sweet Track is a very early Neolithic wooden trackway, built as a single plank raised walkway across almost 2 kilometres of reedswamp, between the Polden hills and the island of Westhay, in the Brue valley west of Glastonbury, Somerset. It is named after Ray Sweet, the peat digger who discovered it in 1973.

A wide range of Neolithic material culture was deposited beside the trackway, including polished stone and flint axes, flint arrowheads, fine pottery and a range of organic objects including a wooden bowl, a toy axe, yew pins, a possible bow, a stirrer, and a digging stick. The presence of high-quality burnished pottery and a polished jadeite axe from the Alps with no handle, suggest that deliberate votive deposition of objects was taking place beside the trackway. The Sweet Track is the earliest structure in the UK associated with such ritual offerings.

The trackway has been dated by dendrochronological analysis of the well-preserved oak and ash planks used in its construction, several which have their last growth rings present enabling precise dating to the season felled.This proved that wood was felled for its construction in the winter of 3807/6BC or early spring 3806, with repairs taking place to at least 3800 BC (Hillam et al 1990). A lifespan of 9-12 years has been proposed for the structure (Coles and Brunning 2009). >>

Above: Reconstruction image of the Sweet Track, with a polished jadeite axe deposited as an offering in the shallow water beside the structure. © South West Heritage Trust

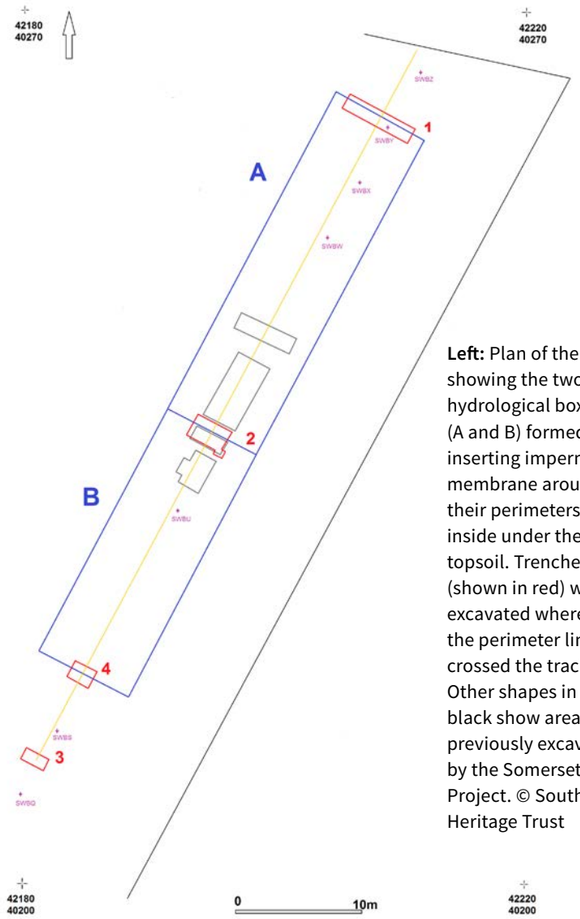
Wrapping up

One section of the Sweet Track, in Shapwick Heath National Nature Reserve, was thought to be at particular risk of drying out because it doesn't benefit from the pumping system that protects the structure elsewhere on the reserve by maintaining a high water table. It was therefore decided to trial a wrapping technique that had proved successful in protecting wetland sites in the Netherlands.

Over a 50 metre stretch of trackway, trenches were dug parallel to and across the line of the track, outlining two rectangular boxes 25 metres by 8 metres and the topsoil was removed from the interior of each box.

An impermeable membrane was then inserted into the trenches and wrapped over the interior of each box, leaving a narrow gap in the middle to allow rainfall to penetrate downwards.

In one box, the trenches were 3 metres deep allowing the membrane to connect to clay layers under the peat which contained the trackway. In the other box the membrane was taken to a shallower depth, 1 metre below the trackway level.



Left: Plan of the site showing the two hydrological boxes (A and B) formed by inserting impermeable membrane around their perimeters and inside under the topsoil. Trenches (shown in red) were excavated where the perimeter lines crossed the trackway. Other shapes in black show areas previously excavated by the Somerset Levels Project. © South West Heritage Trust

The membrane inserted into the trenches and wrapped over the top of the northern box (A), before being re-covered with topsoil. © South West Heritage Trust

Unexpected discoveries

Where the trenches crossed the line of the trackway the opportunity was taken to investigate the character of the structure, plot its position and assess its condition. The character and depth below ground of the track varied over the area, because the Neolithic environment it went through, changed from a reedswamp to a wet woodland as it approached a natural island of hard geology at the southern end.

The trench in the reedswamp revealed the classic raised walkway structure, known from previous excavations, but in the wet woodland the structure was much less substantial and showed more evidence of recent decay as it was less deeply buried in the peat as it climbed the edge of the island

One surprise came in the reedswamp trench, where a collection of wood was encountered 40 centimetres above the Sweet Track, but seemingly following the same orientation, with other cut pieces just to one side. Radiocarbon dating showed that this activity probably took place 500-700 years after the Sweet Track had gone out of use. It's impossible to know if this is purely coincidental or if the line of the earlier monument was memorialised somehow on the island. >>

This page, top: Excavation of the trackway, running horizontally in front of the archaeologists. © South West Heritage Trust

Centre: The trackway revealed, running vertically in the image. One of the flint blades can be seen beside the trackway (bottom left). © South West Heritage Trust

Bottom: Two flint blades discovered in the reedswamp trench beside the Sweet Track. © South West Heritage Trust

Disappointment and hope

Extensive monitoring of the burial environment by York Archaeological Trust and the National Museum of Denmark showed that the membrane had no significant effect on the burial environment and neither method of its insertion at different depths managed to help retain moisture in the peat over summer months.

The three years of monitoring did, however, allow analysis under different climatic conditions, with a wet summer in 2017 followed by an especially dry one in 2018. Throughout the monitoring there was no significant threat to the monument from desiccation, even in the dry summer of 2018.

Anoxic conditions (ie with no oxygen) were maintained at the level of the trackway in all the years. This shows that, although the site doesn't benefit from the dedicated pumping system that exists further north in the nature reserve, both the generally high water table generated by the reserve management and the presence of a large nearby reedbed appear to create a fairly high water table even in a very dry summer.

A new hope

The experiment showed that the Dutch wrapping method, though effective in some circumstances, did not provide any particular protection to the trackway in this location. However, the monitoring results showed that the high local water table created by the nature reserve management appears to provide good protection from desiccation, even in the hotter, drier summers that are predicted to become more frequent, and more extreme, in the decades ahead.

The excavations, despite their small size, revealed useful information about the variable character of the trackway as it traversed different wetland habitats. The unexpected discovery of later human activity on the same line as the Sweet Track raised new questions over the possible memorialisation of the earlier structure ■

Above left: Wooden remains, including cut roundwood, deposited above the Sweet Track about half a millennium after it had gone out of use. © South West Heritage Trust

Above centre: Peat from beside the trackway showing reeds (golden colour), bog bean seeds (red) and autumnal leaves which fell almost 6,000 years ago. © South West Heritage Trust

Above right: Reconstruction image of the trackway going through a reedswamp. © South West Heritage Trust

The author

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Richard has been the Levels and Moors Archaeologist for 16 years initially for Somerset County Council and then for SWHT. He has over 25 years experience of working in wetland archaeology in England, Scotland, Wales and Ireland and has written many specialist reports on waterlogged wood and helped to produce the Historic England guidelines on waterlogged wood. He is Chair of the Severn Estuary Levels Research Committee. He has played a leading role in developing many research and management projects in the Somerset Levels and establishing effective research collaborations with a range of universities and other partner organisations such as Historic England.

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Digital recreation of the Sweet Track in its Neolithic landscape

Exploring the experiences of disabled heritage professionals

Disabled heritage professionals explain what it is like to work in the sector.

Policy background

The Equality Act (2010) and the United Nations Convention on disability rights help to enforce and promote the rights of disabled people and protect from discrimination.

Historic England's own Equality and Diversity policy outlines principles to actively support everyone at work, ensuring that no one received less favourable treatment because of disability. It is our policy to make reasonable adjustments to enable everyone to have a fair opportunity for employment, promotion, training or any other benefits on an equal basis. Our Historic England Behaviours which describe how we expect our employees behave at work make very clear that enabling everyone's progress, learning from mistakes and actively seeking new perspectives with respect and appreciation are key to our success.

Historic England has also set out its commitment to making the organisation a more inclusive and accessible place to work in its 2020-2023 Inclusion, Diversity and Equality Strategy. This aims to help encourage greater levels of inclusion in the sector through an assessment of diversity in its workforce. In order to support these aims, Historic England commissioned some research into the experiences of disabled professionals within the heritage sector to begin to surface some of the issues being faced. >>

Historic England has also set out its commitment to making the organisation a more inclusive and accessible place to work in its 2020-2023 Inclusion, Diversity and Equality Strategy.

Top: An enabled archaeologist checking their recording paperwork. © Enabled Archaeology Foundation

Above left: A "buddy system" in place, one person recording and the other measuring and moving in and out out of the trench. © Sarahjayne Clements

Above right: An enabled archaeologist excavating a feature on site. © Enabled Archaeology Foundation

Cath Poucher unpacks the experiences of heritage professionals with disabilities working in the sector

The interviewees

In anticipation of UK Disability History Month 2022, I spoke to three disabled people working across the heritage industry, from museums to commercial archaeology. I wanted to find out about their experiences of being a disabled person working in different aspects of the heritage industry, and to find out what they think organisations, leaders and stakeholders can do to make the industry a better place for disabled people to work in.

Sarahjayne Clements works as a Community Heritage Officer for a local authority while also undertaking a doctorate at the University of Hertfordshire researching disability inclusion. She has Myalgic Encephalomyelitis (ME) which is also called Chronic Fatigue Syndrome. It is a condition that causes extreme tiredness along with a range of other symptoms. She also has Fibromyalgia (a condition that causes widespread pain) and sclerosis of the iliac bone (the upper hip bone), known as Condensans Ilii.

Caroline spent the first part of her career in Museums, working behind the scenes in collections. She then moved to the archaeology industry. She has worked with some leading national archaeology organisations, in non-field based roles, undertaking Desk Based Assessments. Caroline has mental health conditions, such as depression, anxiety and panic attacks. She also has ME, has recently developed arthritis in her knees and is currently awaiting a diagnosis of Attention deficit hyperactivity disorder (ADHD).

I also spoke to **Rory**, who knew they wanted to be an archaeologist from an early age, eventually going to university but finding the physicality of digging challenging. Since graduating they have worked in public, commercial and museum archaeology. Their emphasis is on what the past means to people today. Rory developed ME during their teenage years, and was recently diagnosed with Multiple Sclerosis (MS), with fatigue, balance, intermittent cognitive issues and headaches being the main symptoms that affect their daily life.

Above left: Sarahjayne at her sit/stand desk, at her adapted home office.
© Sarahjayne Clements

Above right: Caroline on site at an excavation. Source: Caroline, via Cath Poucher

Since graduating they have worked in public, commercial and museum archaeology. Their emphasis is on what the past means to people today.

A positive and supportive community

I wanted to find out if Sarahjayne, Caroline and Rory had any positive experiences of working in their various heritage and archaeology roles throughout their career.

Sarahjayne said she is encouraged by the support of larger organisations, such as the Chartered Institute for Archaeologists and the Council for British Archaeology, as well as the Enabled Archaeology Foundation (EAF), which aims to empower, enable and combat negative attitudes to disabled involvement in heritage. Sarahjayne said these organisations have shared goals of making the sector more inclusive for disabled people. She has had positive experiences with people who attended training sessions she provided as part of the Enabled Archaeology Foundation. These sessions raised awareness of disability for organisations and their staff, progressing the goals of the Enabled Archaeology Foundation in making the sector more inclusive for disabled people.

Caroline agreed, saying she also found support from the Enabled Archaeology Foundation, which made her feel that she wasn't alone in being a disabled archaeologist. She also found a lot of support from her union (Prospect Union), which advised her throughout her career.

Sarahjayne praised her employer. "Reasonable adjustments were made at interview, where I was provided the questions shortly beforehand". The employer also has a flexible working environment, and the team works collaboratively and supportively. Sarahjayne has praised their response to her work on disability in the sector. "They have embraced my work and have encouraged me to provide advice and training to the community groups I work with." She said they have also been encouraging about her career progression and supportive of training opportunities.

Rory has found that their time working in museums was the most positive. They found that because the museum sector focused on community and engagement, it also took good care of its staff. They also found that confiding in individual colleagues has made times of ill health much easier to deal with.

Caroline also praised some of her recent employers, who have engaged in flexible working, particularly during the pandemic: "working from home is a bonus, as that flexibility allowed me to do the role in a way that was flexible and allowed me to manage my disabilities and mental health conditions". >>

Above left & right: Details of a modified trowel making it easier for an enabled archaeologist to use. © Enabled Archaeology Foundation

They found that because the museum sector focused on community and engagement, it also took good care of its staff.

Challenges and negative experiences

While those I spoke to have some good experiences, they all spoke of negative situations they have experienced. Particularly common is a general lack of understanding of the challenges faced by disabled people.

Rory said that there is usually a “general look of disdain on colleagues’ faces” if they mentioned how tired they were on a particular day.

Caroline agreed, stating that the nature of her conditions mean that sometimes she has good days and sometimes bad days. She said there is often a lack of flexibility and understanding, with people often making judgements. She also mentioned that previously the working environment was challenging. A lack of flexible working limited her ability to work to the best of her abilities due to her physical and mental health.

Everyone agreed that current working practices create barriers and negative experiences to disabled people working in the industry. Sarahjayne said low pay and lack of opportunities meant that she was unable to progress in the archaeology sector. Due to her disability, she can only work part-time and many high-level positions were only offered on a full-time basis. “Offering job shares is not adequate provision as it puts pressure on the disabled person to find another person to job share with.”

When asked if they thought the industry was a good place to work if you’re disabled, all three of the interviewees said no.

Rory said that in their 20 years of experience archaeology is still a physical role, and even ‘desk-based’ roles involve a lot of physical action and mental agility. Their experiences showed that archaeology is still set up for non-disabled people, and things which could make it easier for disabled people are ignored.

Sarahjayne elaborated on this, saying it is not an easy profession to work in if you’re disabled. “The short term, temporary contracts, away-work, low wages, high staff turnover and time/cost centred nature are not conducive with disability.”

Caroline summarised that companies and organisations have policies in place and often pride themselves on inclusivity, which is great. However in practice, middle and senior managers are not on board with these principles or with what directors are trying to implement. She said a lack of understanding of personal circumstances meant that working practice differed from the company policies and procedures. >>

They all spoke of negative situations they have experienced. Particularly common is a general lack of understanding of the challenges faced by disabled people.

Above left: An enabled archaeologist marking a finds spot with a tag. © Enabled Archaeology Foundation

Above right: An enabled archaeologist being assisted by a colleague to access a site via a ramp. © Enabled Archaeology Foundation

Further training and development for managers would really help disabled employees, to make sure that they can see the value of diversity and employing disabled people.

What could the profession do?

I asked Caroline, Rory and Sarahjayne what they thought leading industry organisations, companies and stakeholders need to do in order to make the industry a better place for disabled people.

Caroline said that honesty and communication about what allowances you're entitled to and how you can get help from your employer is vital: "I didn't know who I could get support from and often felt alone".

Rory agreed, saying that leaders need to "truly listen to people who need some extra help with their activities. Accept that it may take a bit of time or money to help them in their role (e.g. a new desk chair, decent computer set up, decent lighting) but this can lead someone to truly flourish in their work and benefit the whole organisation."

Caroline said that further training and development for managers would really help disabled employees, to make sure that they can see the value of diversity and employing disabled people. Sarahjayne agreed, saying that "Employers should provide training in disability awareness for all their staff".

Sarahjayne also said that "we need to get better as an industry at offering support, particularly to young disabled archaeologists. We must have disabled staff so that young, disabled people have role models and see disabled people represented." She went further, suggesting the industry needs to think more flexibly; "we must make part time roles available, with the opportunity for career advancement".

Postscript: disability inclusion at Historic England

Over the last few years Historic England has taken a number of actions to improve the diversity of its workforce and create an inclusive organisational culture, including developing support policies relating to Disability at Work.

4.8% of Historic England's workforce (47 employees) declared a disability in 2020/21, up from 4.4% and 40 employees in 2019/20. It aims to increase participation by disabled people and is proud to be a Disability Confident Employer, recently achieving Disability Confident Level 2 accreditation. Historic England has disability partnerships with Evenbreak and Enham Trust who promote its job opportunities to an inclusive audience and provide consultation **on its policy and practices around disability**.
If an employee develops a disability during their employment, then Historic England makes extensive efforts to maintain employment, training and career development, and operates a Disability at Work policy that describes this.

Historic England acknowledges that part of tackling the barriers and issues discussed in this article relates to all organisations, ourselves included, providing training to staff. Therefore training is another key area of focus. In 2022 it partnered with disability awareness consultants, Celebrating Disability, to deliver disability awareness training to 265 employees, and 177 heritage sector professionals. It is continuing to develop training for managers and awareness raising activities to support the future of its disabled workforce ■

Signup to the Historic England training newsletter to learn more.

Historic England has a disability network group, which provides expert feedback and advice to Historic England on disability-related matters.

The author

Cath Poucher
Tourism and events professional.

Cath has a background in the archaeology and heritage, having previously studied archaeology, and spent a few years working in the industry. She is also a deputy editor of "The Unwritten", an online magazine written by disabled people, for disabled people, which aims to tell their stories authentically.

Further information

Historic England's Equality, Diversity and Inclusion Strategy: https://historicengland.org.uk/about/who-we-are/heritage-belongs-to-everyone/

Enabled Archaeology Foundation: https://enabledarchaeology.com/

Celebrating Disability: https://celebratingdisability.co.uk/

Evenbreak: https://hive.evenbreak.co.uk/

Enham Trust: https://www.enhamtrust.org.uk/

Below right: An enabled archaeologist accessing an archaeological site. © Enabled Archaeology Foundation

Bottom right: An enabled archaeologist checking recording documentation. © Enabled Archaeology Foundation

Opening access to our rich maritime heritage

How the Unpath'd Waters project is providing a single point of reference for the study of maritime heritage.

TOWARDS A NATIONAL COLLECTION | UKRI Arts and Humanities Research Council

Unpath'd Waters is working to unleash the potential of the seafaring past for users all over the UK by drawing together information from a number of sources into a single accessible website resource.

Above left: There is no known image of *UC-70* in an intact condition, this shows a similar submarine, *UB-60*, stranded off Castle Beach in Falmouth Bay in 1921. © Historic England

If you were looking for the story of U-Boat *UC-70*, an internet search would reveal that on 21 August 1918, the German submarine *UC-70* left Zeebrugge on its tenth and final patrol of the First World War.

Several results pages later, the trail goes cold. Accessing maritime heritage is not always easy.

The tale of *UC-70* can only currently be followed online by linking together stories from different websites.

The Unpath'd Waters project

The Unpath'd Waters project aims to bring the UK's great maritime heritage together in one place to ease the process.

It is one of five major Discovery Projects funded by the Arts and Humanities Research Council (AHRC) as part of the Towards a National Collection programme. The project is a national endeavour and brings together the four United Kingdom government heritage agencies, seven universities and 16 other partners and collaborators from the archaeological, museums, environmental data, charitable and commercial sectors. Together, these organisations make up the Unpath'd Waters Consortium.

Unpath'd Waters is working to unleash the potential of the seafaring past for users all over the UK by drawing together information from a number of sources into a single accessible website resource. Historic England is leading the £2.9 million project, which will explore how we can join up the UK's amazingly rich and diverse marine and maritime heritage collections and use cutting-edge technology to unlock access to them. >>

Story Maps lend themselves to following journeys through history by presenting information linked to time and place.

The use of the map and tracking can still provide a great visualisation of the types of journeys made by ships throughout history.

Story Maps and ArcGIS development

This ambitious project will help increase accessibility to stories like that of *UC-70* through Story Maps made with Geographic Information System (GIS) software. Paul Jeffery, National Listings Manager, said: "You've got lots of information in museums, artefacts, and documentary sources. All of those things are fantastic, but if you can actually pull bits of those different types of data together and then present that story in Story maps, you can really bring it to life."

Story Maps lend themselves to following journeys through history by presenting information linked to time and place. They can include physical journeys from one location to another, or larger temporal journeys of artefacts.

UC-70's patrol and other similar voyages are perfect case studies for the use of Story Maps.

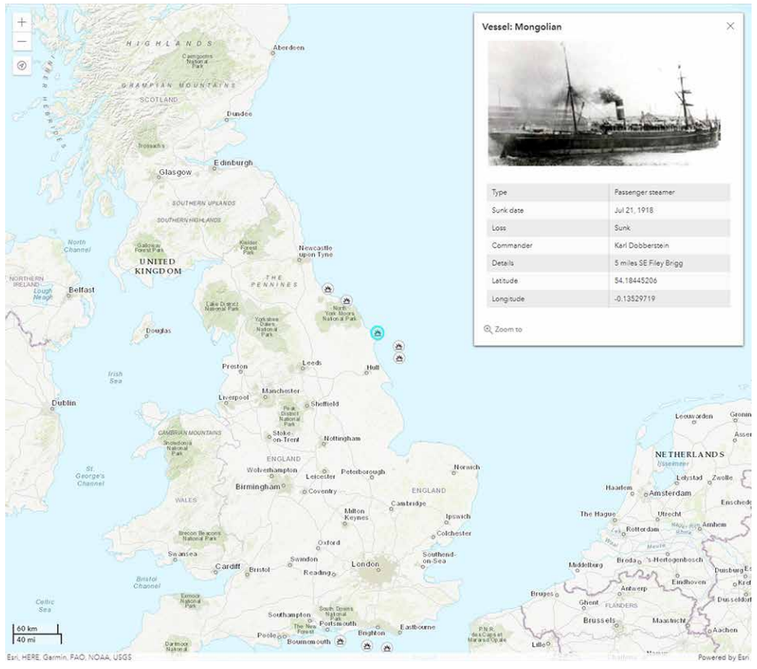
U-Boats kept very detailed logs of their movements and locations throughout different patrols, and this allows for a more in-depth and illustrative experience.

This benefit does not apply as easily to older ships as detailed logs were far less common in the Age of Sail. Specifically, the details of a journey may be limited to when the ship left and arrived in port and with some luck may include some bearings while at sea. However, even with this limitation, the use of the map and tracking can still provide a great visualisation of the types of journeys made by ships throughout history.

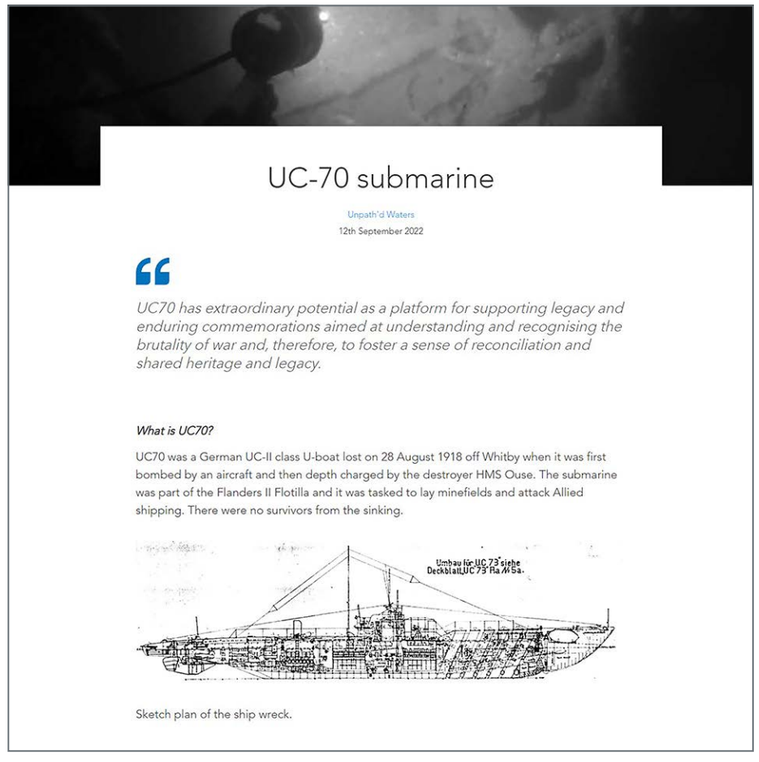
In addition, Story Maps will further increase the interactivity and ease of use for researchers by integrating maps with different multimedia to help create a more engaging, interesting, and valuable resource.

Frankie Lau, a GIS developer with Historic England's Information Management and Technology department, is developing a prototype overlay in ArcGIS to help users access the maritime heritage which lies around our coasts. These provide a layer of heritage information laid onto a map or satellite view. >>

Right: Vessels sunk or attacked by *UC-70* during her patrol operations. © Historic England



Left: The Story Map webpage of the story of the *UC-70*. © Historic England



Specifics of maritime voyages can often be hard to picture in relation to geographical boundaries.

He began by collating all available information into a more digestible database for analysis. A conceptual diagram helped to visualise the complex relationship between the distinct factors, such as characters, remains, and activities, involved in an event at sea like the *UC-70's* patrol and sinking.

It helped him visualise the protagonists, their nationalities, the action leading to an event, and what evidence remains of what took place. All this information paints a picture of the event and eases the process of transferring the data into map services using ArcGIS software.

Specifics of maritime voyages can often be hard to picture in relation to geographical boundaries. Through the map services, an interactive animation will be created to show how historic maritime events unfolded.

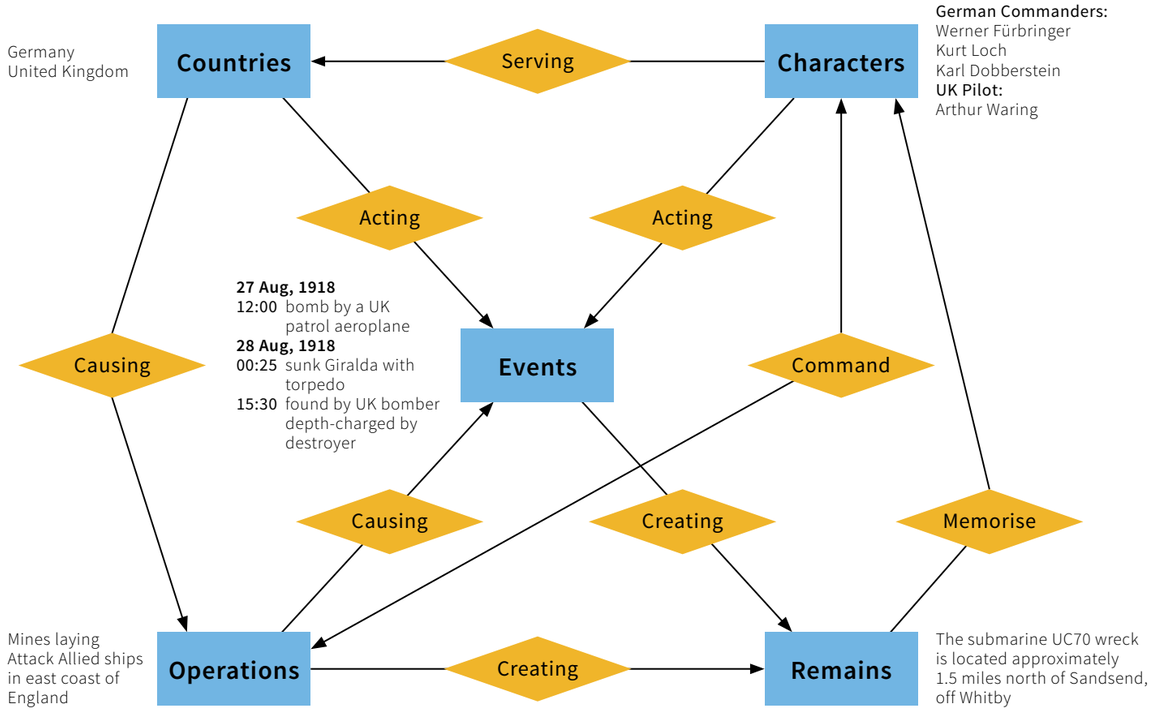
In the case of *UC-70*, this map will show its final journey from Zeebrugge to the coast of England and its eventual destruction. It will help to present this information in a new and engaging way. >>

Right: The prototype ship journey animation showing *UC-70's* final voyage. © Historic England

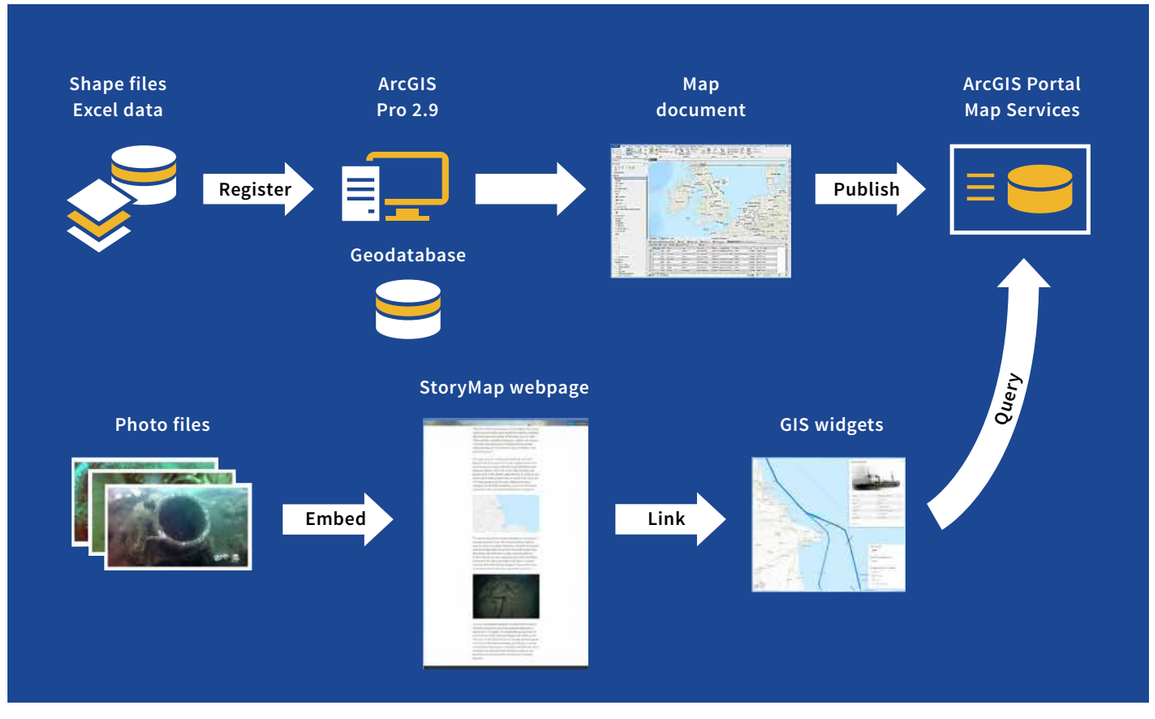
Below left: Frankie Lau's Conceptual Model diagram for *UC-70*. © Historic England

Below right: Frankie Lau's Workflow diagram used to create the GIS prototype. © Historic England

Conceptual Model Diagram



Workflow Diagram



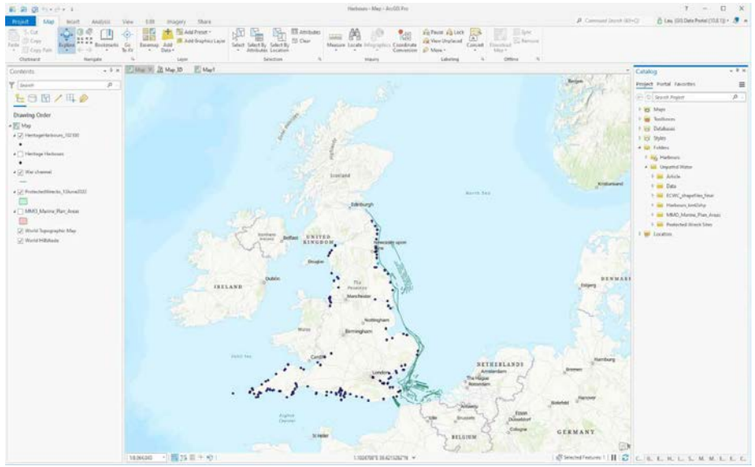
The new system will also seek to improve the learning experience around Heritage Harbours.

The new system will also seek to improve the learning experience around Heritage Harbours. These are places of historic maritime significance which retain original features, buildings and facilities important for supporting historic vessels and maritime skills. Story maps will enhance this experience by allowing users to easily call up more information by clicking on different information points or through layers.

Sliders to compare historic and present-day maps will show the evolution of different ports and sea routes through time.

The end of *UC-70's* story

On 28 August 1918, a Blackburn Kangaroo flown by Pilot Lieutenant Arthur Wearing of RAF 246 Squadron was on a routine anti-submarine patrol off the Yorkshire coast. A large oil slick covering the surface of the water was spotted and followed to its source, a long shadow underneath the waves. Wearing identified it as a probable submerged U-Boat and dropped a single bomb.



Top: A work in progress screenshot of the Heritage Harbour and War Channels interface. © Historic England

Bottom: The Map Slider widget created by Frankie Lau. © Historic England

The successful development of this stage will open new ways for the public to experience and learn about maritime heritage.

UC-70 was rocked by the explosion and began to leak more oil and air. HMS *Ouse*, a Royal Navy destroyer, arrived on the scene and began to drop depth charges on the U-boat until it finally succumbed to the punishment and sank.

The remains of the submarine, located off the coast of Whitby in North Yorkshire, were designated as a protected wreck site by Historic England in 2017.

The future

Currently, the project is focused on prototyping the database, the user interface, and the experience. The successful development of this stage will open new ways for the public to experience and learn about maritime heritage.

The Unpath'd Waters project is scheduled to run over three years, and the work completed on the GIS prototype will feed into it all. In addition, Historic England's National Marine Heritage Record database (Mariner) will also incorporate the findings ■

This work is supported by the Arts and Humanities Research Council [grant number AH/W003384/1].

The authors

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With a journalism background, Adam provides training and content creation for the IMT department of Historic England.

Frankie Lau
GIS developer with Historic England.

Frankie is a GIS developer with 15 years' experience of GIS Web App development and map creation. His recent interests are building 3D GIS maps and using deep learning in geospatial analysis.

Further information

ArcGIS, more information at: https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/overview

Heritage Harbours, more information at: https://www.nationalhistoricships.org.uk/page/heritage-harbours

Towards a National Collection, more information at: https://www.nationalcollection.org.uk/

UC-70, more information at: https://historicengland.org.uk/listing/the-list/list-entry/1446103

Unpath'd Waters, more information at: https://unpathdwaters.org.uk/

Research Reports 2022

An overview of the recent additions to the series so far this year.

Climate Change

We are researching and promoting how the historic environment can positively contribute to overall global sustainability through adapting and mitigating measures.

Climate Change Adaptation Report
Hannah Fluck, Ruth Knight

Report focusing on climate adaptation, prepared by Historic England and the English Heritage Trust working in collaboration.

Read the Report

Mapping Climate-Related Hazards to Historic Sites
Joshua Deru, David Dowding, Emily Crowe, Hannah Fluck

Assessing climate risk to heritage sites using GIS systems.

Read the Report

Heritage Management

Reports on different aspects of heritage management and practice.

Advising on Historic England's Future Engagement with Intangible Cultural Heritage
WSP

We commissioned a report to assess the opportunities and risks involved in incorporating more Intangible Cultural Heritage into our programmes.

Read the Report

Assessing the Impact of Tall Buildings on the Historic Environment
Node

Findings on how the impacts of tall buildings on heritage assets and historic areas are understood and accounted for within the planning process.

Read the Report

Archaeology

We publish a range of reports on archaeological excavations, monitoring, survey work and archive practice.

Preserving and dating Glastonbury Lake Village, Somerset
Richard Brunning

Determined the extent of the archaeology left in situ after previous excavations, plus hydrological monitoring and sampling for scientific dating.

Read the Report

Sweet Track site (area SWB), Brue Valley, Somerset
Richard Brunning

Monitoring of measures undertaken to mitigate desiccation of part of a prehistoric timber trackway.

Read the Report

Dunstable Priory, Dunstable, Central Bedfordshire: Report on Geophysical Survey, May 2021
Neil Linford, Sarah Newsome, Andy Payne

Ground Penetrating Radar survey revealed detail of the Lady Chapel and apsidal end of the church immediately east of the surviving Priory Church.

Read the Report

North Walsham, Norfolk: Report on Ground Penetrating Radar Survey, December 2021
Nicola Fairs

Phase Site Investigations Ltd was commissioned to carry out a ground penetrating radar survey at several locations across the town centre.

Read the Report

Archaeology (cont.)

Kirby Hall, Gretton, North Northamptonshire: Report on Geophysical Survey, July 2021
Neil Linford

A Ground Penetrating Radar survey investigated the floors of a storeroom and the Great Hall after the collapse of a flagstone.

Read the Report

Launceston Castle, Launceston, Cornwall: Report on Geophysical Surveys, January 2022
Neil Linford, Andy Payne

The aim was to identify remains surviving within this area in order to improve visitor information and better inform the management of the site.

Read the Report

A Report on the Use of Archaeological Material Archives in Research in England (2010–2020)
University Archaeology UK

Analysis of research access to different types of archaeological finds assemblages in museum collections in England, for PhD projects from 2010 to 2020/1

Read the Report

The Afterlife of Private Collections
Adam Daubney

The project sought to develop a strategic understanding of the character and fate of privately held archaeological collections.

Read the Report

Aerial Survey

We publish a range of reports on archaeological excavations, monitoring, survey work and archive practice.

Cheshire Aerial Investigation and Mapping Project: The Chester Environs
Joel Goodchild

Project highlights include the identification of Roman enclosures and extensive medieval field systems covering much of the Cheshire Plain.

Read the Report

Beadlam Roman Villa: Assessment of the Landscape Setting. Aerial Investigation and Mapping Project
David Knight, Andrew J Roberts

The survey transcribed and recorded numerous archaeological features ranging in date from the later prehistoric period to the Second World War.

Read the Report

North Walsham High Street Heritage Action Zone Aerial Investigation
E. Carpenter

Analysis of historic views of demolished or altered buildings, illustrating the redevelopment of sites north and south of the Market Place.

Read the Report

Hinton St Mary Parish and Roman Site: Aerial Investigation
E. Carpenter

Aerial investigation and mapping of the area to support a British Museum led project that is investigating the site.

Read the Report

Northern Cheviot Hills Aerial Investigation and Mapping Project
Joel Goodchild

Aerial photographs and lidar images were used to map archaeological features in the northern Cheviot Hills.

Read the Report

Built Heritage

Our reports cover investigations into the built historic environment at different levels of detail. Particular focus points of this research is to support heritage-led regeneration and to inform heritage at risk cases.

Bunksland, East Anstey, Devon: Historic Building Assessment and Survey
Rebecca Lane

Investigation shows that the farmhouse is a significant survival of a late 14th-century four-bay domestic building.

Read the Report

Whitefriars Gate, 36-37 Much Park Street, Coventry: Historic Building Assessment
Rebecca Lane

Work identified that the original friary gatehouse dates from the late 14th or 15th century, with a significant phase of alteration in the 16th century.

Read the Report

The Historic Bank Buildings of Redruth: Historic Buildings Report
Johanna Roethe

This report sets out the national and local context for these buildings, in terms of the history of the banks they were built for and their architectural design.

Read the Report

The Guildhall, High Street, Newport, Isle of Wight: Historic Building Investigation
Johanna Roethe, Susie Barson

This report aims to inform the building's refurbishment and options for its future use as part of a High Street Heritage Action Zone partnership.

Read the Report

Built Heritage (cont.)

Ramsgate, Thanet, Kent: Historic Area Assessment
Geraint Franklin

Historical development of the town and the character and significance of its built heritage. Provides an evidence base for sustainable regeneration.

Read the Report

Maryport, Allerdale, Cumbria: Historic Area Assessment
Fiona Wooler

This project provides a better understanding of the history, development, character and significance of the historic centre of Maryport.

Read the Report

Maritime/Marine Heritage

Research into shipwrecks and other forms of heritage in the marine environment.

The *London*, Thames Estuary: Tree-ring Analysis of Ship Timbers
Nigel Nayling

Summarises dendrochronological investigation of timbers of a wreck identified as the *London*, located underwater in the Thames Estuary off Southend.

Read the Report

Archaeological Assessment and Net Removal from the Designated Wreck of the Northumberland on the Goodwin Sands
Pascoe Archaeology

The project led to new archaeological features being identified, as well as an increased understanding of the archaeological remains in general.

Read the Report >>

Scientific Dating

Our reports on scientific dating, including dendrochronology and radiocarbon methods, add new insights to understanding the chronology of buildings and sites.

The Shambles, 6 Market Street, North Walsham, Norfolk: Tree-ring Dating of Oak Timbers.
Alison Arnold, Robert Howard, Cathy Tyers

Tree-ring analysis of timbers from two roofs, a first-floor ceiling, and an ex-situ cellar joist, resulting in the successful dating of 29 samples.

Read the Report

The *London*, Thames Estuary: Tree-ring Analysis of Ship Timbers
Nigel Nayling

Summarises dendrochronological investigation of timbers of a wreck identified as the *London*, located underwater in the Thames Estuary off Southend.

Read the Report

158 Watling Street East, Towcester, Northamptonshire: Tree-ring Dating of Oak Timbers
Dr Martin Bridge, Cathy Tyers

Timbers from the roofs and floors of the L-shaped building on the front of this property were sampled. Results were later than the expected date.

Read the Report

Scientific Dating (cont.)

Bourn Mill, Caxton End, Bourn, Cambridgeshire: Ring-Width Dendrochronology, Radiocarbon Wiggle-Matching, and Oxygen Isotope Analysis of Elm and Oak Timbers
Dr Martin Bridge, Cathy Tyers, A Bayliss, Silvia Bollhalder, Lukas Wacker, Neil J Loader, Danny McCarroll

Samples were taken from 21 of the various timber elements of the mill. Results included evidence of a previously unknown rebuilding phase.

Read the Report

Deal Castle, Victoria Street, Deal, Kent: Radiocarbon Wiggle-Matching of Oak Timbers
Alison Arnold, Robert Howard, Cathy Tyers, Michael Dee, Sanne Palstra, Peter Marshall

Showed that the main ceiling beams of the Central Tower forming the ground-floor ceiling are from about 1530-1555, while its consoles are early 17th century.

Read the Report

Southall Manor House, The Green, Southall, Ealing, London: Radiocarbon Wiggle-Matching of Oak Timbers
Alison Arnold, Robert Howard, Cathy Tyers, Silvia Bollhalder, Michael Dee, Sanne Palstra, Lukas Wacker, Peter Marshall

Results showed a significant amount of timber felled in the first half of the seventeenth century, at odds with the expected late-16th century-date.

Read the Report

Scientific Dating (cont.)

Kibworth Harcourt Mill, Langton Road, Kibworth Harcourt, Harborough, Leicestershire: Ring-Width Dendrochronology and Radiocarbon Wiggle-Matching of Additional Timbers
Dr Martin Bridge, Cathy Tyers, A Bayliss, Silvia Bollhalder, Lukas Wacker

An original set of samples taken in 2004 were re-assessed, and an additional 21 timbers were sampled, along with one measured by digital photography.

Read the Report

Abbots Staith Buildings, Water Lane, Selby, North Yorkshire: Tree-ring Analysis of Timbers
Alison Arnold, Robert Howard, Cathy Tyers

Results suggest building works at the south wing in the last decades of the 16th century. Building works occurred in the central wing a century later.

Read the Report

The Maison Dieu Museum, 17 Ospringe Street, Faversham, Kent: Radiocarbon Wiggle-Matching of Oak Timbers
Robert Howard, Cathy Tyers, Michael Dee, Sanne Palstra, Peter Marshall

Results show all the sampled timbers are late 15th century; whereas the expected dating based on stylistic and documentary grounds was 16th century.

Read the Report

Scientific Dating (cont.)

Headstone Manor, Pinner View, Harrow, London: Radiocarbon Wiggle-Matching of Oak Timbers
Robert Howard, Cathy Tyers, Silvia Bollhalder, Lukas Wacker, Peter Marshall

24 of the 99 sampled timbers from the large multi-phase building have now been dated by ring-width dendrochronology and radiocarbon wiggle-matching.

Read the Report

Trerithick, Polyphant, Altarnun, Cornwall: Radiocarbon Wiggle-Matching of Oak Timbers
Alison Arnold, Robert Howard, Cathy Tyers, Michael Dee, Sanne Palstra, Peter Marshall

The chronology is from AD 1557 to 1726; the roofs of the extant hall range and west range were replaced in the late 17th and early 18th centuries.

Read the Report

Church of St John the Baptist, Myndtown, Shropshire: Tree-Ring Analysis of Oak Timbers Incorporating a Survey of the Roofs
Alison Arnold, Robert Howard, R. Meeson, Cathy Tyers

Analysis of samples from timbers representing two phases of roofs within the nave and the chancel, from the bell-cote and from the nave wall.

Read the Report

Heritage Science

In addition to reports on scientific dating, our new additions include other heritage science topics including investigative conservation.

Cleeve Abbey Frater Pavement Cleaning Analyses
Matt Canti

This report details the methods used and results obtained from examination of cleaning residues collected over the period 2008 - 2018..

Read the Report

Blake's Cottage, West Sussex: A Botanical Report on the Thatch
Ruth Pelling

Prior to renovation of the roof, samples of the thatch were taken from the exposed base layer, enabling characterisation of the historic basecoat.

Read the Report

Shrewsbury Flaxmill Maltings, Shropshire: Conservation and Investigation of a Child's Leather Shoe
Angela Middleton, Quita Mould, Gill Campbell, Francesca Gherardi

Covers conservation and analytical work, as well as a finds appraisal of a child's shoe found during refurbishment works; results informed a display.

Read the Report

Wellbeing and Heritage

Reports on supporting wellbeing through interacting with heritage.

Volunteering in Archives
Laura Elson

Case studies show how Historic England can expand volunteer opportunities through wellbeing-centred, hybrid ways of working in photographic archives.

Read the Report

Increasing Engagement with Heritage

Reports on projects that aim to increase or deepen engagement with heritage in England's communities.

Listing Audience Reach Project Reports
Kanda Consulting

Reporting on opinions from three communities regarding interaction with the National Heritage List for England.

Read the Report ■

Historic England