Historic England

Research

Discovery, innovation and science in the historic environment

Championing Historic Places

Historic England

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As the new Chief Executive of Historic England I am delighted to introduce this second issue of *Historic England Research*. In my first few months in the job, I have been greatly impressed by the breadth and quality of the applied research work that Historic England undertakes and sponsors. This research contributes to most aspects of our work as the government's advisor on the historic environment and also supports the development plans of the newly established English Heritage Trust. Perhaps more importantly, the fascinating stories that spring from the heritage science, discovery and interpretation that we deliver are a major factor in ensuring that members of the public remain informed, captivated and passionate about their heritage.

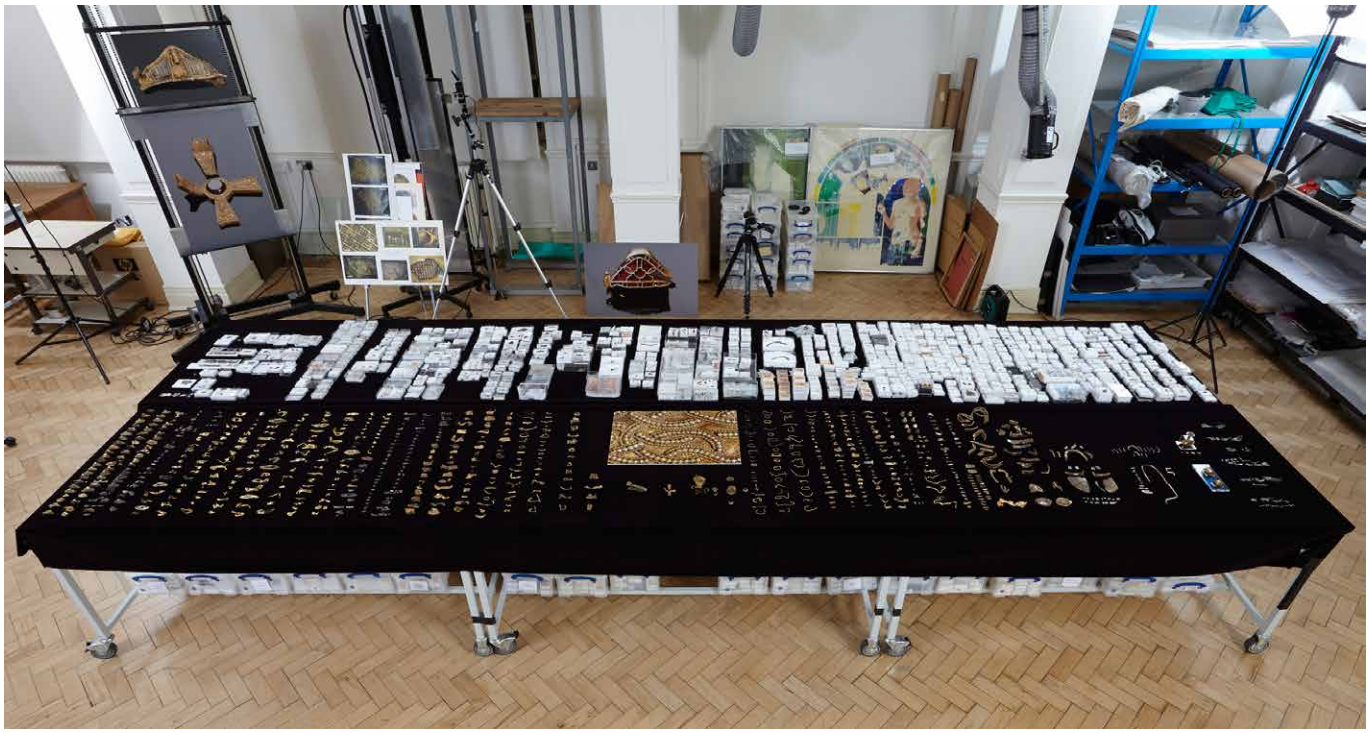
This issue exemplifies the span of our research work, ranging from the drowned prehistoric landscapes of the North Sea to Tintagel Castle and the story of Tristan and Yseult. It illustrates how we are forging closer links with both the UK's vibrant university sector and also with the private sector, in order to secure maximum value from public investment in heritage research. And, in the case of the Staffordshire Hoard, it demonstrates our important role as the agent of last resort in securing the nation's most important heritage. I hope you enjoy it.

Duncan Wilson
Chief Executive, Historic England

In this issue...

The Staffordshire Hoard

Uncovering the secrets of this famous discovery of Anglo-Saxon treasure.



The hoard at the end of the grouping exercise in February 2014. © Birmingham Museums Trust

The Staffordshire Hoard of Anglo-Saxon gold and silver objects, found in 2009, has been the subject of an Historic England funded research project since 2012. The work to analyse the *c* 4,000 fragments is now halfway complete; this article summarises what we have discovered so far.

The recovery of the hoard at Hammerwich, Staffordshire in 2009 (Dean *et al* 2010) is well known because of the worldwide media attention it received. It is unique within Britain, where hoards of this date have never been found before. It is a challenge to make sense of the enormous assemblage of objects, ranging from complete items to tiny fragments, that made up the hoard. Though many are sword hilt fittings, it is clear there are a number of items for which there are currently no parallels and whose function is unclear. In addition at least one helmet is represented by no less than *c* 1,500 separate fragments.

When complete the items would have been spectacular. The gold objects were covered with filigree and garnet cloisonné decoration. The silver ones were often inlaid with niello, providing a black pattern against the shine of the silver; there were many silver sheets with die-impressed decoration, again frequently gilded. All had been very harshly treated in antiquity. There is evidence of systematic and very rough stripping of the fittings from the objects they decorated, with consequent tearing and bending.

The sort of damage inflicted on the fittings when being stripped from sword hilts in antiquity (K117).
Guy Evans, © Barbican Research Associates Ltd

The research team was faced with the equivalent of multiple jigsaw puzzles whose pieces had been jumbled together and whose boxes had been lost. Our aim has been to design a project which would deliver a catalogue of the material, including a discussion of what it represented, in a timely manner. We want the resulting publication to act as the foundation on which future studies can be based, given the considerable research potential of the hoard. Many of the objects that are commonplace within it would, if found as a single item elsewhere, be regarded as an important discovery, worthy of detailed study in its own right.

One of the emerging stories resulting from the research is a much-improved understanding of the working practices of the 7th-century goldsmith. Gold contains silver and copper naturally, and can be deliberately alloyed in the workshop. Gold fineness is the measure that describes how much actual gold is in the resulting piece of metal. Gold fineness during the Anglo-Saxon period is a matter of considerable scholarly interest, and one aim of our work was to provide a body of data detailing the composition of the gold. Normally this material is only analysed by non-destructive study of its surface, but a small pilot study analysed items at the surface (by X-ray fluorescence) and sub-surface (by scanning electron microscopy with dispersive X-ray analysis: SEM-EDX); the latter process requires a microscopic scrape of the surface to be made so as to reveal its core composition. We wanted to know if surface enrichment was a result of the conditions in which the object had been buried (in some soils the silver can be depleted through natural processes, leaving the surface with an artificially enriched gold content). Instead we discovered there was regular and deliberate surface enrichment of the gold, the silver and copper having been depleted while the objects were being made (Blakelock, in press). The aim, presumably, was to make the objects look as golden in colour as possible.

The pilot became a larger study, covering 114 items with between them a total of 222 components. This revealed that enrichment was being used differently between components of the same item. For example, the fronts of sheets that had filigree or incised decoration were often enriched 'while the filigree was not, making the sheet appear a more golden colour. It is thus clear that the goldsmith wanted to make use of the colour contrasts that would result from the combination of enriched and non-enriched golds. The British Museum allowed a range of items from its Anglo-Saxon collection to be analysed, so the pattern could be examined across a wide range of types of object from a variety of sources. No association of the technique with particular

Zoomorphic mount K1497. Gold content: surface front of sheet *c* 85 per cent, wires and core of sheet 77-78 per cent.
Guy Evans, © Barbican Research Associates Ltd

Part of the 'beaked' quadruped frieze. Giovanna Fregni and Kayleigh Fuller, © Birmingham Museums Trust

areas, workshops or sub-periods was found, so this use of enrichment, hitherto unsuspected, appears to be widespread. Currently the phenomenon is being explored by metallographic techniques, studying polished cross-sections so as to understand the physical structure of the gold. Preliminary results have shown the depleted layer where some of the copper and silver has been removed is approximately 7µm thick with most of the depletion in the upper 5µm. Work to try to establish what techniques were used to achieve this unexpected and sophisticated craft practice is ongoing.

Silver sheets from the helmet(s) found in the hoard presented special problems because of their very fragmentary nature. Progress has been made in re-joining these tiny pieces, a process which allows the original working practices to be established. A frieze of 'beaked' quadrupeds possibly from the helmet, for example, was made using a die depicting the five creatures. The die had a beaded border, and the pellets at the end of this border were made slightly larger than the others so as to act as a key when the craftsman was lining up the design with the metal that was to be embossed. The metalsmith could have slid the strip of metal from left to right while working, using the beads to help line up the last creature that had been embossed quite closely to the first creature on the die, before embossing the next set. Using this insight and the slight differences that can be seen on each of the five animals, the fragments can be lain out in the order they must have occupied in the original frieze, even when no joining fragments have been found. By doing this we now know this frieze was at least 55cm long.

A range of organic materials have been discovered in the construction and decoration of the items in the hoard. Beeswax, a protein-based glue, horn, bone, amber and wood have been identified using a combination of optical microscopy, infrared spectroscopy, SEM-EDX, and X-ray micro-computed tomography. The glue is almost always found in association with beeswax inside the cloisonné cells, and there is some evidence that it may be derived from a fibrous protein such as hoof or horn. Also of special interest is the lime mortar used as a filler inside several pommel caps.

This gold and garnet pommel (K1195) used lime mortar in its core. Guy Evans, © Barbican Research Associates Ltd

Whilst there is more organic material in the hoard than initially anticipated, it is not suitable to form the basis of a radiocarbon dating programme. The material is either contaminated, or available in too small a quantity to provide samples. The dating of the hoard thus continues to rely on conventional stylistic analysis (Fern and Speake 2014). As a whole it consists of material dating

The craftsmanship on these hilt fittings is comparable to that on the regalia in the Sutton Hoo ship-burial (Items K354, 370, 449). Guy Evans, © Barbican Research Associates Ltd

from the mid/late 6th to the mid/late 7th century, with the bulk in the second half of the date range.

Now we are in a position to join pieces together and to identify sets of objects, the research is entering a new phase. New forms are emerging, especially within the cast silver pommels, which were found broken into numerous small fragments. These often have gilded relief decoration, further enhanced by gold filigree, niello inlay and garnet and glass cloisonné. Some, most unusually, have sword rings on both shoulders. They combine multiple different styles of ornament in much the same way as the earliest 7th-century manuscripts do, suggesting the merging of Anglo-Saxon art with British or Irish influences (Fern forthcoming).

The final publication is expected in 2018 and will incorporate a large digital component, to be made available through the Archaeology Data Service, as well as a book. In the interim we publish regular

Cast silver gilded pommel reconstructed from six fragments with a montage showing the combination of different art styles on the front and back. Lucy Martin, (Cotswold Archaeology) © Barbican Research Associates Ltd

newsletters and updates on the Barbican website http://www.barbicanra.co.uk/staffordshire-hoard.html, and the conservation team – who run a very successful outreach programme – also have a blog http://www.staffordshirehoard.org.uk/blog/research. The public, who responded so magnificently when helping raise the £3,285,000 needed to buy the hoard, remain fascinated by this extraordinary discovery. Since October 2014 over 200,000 people have visited the galleries in Stoke-on-Trent and Birmingham where it is displayed. The hoard has also inspired a variety of artistic responses; the recent festival of hoard-inspired plays at the New Vic Theatre in Newcastle-under-Lyme http://www.newvichoardfestival.org.uk/ is one example. As the secrets of the hoard are uncovered this interest should be further fuelled.

The Staffordshire Hoard is owned by Birmingham and Stoke-on-Trent city councils and cared for on their behalf by Birmingham Museums Trust and The Potteries Museum & Art Gallery. The Staffordshire Hoard research project is conducted by Barbican Research Associates and funded by Historic England and the owners. The team who are working on the project can be found on the Barbican website http://www.barbicanra.co.uk/team.html

Author

Hilary Cool PhD FSA

Primarily specialises in small finds and vessel glass of the Roman era though her research has ranged over many different periods and materials. Barbican Research Associates, the company she founded with four colleagues in 2000, specialises in post-excavation work, bringing difficult projects to publication and integrating artefact studies into the wider archaeological context. She and Barbican have been managing the hoard project since 2011. It has been an interesting, if challenging, experience from which she currently recovers by writing specialist reports, going to the pub (the timing and frequency depending on the challenges), and holidaying in Italy (whenever possible).

Further Reading

Barbican Research Associates, more information at: http://www.barbicanra.co.uk/

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Historic graffiti

Developing advice and guidance on the recording and understanding of graffiti.

Graffiti has probably been around for as long as mankind has, and the urge to leave a mark recording one's presence can be seen from the earliest cave paintings onwards. Over time the results of this urge have appeared in many forms and can be seen on almost any surface. The commonest form of historic graffiti is probably a scratched or incised line. This is reflected in the term itself, which originates from the mid-19th-century Italian meaning 'a scratch'.

Graffiti is a common sight in urban areas and can often be seen on historic buildings. The commonest examples revolve around a person leaving their 'mark' – typically as initials/name and a date – but many graffiti include some form of image. Graffiti has been created for many other reasons: political commentary; insults or curses; artistic endeavour; as a votive or devotional practise; or as declarations of love.

Until recently most examples of historic graffiti had only been noted in passing and although more interest is developing in the subject, few systematic studies of it have been made. Those which have been carried out have tended to be either thematically driven (for example medieval churches in Norfolk and Suffolk) http://www.medieval-graffiti-suffolk.co.uk/) or involve recording within a specific building or site. Such work has often focused only on the more obvious or decorative examples rather than the assemblage as a whole.

In order to try to redress the balance Historic England is preparing guidance on the recording and interpretation of historic graffiti, using the roof of the tower of St Oswald's church, Filey, North Yorkshire as a test case. The site was discovered while working on a different Historic England project and was found to retain an extensive and well-preserved collection of 17th- to 20th-century graffiti.

In order to develop a recording methodology, a test area on the roof of St Oswald's was digitally photographed at different resolutions using different cameras. This was in order to determine what loss of detail there was using the more widely available, lower resolution cameras (such as those found in smartphones) compared with higher specification cameras such as digital SLRs. Examination of the results, particularly when the imagery had been processed using structure-from-motion software (see HE Research, 2015: **1**, 20-24) , found that in the majority of cases the cheaper, more widely-available cameras provided a perfectly suitable record. The results of this comparison were then used to produce a set of suggested procedures which could be used to record historic graffiti.

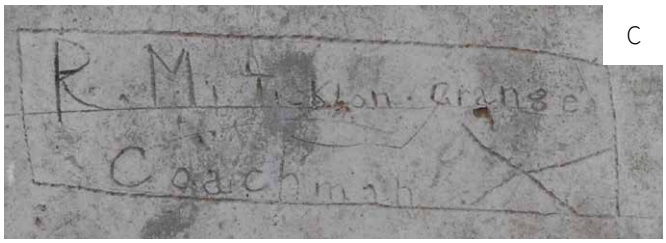
In tandem with the production of the Historic England guidance note, a detailed study was undertaken into the St Oswald's graffiti with a view to providing background on:

- The types of graffiti at the site;
- How it had been created;
- What graffiti is and is not;
- The threats to graffiti;
- How to assess its significance;
- How to interpret historic graffiti; and
- What to do with historic graffiti

This study led to the realisation that there is much more historic and social significance to graffiti than is popularly thought. Graffiti can often be an issue on historic buildings and monuments, where modern graffiti becomes a problem of removal and management. It is easy to understand that older graffiti may have historical significance, but what of these more recent examples? Most people will accept that graffiti from the two world wars is significant; but what of that created in response to more recent conflicts, such Northern Ireland or the Falklands War? Similarly the debate over recently identified graffiti by John Lydon (aka Johnny Rotten of the Sex Pistols) or the work of the graffiti artist Banksy with regard to significant cultural events, illustrates the polarising nature of the subject. It also demonstrates that graffiti can have the potential to acquire significance in the future.

A

B



C

D

Whilst modern graffiti on historic structures equates to heritage crime, some graffiti can itself become significant in the future, as here: A, Second World War Pill Box, Cayton Bay, North Yorkshire © John Buglass **B, Three-masted ship, St Oswald's, Filey, North Yorkshire.** © John Buglass **C, R.M. the coachman of Tickton Grange at St Oswald's, Filey.** © John Buglass **D, US Soldier's graffiti, 12 September 1944, Polo Wood, Salisbury Plain.** © Wiltshire Archaeology Field Group

The analysis of the collection at Filey recorded 1,482 legible graffiti, covering 400 years of visits to the roof. Unsurprisingly the commonest graffiti were initials, followed by shoe outlines, then full names, and then images of hands and ships, the numbers of which were surprisingly similar. The remaining images tended to be found in very small numbers – for example love hearts. Many of these graffiti had dates associated with them, and these showed that a marked increase in the amount of graffiti being created could be linked to the advent of the railway in the mid-19th century. Some of these tourist graffiti could be pinned down to specific people coming from named towns and cites. These dated graffiti also reflect an increase in the levels of literacy in Filey, as they appear to improve after the opening of the two church schools, in 1857 and 1873.

The collection at St Oswald's not only reflected the range of graffiti found in the wider historic environment but, like many places, contained an element that was unique to that location. In this case the collection of 48, often well-executed, images of ships would seem to reflect both what was visible from the church roof and, perhaps, the occupations of some of those creating the images.

Overall, studies of graffiti have been able provide an insight into a wide range of topics, including:

- Social and military history. Military-related graffiti can be common around bases and on occasion has demonstrated the deployment of Allied Second World War forces not recorded elsewhere;
- People and their occupations -- most obviously in the case of plumbers carrying out repairs on lead roofs, though other examples, such as a 19th-century coachman, have been noted;
- The technology of the day can sometimes be recorded. For example graffiti images of ships are common in coastal areas and illustrate the marked changes in vessel types that have occurred over time, such as from hulk- to cog-shaped hulls during the medieval period or the developments in rigging and sail plans of the post-medieval era. These changes can be linked to changes in ship and boat technology and thus allow at least tentative dating to be applied to otherwise undated graffiti;
- Religious beliefs can be expressed in easily recognised symbols of faith, though a more subtle expression of specific beliefs and moral codes may sometimes be found, for example in the graffiti of conscientious objectors;
- Periods of high psychological stress and boredom often produce graffiti and such conditions are particularly common in times of war. For example the graffiti of conscientious objectors can give an insight into the person that goes beyond the official accounts of the time; and
- Elements of environmental change may be recorded in such things as the completion dates for harvests or the noting of the heights of floods

These few examples show some of the potential information that can be gained from the study of graffiti. Many more avenues of research, some of them unique to the setting of the graffiti, will undoubtedly open up as the subject develops. The only way this can be explored is by recording and archiving the graffiti in sufficient detail to allow this potential to be realised.

Author

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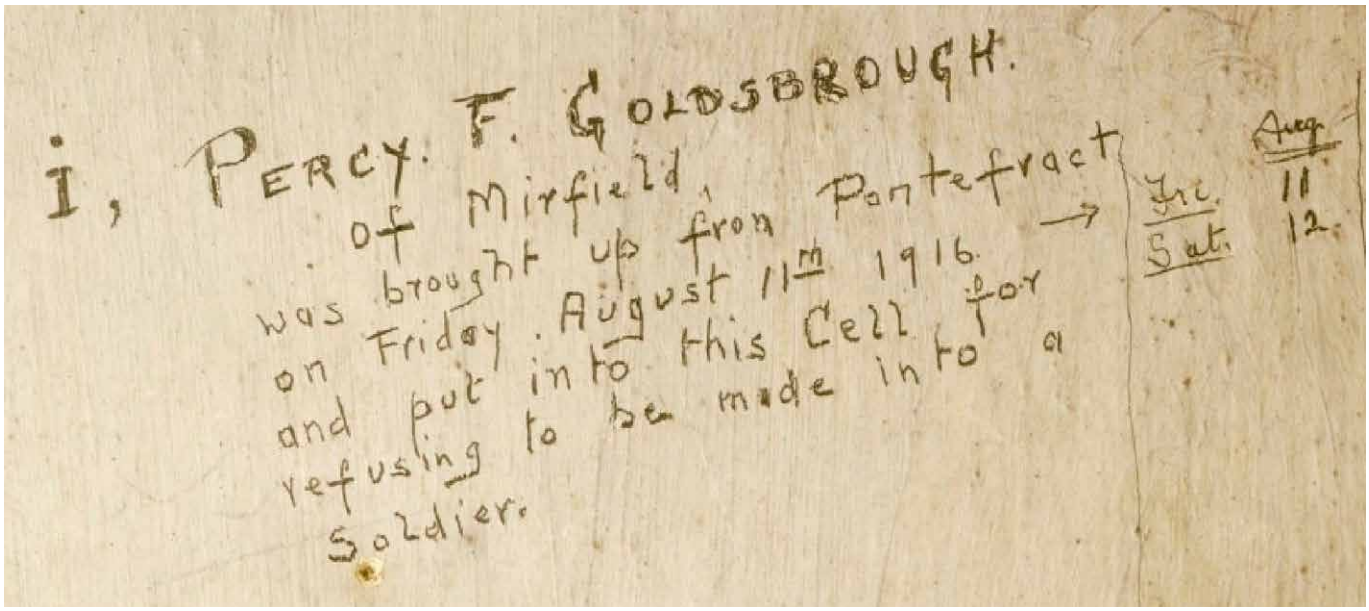
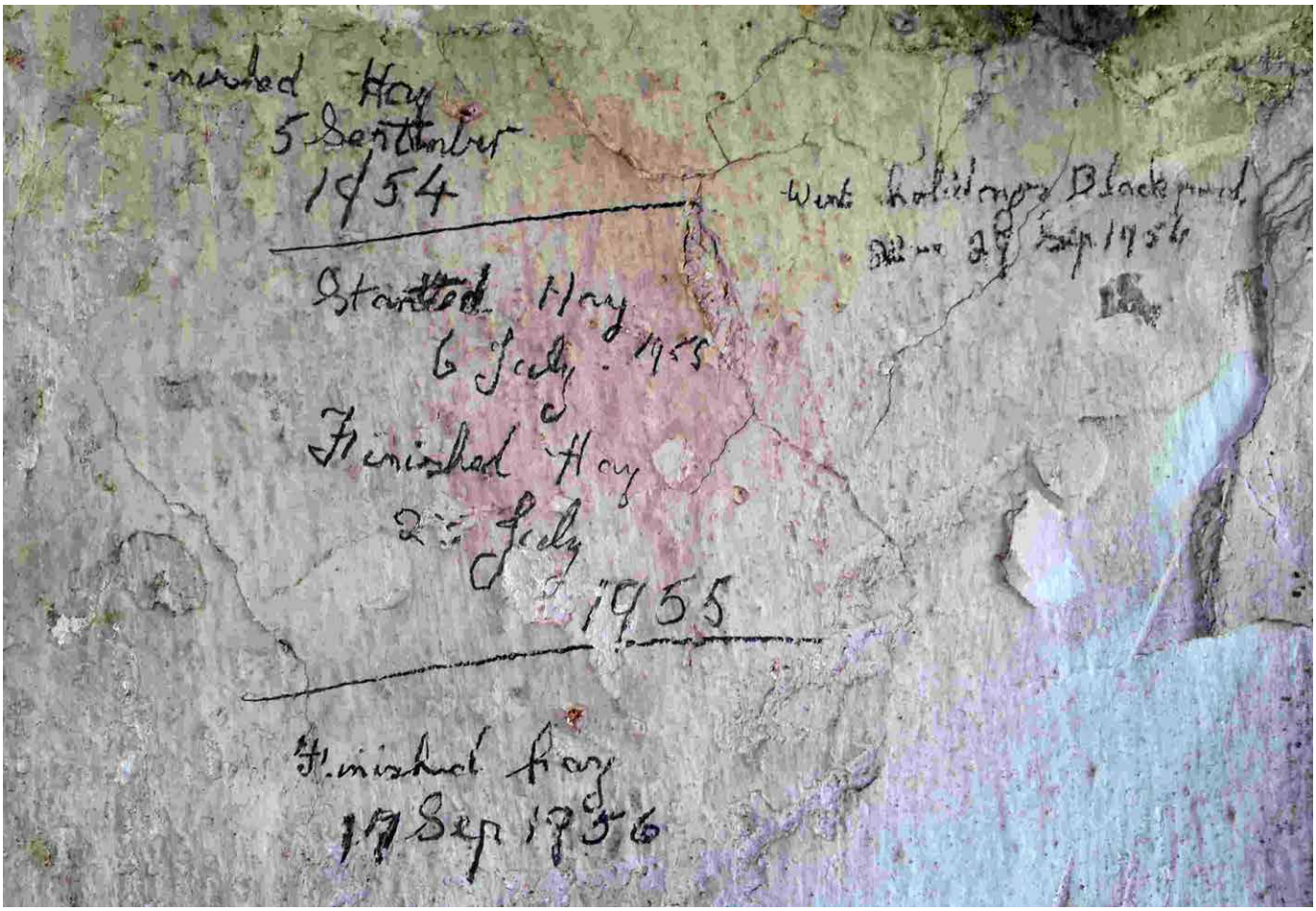
Has over 30 years experience in archaeology, starting as a volunteer on the Mary Rose. During his career he has worked on a wide range of sites both rural and urban, as well as inter- and sub-tidal wrecks and landscapes. As well as working in commercial archaeology, he has also taken an active role in adult education and in supporting volunteer archaeological projects. He was site director for the St Aidan's Project, winner of the Pitt-Rivers Award in the British Archaeology Awards 2000. Since 2004 he has been running his own archaeological business (http://www.jbasarchaeology.co.uk/).



Conscientious objector graffiti in the cells at Richmond Castle. © Historic England, Lucy Millson-Watkins



Varying harvest dates in a Swaledale barn. © YDNPA HER

Further Reading

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Tintagel and the legend of Tristan and Yseult

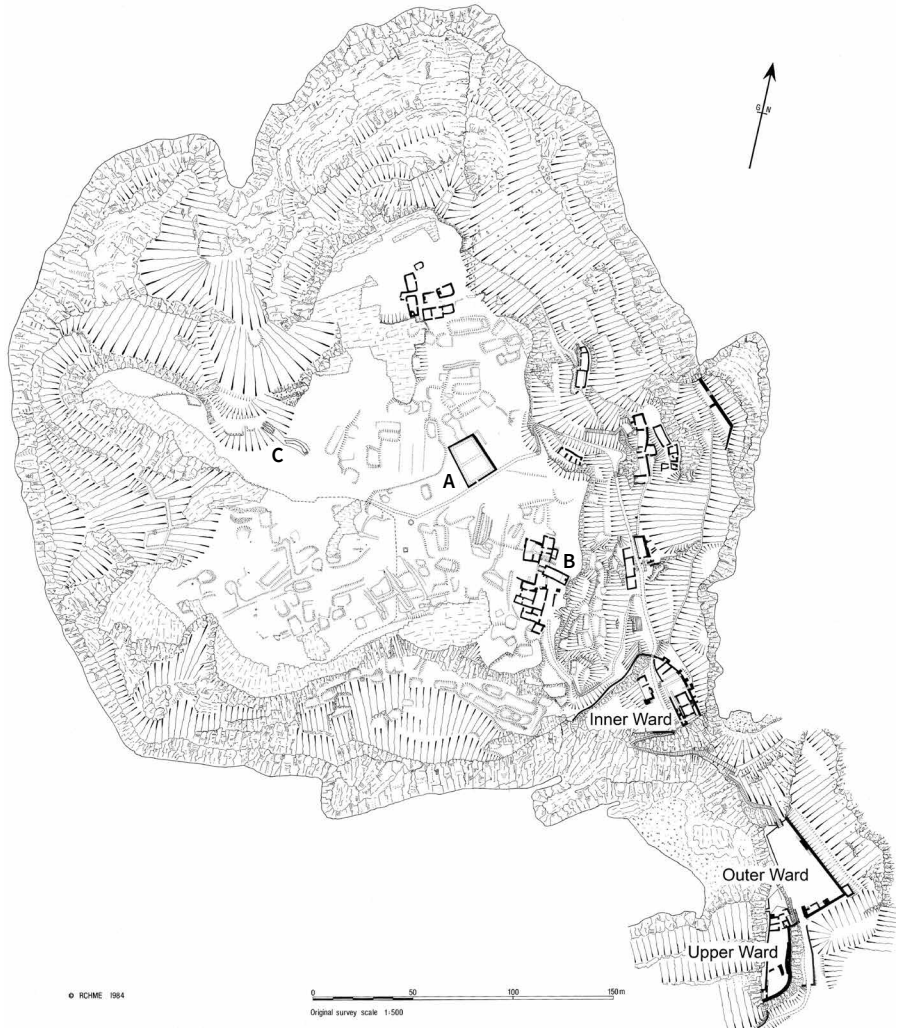
New research adds Tintagel to the growing list of medieval castles whose design is informed by symbolic concerns.

Today Tintagel Castle, Cornwall is firmly associated with King Arthur. However, in the medieval period it was the story of Tristan and Yseult that resonated at the site. Recent archaeological research now shows how 13th-century Tintagel was physically reshaped to reflect its connection with that quintessentially Cornish legend.

Castles were never just defensive structures. They were also centres of administration and justice, and above all they were the power bases and homes of the feudal elite. Their design reflects the concerns of their royal and aristocratic owners, and these can include their literary interests. Many castles were associated with stories of King Arthur and the evidence can sometimes be seen in their fabric or in artefacts associated with them.

Tintagel Castle was built by Richard (1209-72), Earl of Cornwall and King of the Romans, younger brother of King Henry III (Padel 1988). The documentary sources for Richard's life are lacking in some respects; historians have taken this lack of evidence at face value, stating for instance that 'in Richard's career there is no hint … of literary interests' (Denholm-Young 1947, 155). The archaeological evidence, and closer attention to the historical and literary sources, suggests otherwise.

The thin, unmilitary curtain wall of Tintagel Castle. © Historic England, Mark Bowden



Tintagel Castle, showing: A – garden; B – chapel; C – 'tunnel' and other features.
Top: aerial photograph © Historic England, Damian Grady 26570/024. **Above: survey plan** Norman Quinnell and Martin Fletcher. RCHME © Crown copyright 1984

Richard went to some trouble to acquire Tintagel, and at an early stage in his career (Thomas 1993, 12). In the 1230s he expended considerable resources building a castle on a site with no strategic or military value. The only explanation of this can be that Tintagel was believed to be the seat of previous legendary rulers of Cornwall. There are also certain aspects of this castle, apart from its location, that are puzzling: the walled 'garden' on the exposed plateau top; the chapel, which is not within the castle but inconveniently located on the edge of the plateau above it; and the rock-cut 'tunnel', which has defied all rational explanation but is currently described as a 'larder'. The location of the castle can be explained if it is accepted that Richard did have some literary interests, at least in so far as Cornish legends are concerned. The other enigmatic features can also be explained in this way.

In medieval literature Tintagel is rather marginal to Arthur's story, being mentioned by Geoffrey of Monmouth only as the place of Arthur's conception; it was not until the 15th century that it became also the place of his birth (Thomas 1993, 26). Far more significant at Tintagel is the story of Tristan and Yseult (Jenner 1926; Padel 1981). Large parts of this story are set at the site, which is one of the named courts of King Mark of Cornwall. It is, incidentally, the place where Tristan, like Arthur, is conceived; Tristan, however returns to Tintagel throughout his life.

Although the 12th- and early 13th-century versions of the story, with which Richard and his people would have been familiar, survive only in fragmentary form, the landscape setting depicted in them has certain features in common. Three of these are integral to significant episodes in the narrative: a garden or orchard; a chapel on a cliff; and an 'underground' grotto, cave or cellar. The most logical explanation for these curious features of medieval Tintagel therefore seems to be that Richard created a theatrical landscape, designed to physically embody the legend of Tristan and Yseult.

The matches between the story and the features at Tintagel are not all exact, but then the legend existed in many versions, and these differed in detail. In Beroul's version the garden contained a spring (Beroul 1970, chapter 2); at Tintagel there is no possibility that there was ever a spring within the walled garden but there are three springs within a short distance and Peter Rose has already made the case for a connection between this garden and the Tristan and Yseult story (Rose 1994, 176-7). On the other hand the description of the chapel given by Beroul bears a remarkable resemblance to the chapel at Tintagel. The chapel is positioned so that its eastern end is directly above a cliff. Tristan, in order to evade his captors, begs to be allowed to pray in the chapel; he points out that there is only one door, so that they may easily guard it to ensure that he does not escape; he then leaps through the east window and down the cliff, thus getting away. It has been argued that the chapel is a two-phase structure, built in the 12th century and extended in the 13th (Thomas 1993, 110-12). If this is so, its position was determined before Richard's time. However, the dating evidence for a 12th-century origin is not strong, being based only on a few easily transported carved stones that had allegedly been found there. Such stones are frequently re-used. It could be argued that in recreating the 'chapel-on-the-rocks' of Tristan's legendary leap, Richard might deliberately have incorporated archaic architectural details into the design. The underground elements of the Tristan and Yseult legend vary between versions but a common element is that Tristan and Yseult, while hiding together in the forest, occupy a grotto or cave. The 'tunnel' at Tintagel was made with iron tools and is agreed to be a medieval creation; though damaged, it makes a much better romantic lovers' grotto than it does a prosaic but nonsensical 'larder'.

It would be unwise to assume that Richard alone was responsible for the creation of this landscape. He was noted as an admirer of female beauty and married successively three of the most admired women of the age: Isabella Marshal, Sanchia of Provence and Beatrice of Falkenberg; one of these might have been an aficionado of the Tristan and Yseult legend and responsible for these works at Tintagel. On the other hand there is one piece of literary evidence which

The fence marks the east end of the 'chapel-on-the-rocks'. © Historic England, Mark Bowden

points directly to Richard as the instigator. In Thomas of Britain's version of the legend (*c* 1155-60) the story has been subtly altered as a compliment to King Henry II and Queen Eleanor, Richard's formidable grandparents. This and later versions even give Tristan the armorial bearings of the House of Anjou (von Strassberg 2004, 356-7,365-6).

Exactly how these contrived landscape elements were used is, of course, unknown. Were visitors shown these locations as the 'actual' sites of events in the stories? Or were they used as scenes in some kind of promenade drama, in which actors played out the episodes of the legend? Either or both seem possible, especially in view of the royal popularity of dressing up 'hastiludes' (medieval amateur dramatics), popular in the 14th century (Vale 2005). Certainly, if one wished to push the idea of an enacted scenario further, one could suggest that the damp area towards the south-western edge of Tintagel Island (the side opposite the castle) represents the marshy *Gué Aventuros* – 'the ford at which things are liable to happen' (Padel 1981, 61). This is the location of another significant dramatic episode, where the conniving Yseult has herself carried across the water by Tristan in disguise, in order to deceive King Mark. It seems Tintagel's famous castle can be added to the list of apparently defensive structures that are in fact imbued with cultural symbolism.

The 'tunnel'. © Historic England, Mark Bowden 2010

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He studied archaeology at Reading University and has worked for many years as an Investigator for Historic England and its predecessors. His most recent publication is *The Stonehenge Landscape: Analysing the Stonehenge World Heritage Site* (with Sharon Soutar, Martyn Barber and David Field). The research for this paper was undertaken with Susan Greaney of English Heritage and other colleagues.

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Earthworm calcite and dating

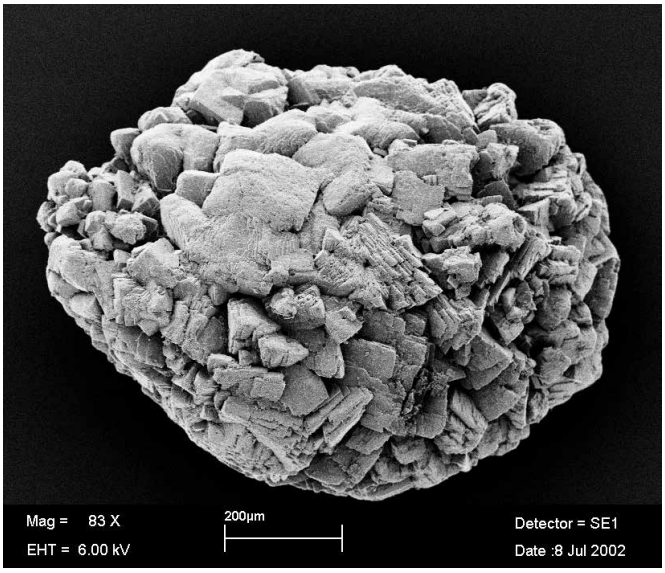
Radiocarbon dates from earthworm calcite reflect the true date of deposition, adding to the archaeologist's armoury of potential dating strategies.

In 1881, Charles Darwin published *The Formation of Vegetable Mould through the Action of Worms, with Observations on their Habits*. The book was an instant success, selling 6,000 copies within a year and 13,000 before the end of the century. He was the first person to document the very significant effect that earthworms have on soils through the deposition of their casts on the surface. In an effort to look at the long-term effects of this activity, he became involved with a number of archaeological sites in the 1870s, including Stonehenge, Abinger, Wroxeter, Silchester and Chedworth.

In a less-well-known chapter of his book, he also discussed the odd fact that earthworms have calciferous glands near the head which produce tiny granules of calcium carbonate (calcite) and expel them into the soil. He wrote that the calciferous glands contained:

> "... several small, or two or three larger, or a single very large concretion of carbonate of lime as much as 1½mm in diameter. ... The larger concretions are round or oval and exteriorly almost smooth. One was found which filled up not only the whole gland, as is often the case, but its neck; so that it resembled an olive oil flask in shape. How they escape from the gland is a marvel; but that they do escape is certain, for they are often found in the gizzard, intestines and in the castings of worms, both with those kept in a state of confinement and those in a state of nature."

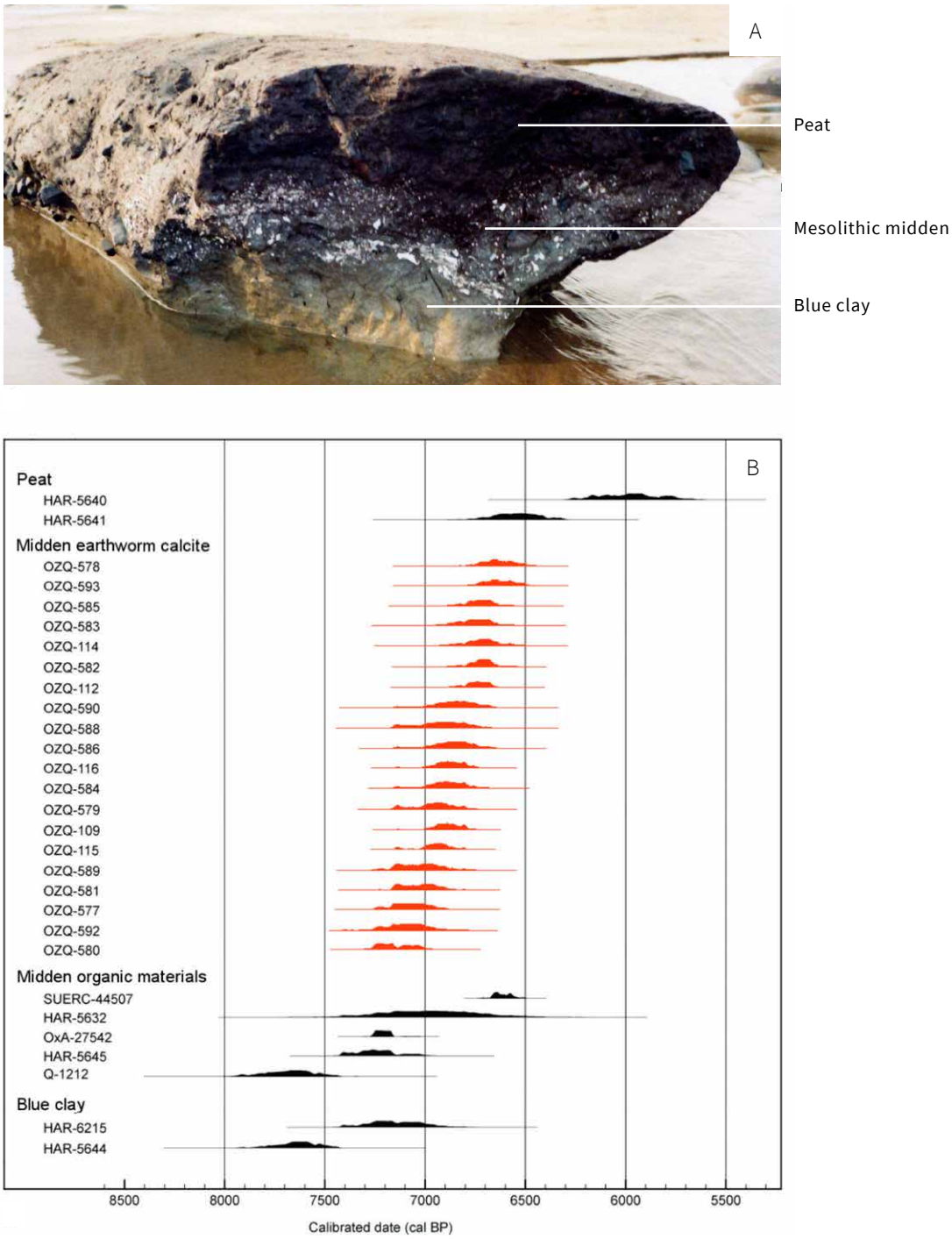
Darwin wasn't the first person to record this strange phenomenon; that appears to have been Julius Leo (1820). The subject has since exercised the minds of numerous biologists. The resulting emphasis on biological processes has meant that the actual product (ie the calcite granules) received surprisingly little attention until late in the 20th century. If Darwin had illustrated



Calcite granule produced by a large *Lumbricus* earthworm, probably *Lumbricus terrestris*. © Historic England, Matthew Canti

the granules, then they would undoubtedly have been better understood and utilised by archaeological and environmental archaeological scientists in the intervening years. As it turned out however, even as late as the 1970s, they were being misattributed to slugs by some environmental specialists.

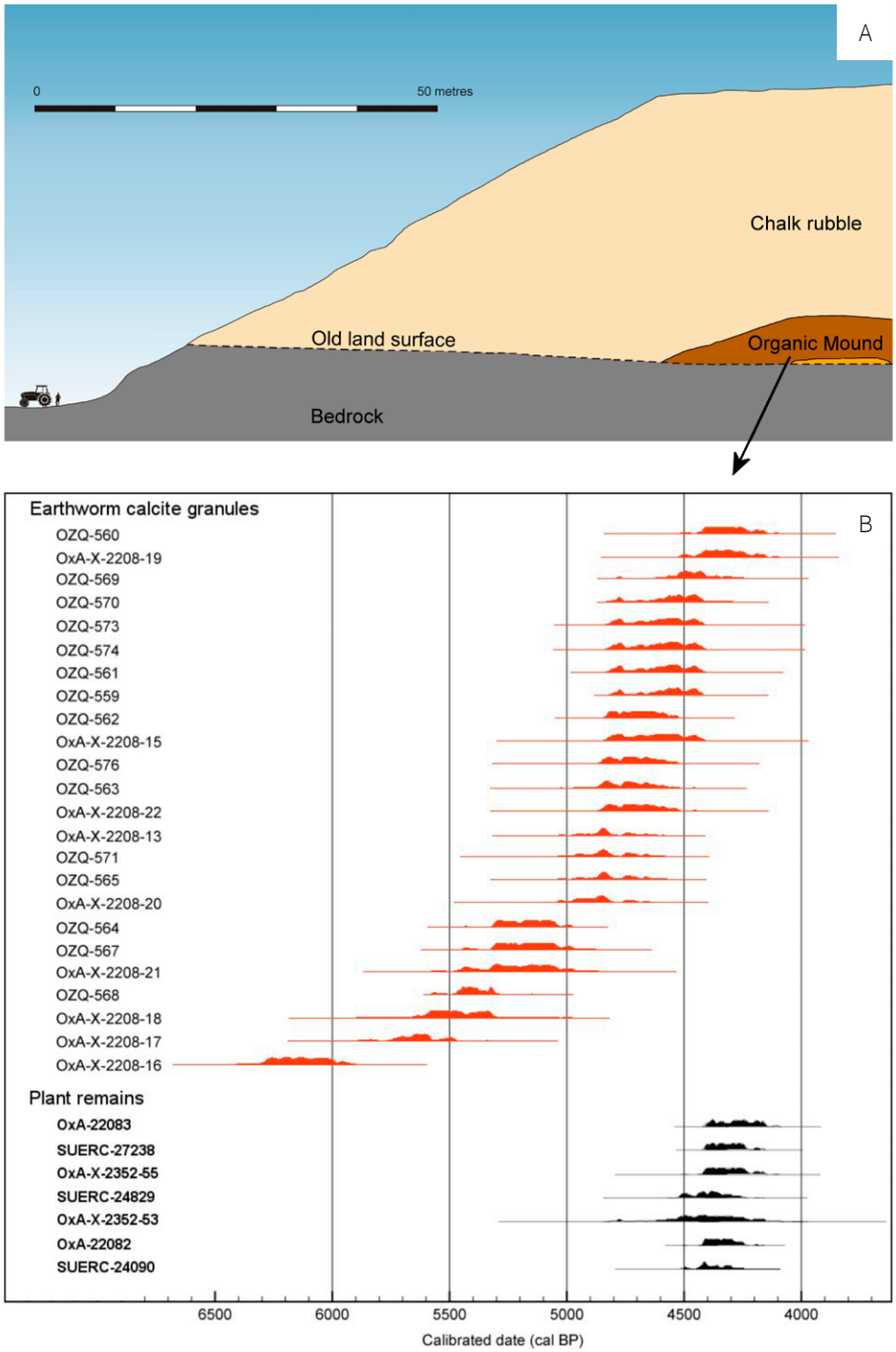
The granules are produced by most earthworms, and those from the larger *Lumbricus* species are up to about 2mm in size. They can be found in most neutral or alkaline soils, usually concentrated near the land surface. However, they also occur throughout archaeological stratigraphy, and are regularly found in the sieves used for the recovery of finds and environmental remains. Since calcium carbonate is around 12 per cent carbon, the larger granules can be radiocarbon dated, and a project was begun in the 2000s to investigate the potential for utilising such dates in archaeology. Since earthworms burrow to different depths and the soil contains carbon of different ages, it was important to test whether the radiocarbon date generated from the granule would be the same as that of the primary deposition date. Early experimental evidence using isotopic tracers gave strong indications



Stratigraphy and dates from Westward Ho!, Devon: A. Isolated block of intertidal stratigraphy showing the main layers. A dry land surface during the Mesolithic period, the site has been subsequently inundated as a result of a rise in sea levels, preventing further earthworm calcite deposition in the midden layer; B. Radiocarbon dates from organic materials (black) all come either from the actual midden site, or from contiguous layers within a 25m radius. The 20 earthworm calcite dates (red) all come from the midden itself. Matthew Canti, © Elsevier Ltd

that it would. However, proof could only be furnished by testing the granules from an old soil which had been capable of supporting a population of the larger *Lumbricus* species, was now isolated from intrusion by modern worms (eg because it had been buried), and for which there was an independently verifiable date for when that isolation took place.

The Mesolithic sequence at Westward Ho!, Devon presented itself as ideal for this test. The famous 'kitchen midden' at this site was composed of sediment rich in shell, charred plant remains and flint. It was sandwiched between datable layers of peat (above) and blue clay (below), and the whole stratigraphy was submerged under the sea at all but the lowest tide,



Stratigraphy and dates from Silbury Hill, Wiltshire: A. Cross-section showing the large volume of chalk overlying the Organic Mound © Historic England, Eddie Lyons; **B. Radiocarbon dates from plant remains (black) from the 2007 excavations of the Organic Mound and 24 earthworm granule dates (red) from turves sampled during the 1968 excavations.** Matthew Canti, © Elsevier Ltd

thus preventing any intrusion by modern earthworms. Although the midden has now disappeared, dried material had fortuitously been saved in the Historic England archive held at Fort Cumberland, and was found to contain plenty of granules. A number of Carbon-14 (^{14}C) dates already existed for the peat and blue clay layers at different parts of the Westward Ho! site, and a further three from plant remains in the midden sample were obtained. Twenty earthworm granules were dated at the Australian Nuclear Science and Technology Organisation (ANSTO), producing a date range in agreement with that of terrestrial organic samples. The calcite age range was also found to be older than that of the upper peat layer and younger than that of the lower blue clay layer, helping to confirm these findings.

A second suitable site was Silbury Hill, Wiltshire. This, the largest of the UK's prehistoric mounds, was constructed of a central core (the Organic Mound) containing whole blocks of calcareous turf, which was later buried under chalk rubble and raised to a height more than 30m above the old ground surface. Dried turf from the core recovered during the 1968 excavations by John Evans contained moderate quantities of granules; and various plant materials collected during the 2007 excavations provided secure independent dating on the primary construction. The huge bulk of the hill was a safeguard against penetration by the larger earthworm species, thus preventing deposition of later granules. Twenty-five granules from the turf samples were dated at Oxford Research Laboratory and ANSTO. Their dates mostly fit a distinctive distribution that ranged from *c* 6310 cal BP to *c* 4100 cal BP, skewed towards the younger ages. The youngest dates are well matched with the independent dates from plant remains incorporated during construction, which give a date of around 4300 BP.

It is clear from the results at these two sites that earthworm calcite gives a radiocarbon date corresponding to the date at which it was deposited. Furthermore, the nature of the two date distributions can give us additional information about the stratigraphic history of a site. At Westward Ho!, the twenty dates are uniformly distributed through time. This is probably a result of the continuous human deposition of calcareous sediment onto the midden surface, a process which would tend to prevent decalcification, and thus leave the same numbers of granules in each age category. By contrast, at Silbury Hill, the majority of the granules were dated close to the date of burial, while a tail of older ones was still present. This is exactly what would be expected from the topsoil of a land surface that was undergoing very slow decalcification, before being cut at about 4300 cal BP, built into a mound and then covered with chalk, causing the decalcification process to cease altogether.

The proof that earthworm calcite ^{14}C gives a true date for calcite deposition opens up the potential for it to be used in archaeologists' dating strategies. Because earthworms can deposit the granules throughout their soil environment, calcite dating can only involve individual granule dates in rather specialised circumstances, where a tightly constrained stratigraphy is isolated from both later and earlier granule deposition. There is greater potential for analysing distributions of dates in situations where the stratigraphy is sealed from later worm burrowing, such as an old land surface deeply buried beneath an earthwork. Here, the distribution curve should show a sharp drop to zero, marking the date of burial. The technique adds to the range of strategies archaeologists have at their disposal when dating stratigraphy.

Author

Dr Matthew Canti
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Became interested in earthworms after seeing their effects on archaeological stratigraphy, and has maintained working colonies in the Historic England laboratories in Savile Row and Fort Cumberland. He has published extensively on biominerals, as well as soil micromorphology and other forms of analysis used in archaeological geoscience.

Further Reading

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Patterns under the plough – recent aerial reconnaissance on the claylands

Landscapes previously considered unresponsive to aerial investigation are revealing new sites, changing our understanding of the patterns of human settlement.

Recent assessment of aerial photographs from our national reconnaissance programme recorded exceptional numbers of previously unknown buried archaeological sites and landscapes. These are in areas once thought to be largely devoid of activity in the past and unresponsive to aerial prospection today, such as the claylands of eastern England.

Analysis of aerial photographs in fact suggests that during the later prehistoric and Roman periods, the Bedfordshire and Cambridgeshire claylands were extensively settled and managed. On the Suffolk clay meanwhile, where the dominant evidence begins in the later medieval period, distinctive patterns of continuity and change connect sites old and new.

A. Four different prehistoric or Roman enclosures in close proximity, overlain by traces of medieval ridge-and-furrow, near Ravensden, Bedfordshire. © Historic England, 27082/040. **B.** Complex settlement remains near Bozeat, Northamptonshire, probably spanning the Late Iron Age and Roman periods. © Historic England, 27053/047. **C.** An area of settlement probably comprising a long and complex sequence of development, spanning the Late Iron Age and Roman periods, near Bolnhurst, Bedfordshire. © Historic England, 27060/008. **D.** Prehistoric or Roman enclosures attached to a lengthy, sinuous linear ditch, near Stevington, Bedfordshire. © Historic England, 27054/048

Recognising the scale of ancient settlement in such areas has taken some time, but the last 20 years or so in particular have seen a considerable increase in the number of archaeological sites discovered as cropmarks on clay soils, particularly across central and eastern England (see, for example, Mills & Palmer 2007). However the summer of 2011 proved exceptional for our aerial reconnaissance team. For example, on a single day – 29 July 2011 – Damian Grady, our aerial photographer responsible for covering the southern half of the country, located and photographed 186 previously unknown archaeological sites. Multiple flights were required because the cropmarks appeared in different locations through the year as ground conditions changed. Over 1,500 new sites were recorded in this flying season alone, most of which were on the claylands of eastern England. The monument records that resulted have already been made available on PastScape www.pastscape.org.uk

A. Two buried farmstead enclosures revealed as cropmarks in Onehouse parish, Suffolk may be contemporary with the late-15th-century Shepherd's Farm, on the right of the photograph. © Historic England, 27028/025. **B.** The properties that constitutes Thurston End, Suffolk includes the Grade I-listed, 16th-century buildings of Swan Hall (foreground) and Thurston End Hall. © Historic England, 29144/042. **C.** Four possible farmstead enclosures near Cowlinge, Suffolk can be seen along the angular trackway. More settlement enclosures were recorded over a distance of 1 km to the south-west. © Historic England, 26833/030

This new information shows that occupation of the Bedfordshire and Cambridgeshire claylands has considerable time-depth. Most new sites were apparently of Iron Age or Roman date, although there are plenty from the medieval period as well. The diversity in the plans of these now-buried settlements and boundaries is striking. Sites identified include discrete enclosures, often with several different forms occurring in close proximity, as at Ravensden, Bedfordshire; large settlement sites, often complex and of several phases, as at Bozeat, Northamptonshire and Bolnhurst, Bedfordshire; and enclosures strung along linear ditches, as at Stevington, Bedfordshire. Our rapid recording programme identified a landscape full of enclosures and boundaries, suggesting the need to demarcate settlements and tracts of land throughout the later prehistoric and Roman periods. Mapping and analysis at a landscape scale will be required to understand the significance of these sites.

Aerial reconnaissance revealed a slightly different story on the Suffolk claylands. Cropmarks indicated a now-buried landscape of dispersed medieval and post-medieval settlements linked by droveways, as at Onehouse. Intensive periods of ploughing, particularly during the agricultural revolution and the second half of the 20th century, were part of a re-ordering of the landscape so extensive that it at first appeared to be a complete break with the past. Identification of buried

A. Two phases of former fields can be seen as cropmarks at Depden, Suffolk. The curving boundaries and winding trackway were replaced with straighter field boundaries during the 18th or 19th centuries. Their position was somewhat influenced by the earlier fields they replaced, but they were themselves swept away when these fields were amalgamated in the second half of the 20th century. © Historic England, 27268/018. **B.** The irregular lines of the trackway seen at Milden, characteristic of later prehistoric routeways. The existing track to Milden Hall crosses the top left hand side of the image. © Historic England, 27014/004

sites from the air, however, provides tangible evidence that the farms, fields and tracks of earlier generations have not been entirely swept away by the plough.

These hidden survivals mirror the pattern of historic working farms found elsewhere in the region, where dwellings, if not completely isolated, are loosely arranged around greens or along lanes. You can experience the possible look and feel of these lost places at Thurston End, Hawkedon; here, buildings are dotted between areas of pasture, woodland and hedgerows, which define boundaries and tracks. Cropmarks indicate similar, but now buried, arrangements of tracks, boundaries and farm enclosures, as seen at Cowlinge, north-east of Haverhill.

The 18th and 19th centuries saw great changes in British farming. In Suffolk this often meant an increase in arable at the expense of pasture. In places, field boundaries were removed or straightened to create more convenient areas for ploughing. At Depden, near Bury St Edmunds, cropmarks on the aerial photograph illustrate changing field layouts. Earlier boundary ditches (often with wide hedgerows) were replaced with narrow straight boundaries which in turn were covered over with a pattern of larger fields between pockets of woodland. The relatively poor draining quality of the soil meant the inhabitants of Suffolk's claylands dug ditches to enclose their settlements and to define their fields and lanes. The cropmarks show that 'lost' lanes or droveways were often wide, and usually defined by substantial ditches. This suggests a relatively enclosed landscape with controlled movement between farms and fields. Although such substantial ditches seem to have gone by the 19th century, some tracks persist until then and are depicted as undefined footpaths on the Ordnance Survey maps, for example of Cowlinge, Depden and Onehouse.

The potential longevity of routeways can be seen at Milden, to the south of Lavenham, where cropmarks show a number of interconnected tracks. These appear similar to later prehistoric droveways, though they remained integrated with later elements in the landscape, such as the surviving track leading to Milden Hall. Part of this track was also used as a parish boundary, providing further possible evidence of early origins.

It is the all-important ditches that have provided a glimpse of a medieval and post-medieval landscape with potentially much earlier origins than previously recognised, as well as unexpected continuities into the present day. *Akenfield*, Ronald Blythe's famous portrait of Suffolk rural life, says that 'the clay acres themselves are the only tablets on which generations of village men have written'; our aerial reconnaissance programme has discovered new evidence of these patterns, left by the men and women who lived in and worked this landscape.

Traditionally, the areas with clay soils in England have suffered from a relative lack of archaeological attention. The reasons for this are many and varied. They include

perceptions about where people were likely to have lived in the past, and barriers to the relative visibility of sites. From the 19th century onwards, people thought the more easily tilled, less densely wooded chalk downs were more suited to the capabilities of the earliest agriculturalists. The ability to clear forests and plough heavier clay soils was believed to require the kind of agricultural and technological progress not evident until the Roman period, if not later.

Cyril Fox's landmark publication The Personality of Britain epitomises this view and states that 'all human communities throw off groups and families below the poverty line of their particular culture, who scratch a miserable living how they can in less desirable areas. Evidence of such will certainly be found from time to time on the clays'.

Views like these were in decline by the 1950s but there were difficulties in redressing the balance, particularly as far as aerial reconnaissance was concerned. The moisture-retaining properties of clay soils meant that levelled archaeological sites were less likely to have an effect on the crops growing above them. This problem was exacerbated by the masking effect of the remnants of later periods, and by types of land use that were less conducive to the formation of cropmarks. Most notably the conversion of substantial areas across the claylands from arable to pasture in the medieval and post-medieval periods left them covered in earthwork ridge-and-furrow under grass.

However, our recent reconnaissance shows that given the right conditions, arable land on clay soils can reveal the presence of buried archaeological sites. The problem is that the right conditions occur less frequently than on the better-draining soils. Our ability to see buried sites and landscapes from the air is dependent to a considerable extent on the conversion of traditional pasturelands to arable. Targeted reconnaissance in the right conditions will continue to identify new sites; the next step is to explore these landscapes further, reviewing aerial photographs, mapping the form and extent of the sites, and analysing them in a wider context.

Authors

Martyn Barber
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Joined the Royal Commission on the Historical Monuments of England in 1990, and moved to the aerial survey team in what by then was English Heritage in 2002. Most recently he has worked on the (recently published) Stonehenge Landscape Project. Outside Historic England, he is co-director of the Damerham Archaeology Project.

Edward Carpenter
Investigator, Aerial Investigation and Mapping with Historic England.

Edward joined the Royal Commission on the Historical Monuments of England in 1998; he has worked in Aerial Investigation and Mapping since 2002. Edward has been involved in a number of multi-period aerial surveys across England; he has a particular interest in the various ways that these landscapes or the individual monuments within them are perceived.

Further Reading

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A new resource for studying the Romano-British countryside

The grey literature produced by developer-funded excavation is vast; now a major project is synthesising and making available the resulting data for one aspect of the past.

In November 1990 the mechanism for recording archaeological sites in advance of their destruction by development, a process commonly called rescue archaeology in the 1970s and 80s, underwent a fundamental change. The introduction of *Planning Policy Guidance Note 16: Archaeology and Planning (PPG 16)* set out a clear presumption in favour of the physical preservation of archaeological remains; and where this was not possible it required developers, rather than the state, to ensure archaeological investigations associated with any development that needed planning permission were carried out at their own expense.

As a result of the introduction of PPG16, the amount of archaeological work undertaken in Britain has risen considerably and we are now accumulating data at a rate that far outstrips the ability of most individuals (or organisations) to assess and synthesise what has been found. The outputs of much of this work may be unfamiliar to researchers not intimately involved in the commercial archaeological sector, as investigations are reported in so-called grey literature. This can be defined as accounts of archaeological investigations which have not been published in a recognised journal or book.

Commercial archaeology in action. Excavating a site in advance of the construction of a gas pipeline in Gloucestershire.

The need for this grey literature to be synthesised is urgent and pressing. After 25 years it cannot be sustainable to keep acquiring ever-increasing quantities of information which is not subject to review, evaluation and wide dissemination.

The Rural Settlement of Roman Britain project is a rare of example of work which was designed from the outset to include grey literature in its scope. The result will transform our picture of this important period, and demonstrates the significance of including the results of developer-funded archaeology in any new synthesis of a theme or period.

Archaeological sites which have strong potential to further our understanding of the Romano-British countryside are being investigated on an almost daily basis by teams working in advance of new developments, but it can be difficult for excavators (and others) to appreciate the research context which will allow appropriate and insightful discussion of their findings. The cost of archaeological work relating to the rural settlement of Roman Britain in the period 1990–2010 is estimated to have been in the order of £200 million, yet academic investigation of this resource has been minimal, not least because a third of the most significant reports on full-scale archaeological excavations only exist in grey literature.

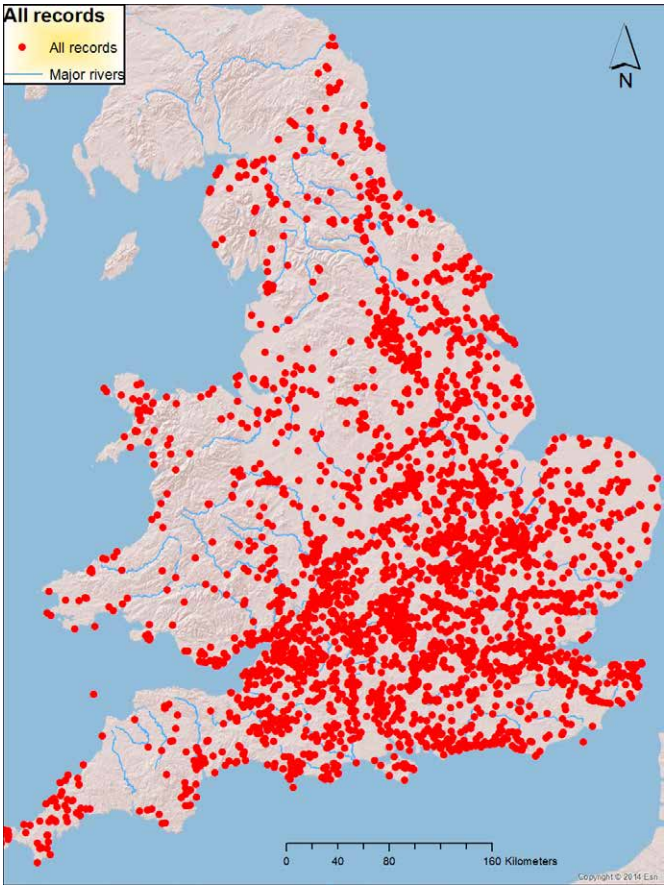
It was this background that led in 2005 to the formulation of a project concerned with assessing the contribution of developer archaeology to the study of Roman Britain. Initial pilot work indicated that the evidence from the countryside had the highest research potential, both in terms of its quantity and its potential for generating hitherto un-attempted syntheses. This therefore became the focus of a national survey covering all of England and Wales, funded by generous grants from the Leverhulme Trust and Historic England, and undertaken by a partnership between academic institutions (Universities of Reading and York) and an organisation involved in the day-to-day excavation of archaeological sites (Cotswold Archaeology).

A small bath-house associated with a Roman villa examined in advance of road construction in Somerset.

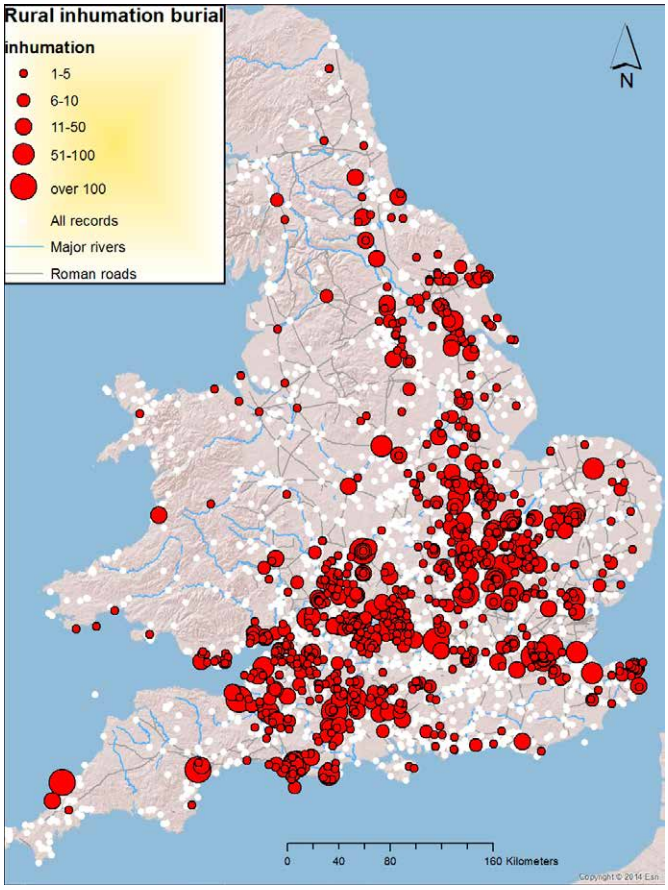
The project is concerned with using data derived from excavations to investigate, articulate, map and explain regional and chronological variation and distinctiveness in the Roman-period rural settlement of Britain. It aims to provide a new, extensive study of the evidence for rural settlement, from the 1st century BC to the 5th century AD.

Such work is particularly important because of the rapid development of archaeological practise itself. Although the publication of Roman-period excavations before PPG 16 had begun to include more in-depth studies of material culture and environmental data, this practice, which is aimed at addressing topics such as status, economic circumstances, diet and living conditions, has become more deeply embedded since 1990. The character of the outputs since 1990 therefore differs very considerably from older work whose concerns were more focused on recovering details of the plans of settlements and constituent buildings and their chronology, with only selected publication of finds and almost no reporting of environmental evidence.

Over the last three years Cotswold Archaeology has systematically trawled every Historic Environment Record in England and Wales in order to identify grey literature reports on the most significant relevant investigations. These reports have been reviewed by a team of post-doctoral researchers at the University of Reading (Drs Alex Smith, Martyn Allen and Tom Brindle), who have entered the details of each individual settlement or field system onto a powerful GIS-linked database. The project has benefited greatly throughout this phase of its work from the support of the Association of Local Government Archaeological Officers, and local engagement was conceived from the outset to be an important consideration. As work concluded in each region we held a seminar where the team presented and discussed the preliminary results of their analysis. Seven such seminars were held, each attracting representatives drawn from academia, commercial archaeology, local authorities and local societies and interest groups. The presentations from these meetings are available on the project website:



The distribution of excavated Romano-British rural sites recorded in the project database.
© University of Reading



The distribution of inhumation burials associated with Romano-British rural settlements. Strong regional patterning is evident.
© University of Reading

http://www.cotswoldarchaeology.co.uk/developer-funded-roman-archaeology-in-britain

This regional tour culminated in April 2015 at a national meeting where a freely-accessible online database was launched, *The Rural Settlement of Roman Britain*, hosted by the Archaeology Data Service. http://dx.doi.org/10.5284/1030449 This currently contains data on around 2,500 individual sites in England. The Welsh settlement data will be added towards the end of 2015 and information on finds and biological remains will follow in in November 2016, when the website will be complete. A key aspect of the database is that pdfs of the original grey literature reports are linked to the individual records, and thus are available to be viewed or downloaded at leisure.

Powerful key word functionality allows searches to be made for specific attributes on a national or local scale. It is anticipated that the database will be a considerable resource, permitting students, academics or individuals interested in a particular locality to undertake their own research. By placing an equal emphasis on investigations only reported in grey literature and those disseminated in more conventional ways the project also plays a valuable role in communicating the contribution that commercial archaeology has made to knowledge. The Rural Settlement of Roman Britain Project is grateful to all the archaeological organisations that readily allowed their reports to be uploaded to the project website.

In addition to the database the University of Reading team will produce a series of books between 2016 and 2018 under the collective title *New Visions of the Romano-British Countryside*. Drawing on data gathered from the project these volumes will examine regional and chronological variation in Romano-British rural settlement through analysis of farm layouts, domestic architecture, agricultural practice and burial traditions. It will thus be possible to assess the integration of settlements in different parts of Britain with the Roman provincial economy and provide a new characterisation of the Romano-British countryside.
Previous characterisations of Roman Britain have tended to draw either on simple two-fold divisions (such as the Upland or Lowland zone, or areas where villas were prevalent and areas where they were not), or else on hypothetically reconstructed tribal boundaries (such as those of the Atrebates or Dobunni). Thanks to the great mass of new data acquired since 1990 we are now able to attempt a much more subtle analysis of regional variation in Roman Britain. And of course the database will permit other researchers to investigate their own questions and draw their own conclusions.

Authors

Michael Fulford CBE FBA
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Michael specialises in Roman archaeology and is probably best known for his work on the Iron Age and Roman town at Silchester, Hampshire. He was appointed a Commissioner of Historic England and Chair of its Advisory Committee in 2014.

Neil Holbrook
Chief Executive,
Cotswold Archaeology.

After graduation he excavated various sites on Hadrian's Wall for English Heritage. He joined Cotswold Archaeology in 1991. He has been working on the Roman grey literature project since 2005, and earlier this year he co-edited (with Michael Fulford) a volume entitled *The Towns of Roman Britain: the Contribution of Commercial Archaeology Since 1990*.

Further Reading

The Rural Settlement of Roman England project, more information at: http://dx.doi.org/10.5284/1030449

Foresight for the future

Foresight as a discipline is relatively new to the historic environment, but the first publication of a five-yearly analysis reveals its potential significance.

As the organisation charged with advising the Government on the historic environment and with protecting the physical remains of the past for future generations, it is essential that Historic England advice, strategies and actions are underpinned by credible and well-informed research.

It has long been recognised that the remains we seek to protect need to be well understood. More recently, it has been recognised that developing the best possible understanding of those processes and agencies that may impact on the historic environment in the future is equally important. This concept was fundamental to the development of the National Heritage Protection Plan for 2011–15 and has informed its successor, the Historic England Action Plan. A further response by what was then English Heritage was to establish the Historic Environment Intelligence Team (HEIT) to lead on issues relating to foresight and the historic environment. The HEIT works in concert with colleagues elsewhere in the organisation, in the wider historic environment sector and beyond to collate, analyse and synthesise foresight-related work, gathering information and proposing possible responses.

Foresight has been developed as a discipline in industry and commerce as well as in Government, where it is utilised by the Department for Business, Innovation and Skills, the Government Office for Science, and others. The objective of this 'futures work' is not to accurately predict what is going to happen, but rather to identify potential impacts, assess their likely severity, and where appropriate identify possible responses. Those responses need not be things that Historic England leads on; they may lie in the hands of the wider historic environment sector, the Government or the commercial or industrial sectors.

An understanding of what are termed the fundamental 'drivers of change' is key to establishing what future pressures or opportunities might come up in relation to the historic environment. Five of these have been identified: population, environment, economy, governance and civil society, and technology and innovation. While all can overlap and at times be interdependent, between them they cover virtually all potential threats and opportunities. Under these headings we can look at those processes of change that may impact on the historic environment and identify possible responses that will enhance its resilience in the future; sometimes, of course, the impact may not be on the entirety of the physical heritage, but on a particular type of asset within it.

Identifying a possible threat or opportunity is not an end in itself: options for possible responses must be part of the analysis. That said, any potential responses need to be realistic, cost-effective and deliverable in relation to the likely impact. To assess this we use what is termed the 'So what?' test. In effect we ask, 'Does the scale of impacts or opportunities justify the potential resources needed to mitigate, combat, or take advantage of the situation?' Timescales are highly variable. Identifying issues arising from, and potential responses to, changes in Government policy can focus on developments that are very short-term in nature, while issues in relation to aspects of climate change may need to be considered on a scale of 80-100 years.

A recent Historic England report *Facing the Future: Foresight and the Historic Environment* examines the most pressing issues that may impact on or bring potential benefits to the historic environment. The report builds on the five drivers of change outlined above, and assesses the implications in terms of cross-cutting themes. It also contains some initial considerations of active, planned and possible responses to the risks and opportunities identified, and the mechanisms for delivering those responses.

Facing the Future covers a wide range of topics, from regulation and environmental land management to development; from information technology and social networking to the environment. In the case of

the latter, particular emphasis is given to issues of flooding, coastal change, temperature change, water availability and biogeography (the distribution of animals, plants and pathogens). The analysis of the issues and responses leads into a consideration of practical outcomes; these in turn support and reinforce the significance of Heritage 2020 as the sectoral plan for the next five years. It is possible to see how within the context of Heritage 2020 the suggested actions could be coordinated under different themes of activity, and how they could be transmitted into the action plans of a wide range of bodies involved in the historic environment, including Historic England itself.

Facing the Future is intended to stimulate debate and widen participation in foresight-related activity within Historic England and the historic environment sector. It is built on robust evidence, gathered from a wide range of sources, extending far beyond those directly involved with the heritage. Some of the evidence presented should prompt questions as to whether existing strategic priorities are correctly balanced or whether there are other, alternative opportunities to better protect and manage change in the historic environment. Some of these choices may be difficult or even unpalatable, and which options gain prominence will be determined by the remit of individual organisations – but the exercise itself provides opportunities to better deploy resources whilst improving protection outcomes. One overall conclusion that can be drawn is that traditionally the historic environment sector is best at engaging with trends that impact directly on the fabric of the historic environment, for example development and climate change. This is in direct contrast with the less tangible trends, driven by social and behavioural changes in individuals and society, which also need to be addressed in forthcoming iterations of successive heritage sector priorities. Updating and publication of *Facing the Future* is planned to take place in five-yearly cycles, with the next one due in 2020.

Author

Pete Wilson, PhD, FSA, FSA Scot, MCIfA
Foresight Coordinator with Historic England.

Pete has worked for Historic England and its predecessor bodies since 1981, initially as an Archaeologist/Senior Archaeologist and, from 2005 to 2012, as Head of Research Policy (Roman Archaeology). He is now Foresight Coordinator in the Historic Environment Intelligence Team.

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Further reading

Facing the Future, more information at: https://HistoricEngland.org.uk/images-books/publications/facing-the-future/

Heritage 2020, more information at: http://www.theheritagealliance.org.uk/historic-environment-forum/heritage2020

Historic English Action Plan, more information at: https://HistoricEngland.org.uk/about/what-we-do/action-plan

Stand by for impact!

Historic England and the higher education sector.

Historic England is classified by Government as one of a number of Public Sector Research Establishments (PSREs) which make key scientific and technical inputs into the process of policy- and decision-making. These establishments are positioned between the higher education sector on one hand and commercially-funded research and development on the other to help maximise the benefits of public investment in research.

Like other PSREs, our research is applied, rather than 'pure' or 'blue-skies'. We undertake it in order to ensure that the nation's heritage is protected more effectively and is more widely understood and appreciated. It supports our other organisational functions and is intended to help deliver the objectives set out in our corporate plan for 2015 to 2018, *Valuing our Past: Enriching our Future*.

Our research includes:

- Investigation of those parts of the country where the historic environment is hidden or poorly understood, in order to help planners avoid damage to important assets, help communities protect their local heritage, and reduce the risks of cost and delay to developers;
- Better understanding of those categories of heritage that are considered to be most at risk, to ensure that our policies and grant-aid are targeted as effectively as possible;
- Exploration of the heritage of groups and communities that consider themselves under-represented in traditional approaches to heritage;
- Technological and methodological innovation that makes our conservation efforts smarter, faster and more cost-effective;

Portrait of congregation at Ramgharia Sikh Temple, 81-83 Chelsea Road, Easton, Bristol. © Historic England, James O. Davies

- Work to better define the social and economic benefits that the historic environment delivers to the national economy; and
- Recording work, where we are the funder of last resort for nationally important heritage assets unavoidably threatened with destruction (see for example the Staffordshire Hoard article p3-7)

We deliver this work through a team of in-house researchers, some of whom are regarded as leaders in their field nationally and internationally, and through our Heritage Protection Commissions budget, which allows us to procure expertise that we do not have in-house. In the past, as English Heritage, partnerships with the higher education sector have been an important way that we gained access to additional external expertise. Today, as Historic England, we are further strengthening this ethos of partnership, both with universities and with the UK Research Councils. In this we are increasingly assisted by the Government's emphasis on the 'impact' of university research.

Osborne House, Osborne, Isle of Wight, Hampshire. General view of north elevation, view from north east. © Historic England, James O. Davies

First introduced in 2014, impact is now one of the three main criteria for assessing research in the Research Excellence Framework, the system for assessing the quality of research in UK higher education institutions. For the purposes of the framework, impact is defined as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia'. Impact is an important feature of Research Council grant awards, too – all major grant applications from universities need to demonstrate 'pathways to impact'.

England's heritage straddles both our cultural life and our environment and contributes both to our quality of life and to the national economy. It is therefore an ideal field of study for those in a wide range of academic disciplines who wish to demonstrate research impact. And as the government's statutory adviser on England's historic environment, as well as the frontline national service for the protection and public appreciation of the heritage, Historic England is an ideal partner for such research projects.

These partnerships have always been fruitful, but they are becoming increasingly important as the pressure on the research resources of public bodies – and the many non-governmental organisations that depend on them – intensifies as a result of continuing reductions in public expenditure. Partnerships which open opportunities to new income streams and broaden responsibility for funding key areas of research are no longer just desirable: they are essential.

Inter-war Office buildings project 19-23 Wells Street, Marylebone, Greater London. © Historic England, Chris Redgrave

Where it will help achieve our corporate objectives, we are establishing partnerships with universities in a variety of ways, involving varying levels of engagement and resource. At the most basic level we share our research priorities with our academic partners through our website www.HistoricEngland.org.uk/research/support-and-collaboration/researchopportunities. This enables prospective

partners to see the research imperatives in our corporate plan and other supporting statements, such as the Historic England Action Plan and our Science Strategy, to which we will add further detail in the year ahead. In some cases we have also provided impact testimonials for research that we have not sponsored directly but which still supports our priorities.

We are also formal partners in a number of research ventures. These include the Centre for Doctoral Training in Science and Engineering in Arts Heritage and Archaeology, a collaboration between University College London, the University of Oxford and the University of Brighton, funded by the Engineering and Physical Sciences Research Council. We are also partners in several Arts and Humanities Research Council-funded doctoral training partnerships (awards made to research organisations or university consortiums, for them to disburse as PhD studentship funding). We are, for example, partners with The South, West and Wales Doctoral Training Partnership and The White Rose College of the Arts and Humanities. An increasing number of students involved in these partnerships are now turning to research areas that address our priorities and we are pleased to be able to offer guidance on their selection of topic.

Our most intensive area of partnership, however is through our co-supervision of 18 Collaborative Doctoral Partnership studentships, which we (together with the new English Heritage Trust) are delighted to have been awarded by the AHRC over two rounds of competition. Nine of these studentships are already active and nine more will be announced between 2016 and 2018. The existing projects are based in various different universities and address a wide range of topics. They include areas of under-represented or poorly understood heritage, such as Sikh places of worship in England, the heritage of the deaf, and early 20th-century office buildings. Others promote measures to address immediate threats to the historic resource, including the decay of metal artefacts in plough soil and the effects of weather on outdoor sculpture. We are currently recruiting for university partners to co-supervise our next three studentships. These will commence in October 2016 and need to be based on our identified research themes, details of which can be found on our website.

Taken together these studies will make an enormous contribution to the management of England's historic environment and to its appreciation by the public. They will also help to address skills shortages in the heritage profession and give students the satisfaction and competitive edge of a research degree that has had a demonstrable impact on their chosen profession.

- For further information on our collaborative work with universities and the research councils contact the Historic England Research Partnerships Officer, Phil Pollard, at philip.pollard@HistoricEngland.org.uk.

Author

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Steve is Director of Research with Historic England and a member of the Historic England Executive Board. Since joining English Heritage in 1987, Steve has worked in its designation department, as an Inspector of Ancient Monuments and as its Head of Rural and Environmental Policy. He is an archaeologist with research interests in the Roman period and has previously worked for the Museum of London and The British Museum.

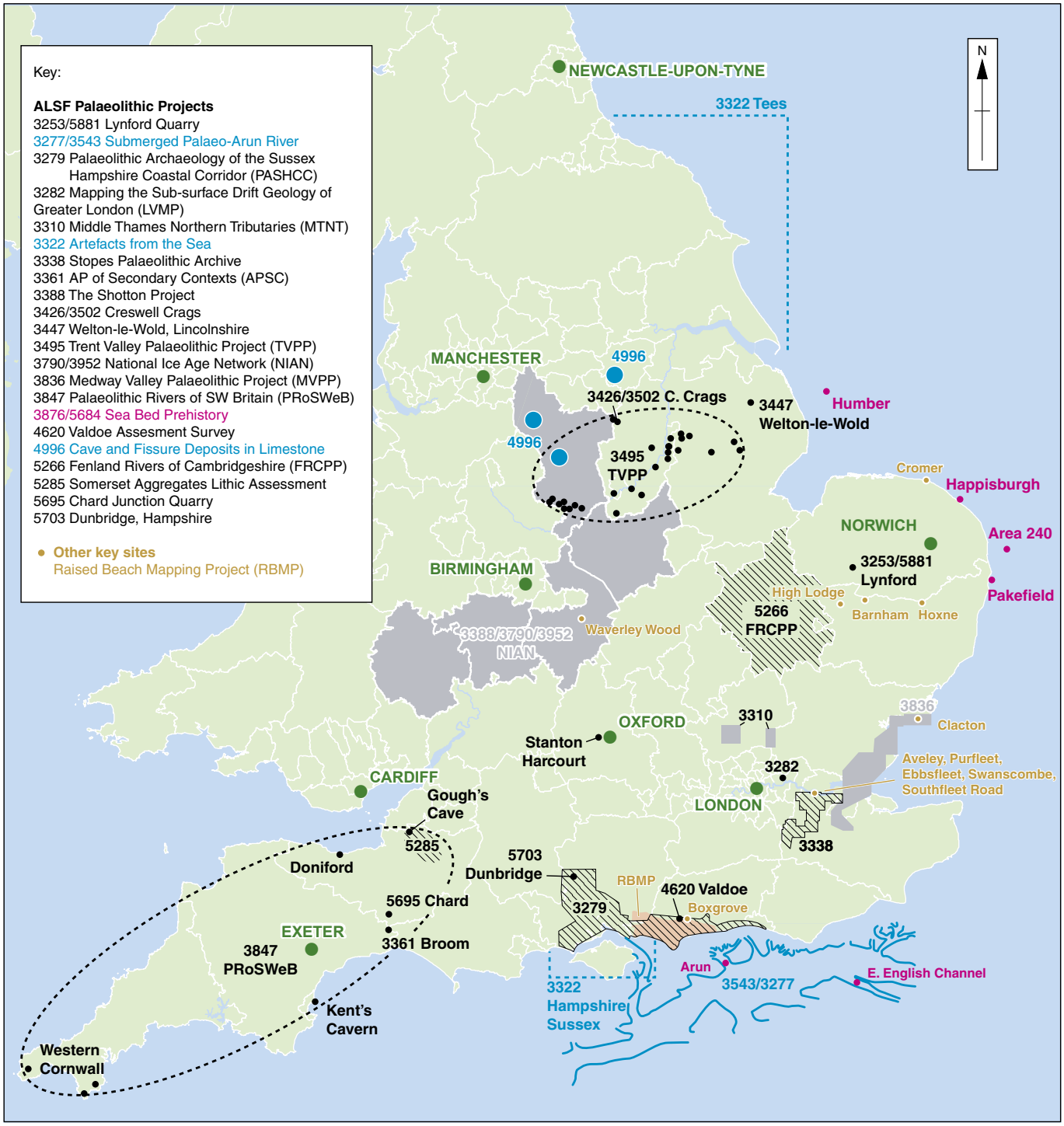
Further Reading

Historic English Action Plan, more information at: https://HistoricEngland.org.uk/about/what-we-do/action-plan

Research opportunities at Historic England, more information at: www.HistoricEngland.org.uk/research/support-and-collaboration/researchopportunities

Lost landscapes of Palaeolithic Britain

The Aggregates Levy Sustainability Fund led to a major expansion in the resources available to research this era. Now the results of this are being synthesized and disseminated.



Location of key British Palaeolithic sites and ALSF projects. © Oxford Archaeology

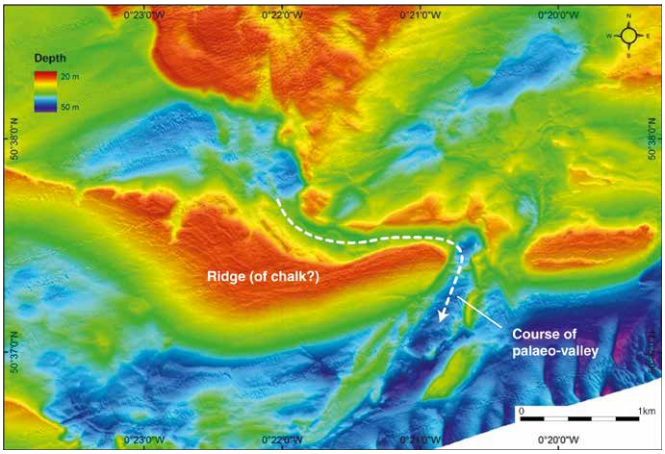
Between 2002 and 2011, thanks to effective lobbying by English Heritage and others, the Aggregates Levy Sustainability Fund (ALSF) poured some £28.8 million into research relating to the historic environment. The projects funded were often in the low-lying, coastal and maritime areas most affected by aggregate extraction – areas where the evidence from the Palaeolithic is particularly well-preserved. No less than £8.8 million of this total figure was directed towards work focused on the archaeology of the Pleistocene, often the Palaeolithic in particular. The benefits for our understanding of the period, and for the protection of its fragile remains, have been incalculable.

In an effort to make this work better known, English Heritage (now Historic England) initiated the Lost Landscapes of Palaeolithic Britain project when the ALSF was cut in 2011. The project formed a key component of the National Heritage Protection Plan, specifically Activity 3A3, 'Deeply Buried/Subterranean Pleistocene and Early Holocene Archaeology'. Its completion was considered an essential precursor to the initiation of a new programme of research aimed at enhancing the protection of the Palaeolithic and Pleistocene resource.

The overall aim of the project was to raise awareness and widen understanding of the contribution projects funded by the ALSF have made to Palaeolithic archaeology. The fund derived from a levy imposed by the UK government on sales of primary marine and terrestrial aggregate. The aim was to ensure market prices better reflected the social and environmental cost of extraction. The Department for Environment, Food and Rural Affairs used a proportion of the revenue generated by the tax to fund research that was designed to mitigate the impact of aggregate production in those areas which it affected.

This impact affected the natural as much as it did the historic environment, and the fund was mainly distributed by English Nature (now Natural England) and Historic England. The scope of those projects which focused on the historic environment was very wide-ranging, including for example desk-based assessment, GIS mapping programmes, studies of antiquarian collections, and field investigations in terrestrial, intertidal and marine environments alike. It is difficult to overstate the importance of this fund in the development of research which 'on the world stage… is held up as a model of innovative heritage management providing proactive, collaborative research benefit to all stakeholders' (Flatman *et al* 2008). The ALSF facilitated unique opportunities to examine landscapes, deposits and materials in ways that would otherwise not have been possible, but also had significant practical outcomes for conservation and management, whether by supplying new data on the period or by nurturing greater collaboration between stakeholders. The updating of Historic Environment Records (HER) and the development of mineral plans were areas that benefited in particular (Flatman *et al* 2008; Miller *et al* 2008).

Palaeolithic handaxe recovered from investigations funded by the ALSF at Chard Junction Quarry, Somerset. © Laura Basell



Multibeam bathymetry of the submerged Arun Valley beneath the English Channel. The mapping was funded by the ALSF and the study area, located off the coast of West Sussex, is shown in the nearby map of ALSF projects. © Dr Sanjeev Gupta

Survey of rich organic interglacial channel deposits at West Street, Selsey, exposed following erosion of beach shingle by storms. The work was carried out for the ALSF project *Palaeolithic Archaeology of the Sussex-Hampshire Coastal Corridor.* © Martin Bates

Excavation of mammoth remains and associated stone tools dating to *c* 60,000 BP, at Lynford Quarry, Norfolk. The excavation was undertaken with the support of the ALSF and the quarry owners Ayton Asphalte. © Historic England

The Lost Landscapes of Palaeolithic Britain Project was designed and managed for English Heritage by Oxford Archaeology. It brought together a team of academic specialists, recognised as leaders in various aspects of the British Palaeolithic, but also crucially with experience of ALSF projects and developer-funded archaeology. The academic team was led by Professor Mark White of Durham University. Outputs from the project include an update of the English Rivers Palaeolithic Survey artefact database and a report designed to inform future research activities undertaken as part of the National Heritage Protection Plan.

A key and concluding part of the project was the production of a peer-reviewed monograph (White ***et al***, forthcoming 2015). From the outset, the aim of this publication was not simply to provide a mechanistic narrative of ALSF projects, many of whose individual reports had in any case been made available through the Archaeology Data Service (ADS); nor was it to provide a general synthesis of British Palaeolithic sites, for this had been covered in a number of recent publications. Rather, the book is concerned with more widely disseminating the results and implications of the various ALSF projects to a number of key stakeholders: that is it aims to bridge the gap between achievement and awareness. The intended target audience is the professional archaeologist, but not necessarily the specialist: those working as curators, with developers, as consultants, in industry or in archaeological practices will all find it useful.

The monograph is divided into a series of thematic chapters, interspersed with illustrated text boxes focusing on key techniques, methodologies and case studies. The cases studies are largely of projects funded through the ALSF, but reference is also made to other important projects or sites where appropriate, for example the Ancient Human Occupation of Britain Project funded by the Leverhulme Trust, the Raised Beach Mapping Project in Sussex, and the ongoing work on the Boxgrove palaeolandscape.

The volume is opened by Mark White, who provides an introductory overview of the project, setting out the context and essential background information. In the second chapter, Martin Bates (University of Wales, Trinity St David) and Matthew Pope (University College London) examine the range of methods used by various ALSF projects to explore the Pleistocene record. Their discussion will be of use to archaeological practices and development controllers because it explores cost-effective methods as well as state-of-the-art techniques. It initiates the scalar approach advocated throughout the volume by looking at how different questions engender different investigative strategies: from specific sites or localities to the wider regional level, such as river catchments. It is particularly concerned with encouraging a greater appreciation of the importance of those sites which preserve a range of environmental and landscape evidence, but at which there is no clear indication of a human presence.

Chapter three, by Matthew Pope and Martin Bates, deals with the record from marine and marine-land transitional zones. The marine resource has become a significant focus of investigation over the past decade, as awareness has grown that potentially high-quality archaeology can be found in intact sediments, particularly in the North Sea basin and the shores around it. Pope and Bates examine the different ALSF projects that have tackled these issues, while also putting to rest some emerging misconceptions about this record. Vitally, they also question whether the loss of marine habitat and the absence of detailed geological information associated with dredged artefacts is a price worth paying, or whether this is a resource best preserved for future generations.

In the fourth chapter, Danielle Schreve (Royal Holloway, University of London) examines the impact of the ALSF on those projects that focus on terrestrial landscapes. This essay concentrates on the challenges presented when investigating individual sites as well as wider valley sequences, but also discusses the highs and lows of a major flagship project, the National Ice Age Network (NIAN). The chapter offers valuable insights into the social and cultural benefits of ALSF to communities, and in helping address policy at a national level.

Andy Shaw (University of Southampton) and Beccy Scott (British Museum) close the thematic chapters by discussing the technology, behaviour and settlement history of Palaeolithic humans. The text of this chapter focuses on providing a commentary for the non-specialist on the Palaeolithic material record. Taking up the theme of landscape and timescales, it begins with a useful outline of the nature of the material (including its burial or preservation context and collection history). A temporal run-down of the key types of artefacts and technologies most commonly found at Palaeolithic sites is then provided. The chapter can function as a brief guide to what one might expect to find in deposits of different ages. The value of waste flakes is discussed, as well as the ways in which changes in landscapes and the way humans use them can structure the archaeological record. The aim once again

One of the most spectacular palaeontological finds to be made during the period when the ALSF was active was the recovery in 2002 of an exceptionally well-preserved partial skeleton of a woolly rhinoceros at Whitemoor Haye Quarry, Staffordshire. © Birmingham Archaeology

Spear-making and cave painting. A 'Day in the Ice Age' event held at Royal Holloway college by the National Ice Age Network supported by the ALSF. © Danielle Schreve

is to provide useful insights into the value (or otherwise) of various types of site for different stakeholders. Finally, the authors provide a guide to interpreting the record, in terms of burial or preservation context, site function and landscape use. Each of the themes discussed is exemplified using ALSF projects.

The final section, written by Mark White, is an attempt to use these insights to define future priorities and milestones. In particular it offers pointers for how to reasonably respond to and mitigate the impact of development when it affects Palaeolithic sites. It is hoped that the volume will raise the profile of the enormous impact the ALSF has had on our knowledge and understanding of this distant and fascinating period.

George Worthington Smith, a 19th-century antiquarian, indicates the position of Palaeolithic artefacts from the site at Gaddesden Row, Bedfordshire. Many artefacts and records stored in museums or private collections were re-examined and catalogued as part of ALSF projects. © Luton Museum Service

■ The Lost Landscapes of Paleolithic Britain Project was monitored for Historic England by Helen Keeley and Jonathan Last. The project was managed for Oxford Archaeology by Elizabeth Stafford.

Author

Elizabeth Stafford MSc
Head of Geoarchaeological Services, Oxford Archaeology.

Elizabeth has 20 years experience working in the commercial archaeology sector. As a geoarchaeologist, Elizabeth has worked on a wide range of developer-funded and research projects across the UK, including Palaeolithic investigations in the Thames Valley. As part of her current role at Oxford Archaeology Elizabeth manages projects in the field and during the post-excavation process, and is also principal author of a number of publications focused on aspects of geoarchaeological research.

Further Reading

Flatman, J Short, J Doeser, J and Lee, E (eds) 2008 *Sustainable Heritage: Aggregates Extraction and the Historic Environment*. ALSF Dissemination Project benchmark report, 2002-7, London: UCL Centre for Applied Archaeology

Miller, J Poulter, A Hewson, M and Penrose, S 2008 *Rich Deposits: Aggregates Extraction and the Knowledge Pool*. ALSF Dissemination Project benchmark report, 2002-7, London: Atkins Heritage

White, M (ed) with Bates, M Pope, M Schreve, D Scott, B and Shaw, A, forthcoming 2015 *Lost Landscapes of Paleolithic Britain: the Contribution of the Aggregates Levy Sustainability Fund (2002-2011) to Palaeolithic Research*. Oxford Archaeology Monographs, Oxford: Oxbow books

Historic England's Informed Conservation series

Short, authoritative, illustrated introductions to historic places.

With the publication in November 2015 of *Boston, Lincolnshire: Historic North Sea Port and Market Town*, this long-running series of English Heritage, and now Historic England, books will have reached 30 titles. These small-format paperbacks are accessible and attractively-produced summaries of the outcomes of built environment research projects undertaken by the organisation. As such, they form an important strand of our research dissemination strategy, complementing our larger publications, Research Reports and *Historic England Research* itself.

Earlier this year we made the entire back catalogue of Informed Conservation titles, including several that were out of print, available as modestly-priced e-books, and also released them in low-resolution PDF versions that can be downloaded free from the Historic England website. The e-books can be purchased through e-book suppliers and as Kindle books via Amazon. We hope that these new initiatives will help bring the series to an even wider and more diverse audience.

The aim of the books, the first of which was published in 2000, is to highlight the special character of some of our most important historic places and the various pressures they are facing. Some of the publications look at whole towns, such as Bridport, Stourport-on-Severn and Berwick-upon-Tweed, while others focus on a settlement from a particular perspective, for example the titles on the seaside heritage of Blackpool, Margate and Weymouth. Quite a few look at distinctive former industrial quarters or regions and the specific building types associated with them. Examples include books on the buildings of the Sheffield metal trades; Birmingham's historic Jewellery Quarter, which, remarkably, is still functioning as an inner-city industrial area; the pioneering early industrial suburb of Ancoats in Manchester; the buildings of the Northamptonshire boot and shoe industry, as well as those of the hat industry of Luton; and the furniture district of south Shoreditch in London. Others, such as Manningham in Bradford and Anfield and Breckfield in Liverpool, shed new light on 19th-and early 20th-century suburban development. Liverpool is particularly well served, with five books on different aspects of its heritage; Manchester has three. More recently the publication on Plymouth focuses on the rebuilding of that city after the Second World War, a theme to be revisited in a forthcoming book on Coventry. A few titles are national in scope, focusing for example on English school buildings and on garden cities. While the vast majority of the books address urban places and building types, the format and approach is equally applicable to rural areas, as the recent publication on the north Pennine town of Alston and its surrounding landscape shows.

The books include high-quality colour photographs and specially commissioned graphics, and a number also contain maps and walking tours, highlighting key buildings. They provide a lively account of the historical development and character of each area or building type; they can also act as effective advocacy documents promoting the management of change in the historic environment. Their overall purpose is to raise awareness of the interest and importance of those aspects of the built heritage of towns and cities that are undergoing rapid change or facing large-scale regeneration; they are especially aimed at non-specialist audiences. A particular feature of each book is a final chapter that focuses on conservation issues, identifying good examples of the re-use of historic buildings in a given area, and highlighting those assets or areas for which significant challenges remain. The contributions to these final chapters are usually by planning or listing staff within Historic England or, sometimes, conservation officers working for local authorities. Very often they represent part of Historic England's contribution to wider partnership projects, including input to master planning, design guidance and advice on locally significant heritage assets as well as the

protection and sustainable management of nationally significant buildings through listing.

As distillations of in-depth research and investigation, publications in the Informed Conservation series also provide a useful resource for heritage professionals, tackling, as many of the books do, places and building types that had not previously been subjected to investigation from the historic environment perspective. In many cases they derive from Historic Area Assessments, which analyse the character and significance of places https://HistoricEngland.org.uk/images-books/publications/understanding-place-principles-practice/

The series continues under the auspices of Historic England, and provides one of the key outcomes of its evolving programme of place-based projects. Most will be written by Historic England's own experts, though titles are also sometimes commissioned from outside authors.

In October this year we plan to work with local authorities and other partners to establish Heritage Action Zones. These are places where a full range

of Historic England expertise and resources will be deployed to help ensure the historic environment makes an important contribution to productivity and economic growth. Research will almost certainly play a part in these, and new Informed Conservation books are likely to be one of the outcomes to emerge from the initiative. This is in addition to the publications which will result from projects already in the Historic England Action Plan

More information on each of the books in the series and on forthcoming titles, together with links to enable them to be ordered or downloaded, is available on the Historic England website

Forthcoming titles:

Boston, Lincolnshire: Historic North Sea Port and Market Town

John Minnis, Katie Carmichael, Clive Fletcher

Boston is known as a medieval market town and major port with links to Europe and America. This book examines the development of the town and its distinctive character, and describes its expansion in the 19th and 20th centuries. It also discusses issues arising from the town's physical isolation from other population centres, a low-wage agricultural economy, and the effects of 1970s road schemes, before reviewing the impact from the heritage perspective of recent regeneration projects.

The Hoo Peninsula Landscape

Sarah Newsome, Edward Carpenter and Peter Kendall

Located on the north Kent coast 30 miles east of Central London, the character of the Hoo Peninsula has been shaped by changing patterns of land use and maritime activity over a long period. This book is the result of a major project that has analyse the peninsula from a wide variety of perspectives. It highlights the role of the area in the national story and demonstrates that its history and heritage is far richer and more significant than many suppose.

Coventry: The Making of a Modern City 1939-73

Jeremy Gould and Caroline Gould

The bombing of the historic city of Coventry was a momentous event in the history of 20th-century England and has become ingrained in the public consciousness. This book explores the rebuilding of the city centre and suburbs, shaped by the earliest master plan for the post-war redevelopment of a British city centre (by the City Architect, Donald Gibson), and the ever-changing ideas of subsequent planners and architects. *Coventry…* describes the influence the rebuilding had on other cities in Britain and beyond and the significance of the city's post-war heritage. It is hoped that this enhanced understanding will help ensure that the most important elements of the post-war rebuilding are retained in a revitalised city.

Author

John Cattell MA (Hons), MA (Arch Cons), FSA IHBC
Architectural historian and senior manager with Historic England.

As head of the Investigation & Analysis Department he has oversight of multi-disciplinary applied research teams and their internal work programmes. He is a co-author of the forthcoming book *Apethorpe: the Story of an English Country House* and sits on the Council of the Society of Antiquaries of London.

Historic England publications

We are delighted to introduce the first titles to be published by Historic England. The books listed below show the range and focus of our publishing, from the absorbing *Picturing England* – a treasure trove of images, tracing the development of the nation's landscape and culture since the invention of the camera – to *The Stonehenge Landscape*, a vital and timely addition to research on this most iconic of prehistoric monuments.

To find out more about our titles go to our website, https://www.HistoricEngland.org.uk/images-books/books/ or take a look at our electronic catalogue http://publishing.HistoricEngland.org.uk

Picturing England: The Photographic Collections of Historic England

Mike Evans, Gary Winter and Anne Woodward

Picturing England is an exhilarating journey through 150 years of English History, via beautifully-preserved photographs from the Historic England Archive.

Over 300 images illustrate the changing appearance of England's buildings, landscapes and people, all the while revealing how dramatically the method, subject matter and purpose of photography has evolved over time. From Edwardian shooting parties captured in all their finery to Blitzed churches; from London's skyline to the depths of a Cornish mine, this book illustrates the endurance of our buildings and landscapes in the face of development, bombing, natural disasters and neglect. It reveals just how crucial photography has been and still is in recording history and memorialising the past.

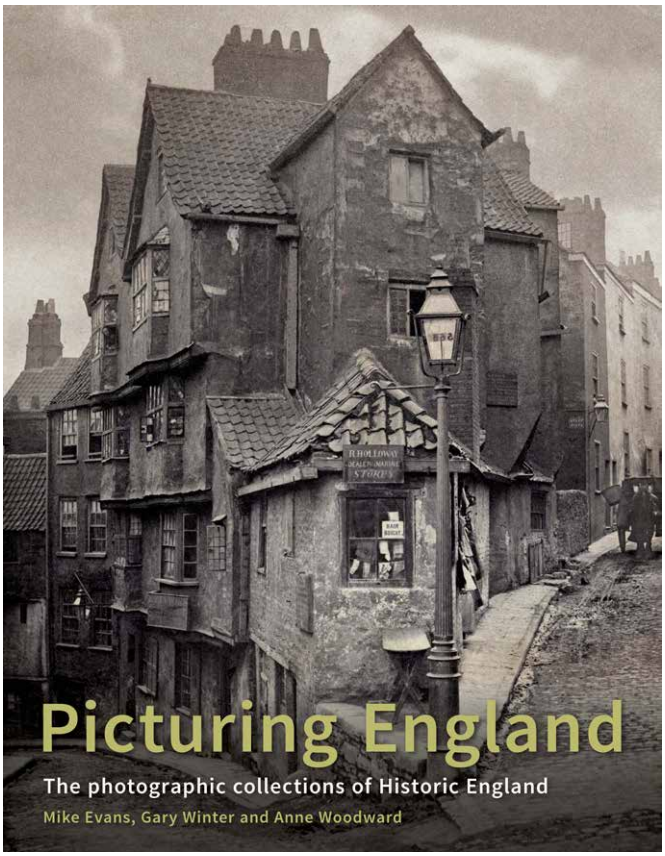
Picturing England pinpoints crucial turning points in the history of photography, demonstrating how inventions such as the picture postcard, the handheld camera and the aeroplane changed the medium forever. It also provides an intimate insight into lost social worlds: from mischievous Victorian family photo albums to labourers working on the 1920 'restoration' of Stonehenge.

Many of the images have never been published before and all have been carefully handpicked by experts at Historic England from the nine million images in our extraordinary archive.

£45.00 : July 2015 : 978-1-84802-099-3 : Hardback : 344pp : 276x219mm : 297 illustrations

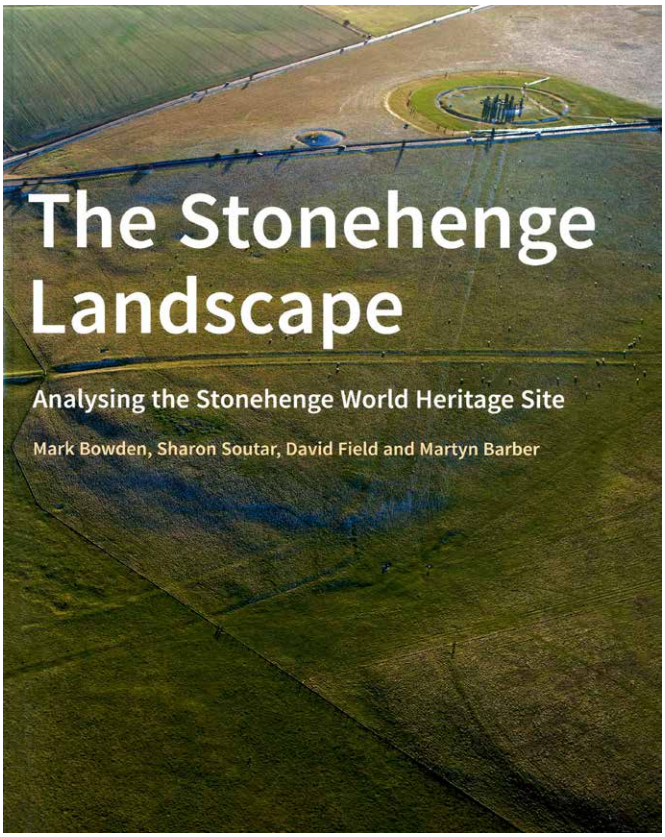
https://www.HistoricEngland.org.uk/images-books/picturing-england/

There is also a Picturing England blog, https://picturingengland.wordpress.com/



The Stonehenge Landscape: Analysing the Stonehenge World Heritage Site

Mark Bowden, Sharon Soutar, David Field and Martyn Barber



Stonehenge is arguably the greatest prehistoric monument in Western Europe, and it sits in a landscape rich in Neolithic and Bronze Age monuments. *The Stonehenge Landscape* traces the human influence on the landscape from prehistoric times to the very recent past and presents an up-to-date synthesis of the results of recent fieldwork.

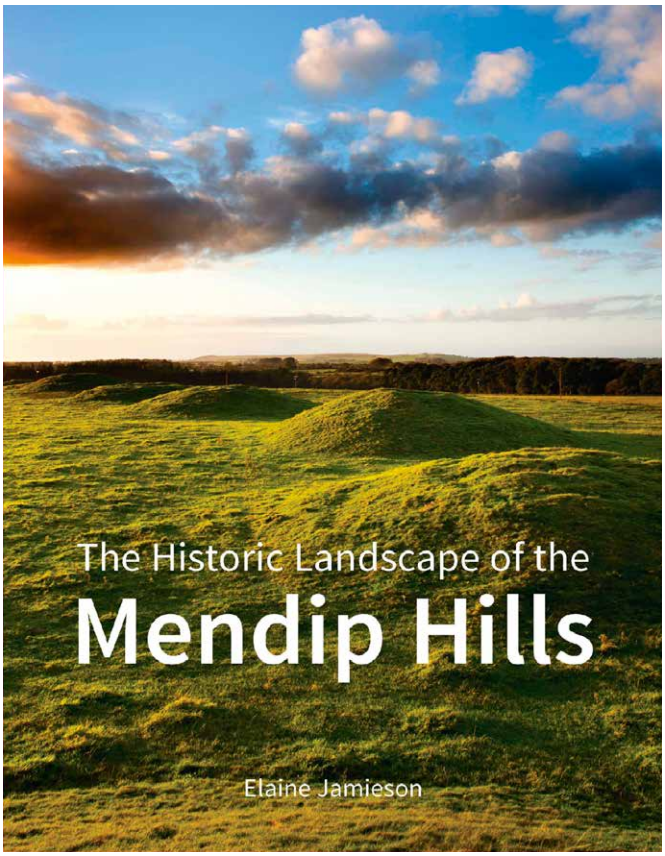
Recent research within the Stonehenge World Heritage Site has led to the identification of previously unknown monuments and, perhaps even more importantly, the reinterpretation of known sites, including Stonehenge itself. In this new book we present the most significant findings of English Heritage research and show how they integrate with the results of work undertaken by colleagues in other research bodies.

£30.00 : July 2015 : 978-1-8402-116-7 : Paperback : 176pp : 276x219mm : 112 illustrations

https://www.HistoricEngland.org.uk/images-books/publications/stonehenge-landscape/

The Historic Landscape of the Mendip Hills

Elaine Jamieson



Bringing together the results of a wide range of new and past research, *The Historic Landscape of the Mendip Hills* explores the archaeology and architecture of this remarkable corner of England, beginning with evidence for the first hunting groups who passed through the region over half a million years ago. Succeeding generations have left their mark on this limestone upland, from the enigmatic ceremonial structures of the Neolithic and Early Bronze Age to the ancient farming landscapes and brooding hillforts of the later prehistoric period.

Field archaeology, combined with architectural and historical enquiry, has also allowed a complex narrative to be constructed for more recent periods of history. This is a story dominated by adaptation and change, evidenced by the developing architecture of manorial centres and the shadowy remains of earlier structures fossilised within village houses as well as by flights of abandoned terraces of former strip fields, and the unassuming ruins of farmsteads. Such monuments bear testament to the people who once worked and occupied these hills.

£35.00 : July 2015 : 978-1-8402-042-9 : Hardback : 304pp : 276x219mm : 292 illustrations

https://www.HistoricEngland.org.uk/images-books/publications/historic-landscape-of-mendip-hills/

Jewish Heritage in Britain and Ireland: An Architectural Guide

Second Edition

Sharman Kadish

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