Discovery, Innovation and Science in the Historic Environment

RESEARCH

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Welcome...

...to this Winter issue of Research magazine.

In this shorter issue we include two articles revealing recent research into monuments and artefacts dating back to the Romano-British **and Medieval** periods, an update on an international collaboration and a piece addressing the hugely important and pressing theme of climate change adaptation.
Martin Henig and Vicky Crosby report on recent analysis of an important assemblage of fragments of monumental sculpture discovered at Stanwick in the Nene Valley in Northamptonshire as part of a large excavation of an Iron Age and Romano-British landscape carried out over 30 years ago. The authors offer a sneak preview of the results of this analysis in advance of their publication in *Britannia* this year.

The wonderfully named Apple Dumpling Castle in Gosport a small earthwork castle dating from the late 11th or 12th century is described by the landscape archaeologist Mark Bowden. These numerous small motte-and-bailey castles remain poorly understood and have been a particular interest of the author over many years. The investigation of Apple Dumpling is part of our research contribution to the Gosport Heritage Action Zone.

Ongoing conservation of a fascinating range of items recovered from the Dutch East India Company ship *Rooswijk* wrecked off the coast of Kent in 1740 is the focus of an article by MSDS Marine consultants Alex Bliss and Heather Stewart. The work is part of an exciting international project led and funded by the Cultural Agency of the Netherlands in partnership with Historic England and MSDS Marine.

Lastly, but by no means least, Jessica Hope discusses a big issue of current concern, climate change adaptation. Her article highlights the inherent durability and energy efficiency of many traditional buildings and the guidance that Historic England and others have issued to help those engaged in retrofitting such structures. As in other areas so much important research remains to be undertaken.

John Cattell
National Head of Research
with Historic England.

Front cover image: Detail of the head of a barbarian, Stanwick, Northamptonshire.

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

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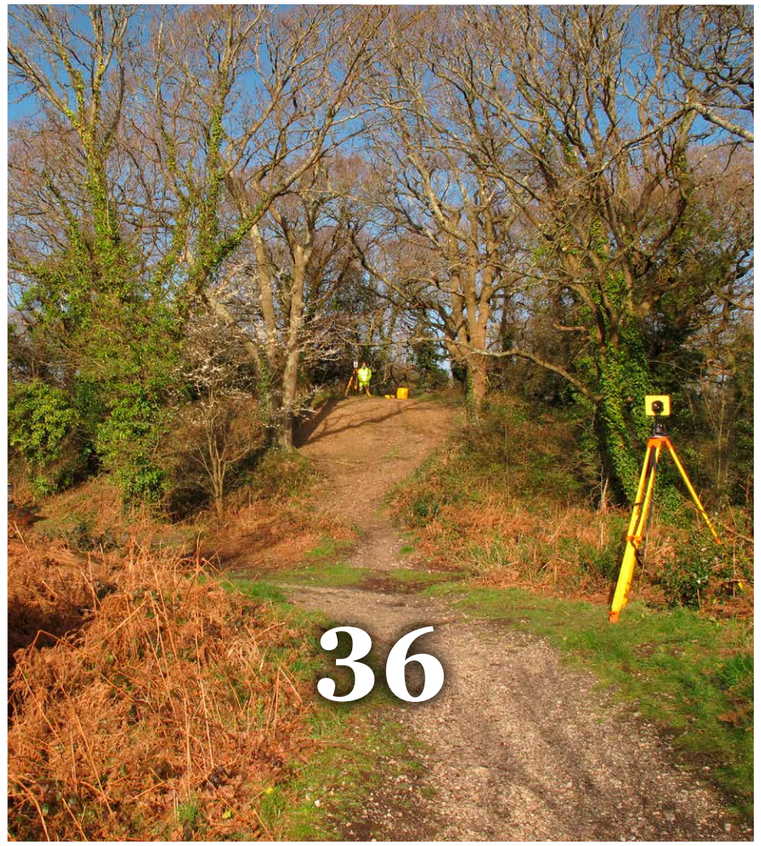

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RESEARCH magazine

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Above: Cask RK18 A00297, views of the most recent to be worked on. © #*Rooswijk*1740 project

Making waves: selected updates from the *Rooswijk* project

An 18th-century Dutch shipwreck continues to give up its secrets.

Introduction

On the 8th of January 1740, the Dutch East India Company (VOC) ship *Rooswijk* weighed anchor and left harbour on the Dutch island of Texel, carrying a varied cargo that included large quantities of silver coins and bullion intended for trade. This marked the start of an arduous 9-12-month long journey to Batavia, the then capital of the former Dutch East Indies (now Jakarta, Malaysia). However, by the next day *Rooswijk* had been driven onto the Goodwin Sands off the coast of Kent and subsequently broke up – sinking with no survivors. Passing into obscurity, it was not until 2005 that the ship was re-discovered following a search by recreational diver Ken Welling.

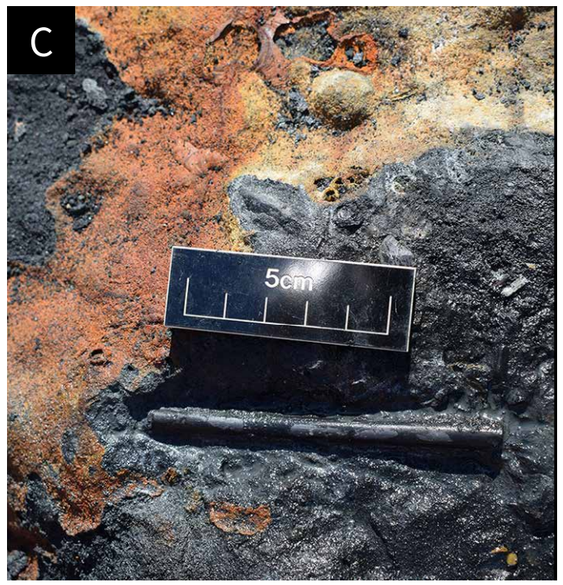
Lying in approximately 25 metres of water, the remains of the vessel were the focus of two intense excavation seasons in the summer months of 2017-18. Now almost three years on from the end of practical fieldwork, the project team continues to make fresh discoveries about the ship, its cargo and the people who worked on board. This article provides a general 'snapshot' into just a few of these new finds.

The #*Rooswijk*1740 project is both funded and led by the Cultural Heritage Agency of the Netherlands (Ministry of Education, Science and Culture), working in collaboration with project partner Historic England and UK-contractor MSDS Marine. The post-excavation work is largely undertaken by Historic England in their research facilities at Fort Cumberland.

A cask and its contents

A major element of the *Rooswijk*'s post-excavation programme concerns de-concreting individual artefacts and conglomerated groups of finds. Concretions form when shells, organisms and sand combine with iron corrosion products from artefacts, creating a rock-hard layer that can be anywhere from 1-10 centimetres in thickness. This effectively encases artefacts in a protective shell, creating an anaerobic (oxygen reduced) environment where decay is slowed and in which artefacts are physically shielded from abrasion, breakage and attack by biological organisms.

The first step of conservation is (excepting instances where artefacts are simply too large or dense) to X-Ray each concretion and interpret contents based on the resulting images. While some concretions contain only the voids where iron objects once were, others can contain quite literally hundreds of finds. Layers are removed in a controlled manner, working carefully to record important information as it is uncovered. >>



Left: Finds from within the concretion layers; A) waterlogged plant material, B) well-preserved stalk of plant material, C) clay pipe stem, D) composite tool handle. © *Rooswijk*1740 project

The 2018 season of excavation resulted in the lifting of many larger objects and timbers, including two heavily concreted wooden casks which had the potential to provide further information on the contents of *Rooswijk*'s cargo. Both casks were simply too big for X-Ray analysis and de-concretion was thus undertaken 'blindly'. The first cask was fully cleaned in 2019 by previous project members Nicole Schoute and Kim Roche and was found to contain large quantities of iron nails. These probably represent ship's chandlery intended for use in repairs and maintenance on the outward-bound journey to Batavia.

Work began on de-concreting the second cask in late 2020. The concreted layers and lumps across its external surfaces were particularly thick, containing a variety of different finds. These mainly consisted of ordinary items encountered across the rest of the site; galley bricks, clay pipe fragments, bottle glass and wooden tool-handles. However, one unexpected find was a substantial amount of fragile waterlogged plant matter, which may represent traces of external packing material intended to fill the gaps between stacks of casks and better secure them.

It is quite incredible to think that this not only survived the grounding, sinking and subsequent break-up of the ship, but was also preserved underwater and eventually incorporated into the cask's concretion.

Right top: Detail of aperture and cask contents (left), location of aperture (right). **Right bottom:** Detail of carved mark (left), entire headpiece with second mark circled (right). © *Rooswijk*1740 project

A comprehensive archaeobotanical analysis by Ruth Pelling of Historic England will be forthcoming to identify the plant *taxa* more specifically.

Two other unexpected discoveries were made during de-concreting. The first of these was an aperture cut into one side of the second cask. This enabled us to confirm relatively early in the investigation that the contents were (again!) iron nails. This feature was seemingly originally sealed by a leather closure, traces of which are still attached to the opening itself. Interestingly, much of the waterlogged plant matter was also concentrated in this area – though the reasons for this are not presently certain. Additionally, cleaning of one headpiece (cask end) has revealed two inscribed marks, one probably representing that of the manufacturer, the other a crude scratched symbol whose meaning is currently unclear. Project lead Martijn Manders has a personal specialism in casks and cooper's marks, so further research will investigate whether these marks occur on any other extant casks or are recorded elsewhere.

Future work on the cask will be to de-concrete it fully, record, illustrate and then undertake formal analytical procedures such as sampling for wood identifications and dendrochronology. This not only has the potential to reveal date of manufacture and types of wood utilised on different components of the cask, but also reveal elements of its use-life; if it (or any of its constituent parts) has been repaired, recycled or re-used. >>

The investigative conservation of two travelling pistols

An important element of post-excavation work consists of co-operating with specialists to gain a better understanding of artefacts, prior to the initiation of conservation treatments.

This is perhaps best exemplified by a find made during the 2017 season of excavation, a concretion with great investigative potential.

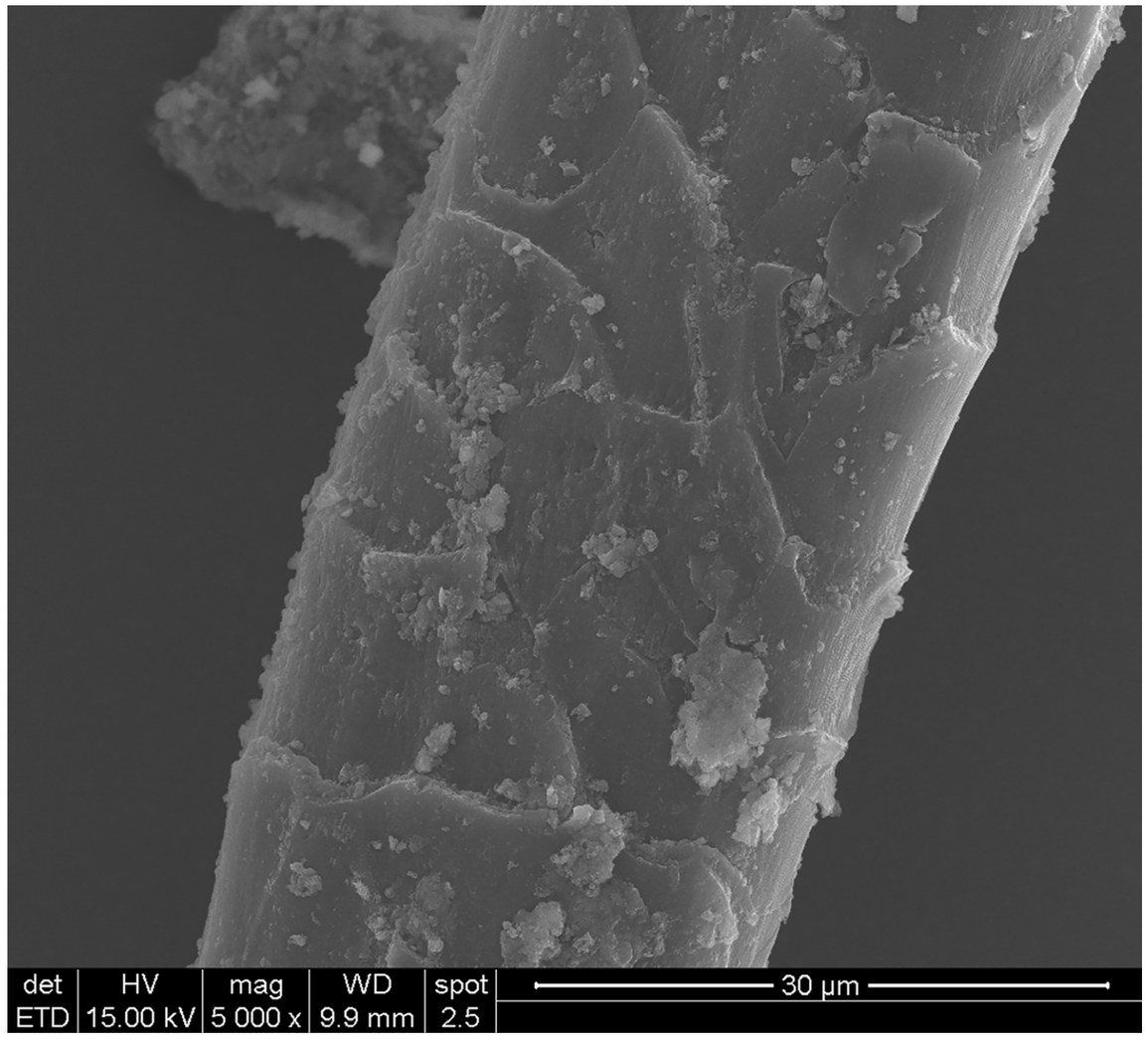
Initial X-Ray analysis revealed two pistols, with copper-alloy fittings, iron barrels and wooden stocks mostly intact. However, it was during de-concreting that a significant discovery was made, namely that the pistols were wrapped in a layer of textile. Examination revealed the textile to be largely mineralised, meaning a large proportion of the weave is held together (or replaced by) iron corrosion products.

Textile analysis was undertaken by working remotely with specialist Margarita Gleba (UCL/ Ludwig Maximilian University of Munich). Francesca Gherardi (Historic England) took SEM (Scanning Electron Microscope) images of fibres from the warp and weft of the textile. Together with photographs and X-Rays, these aid further analysis and interpretation. The SEM images revealed that the fibres were of sheep's wool. The plain weave and the fact that one side of the textile appeared to be felted indicated that the textile was probably baise (or baize). Commonly utilised in the 18th century to line the cases of both instrument and gun cases, this loosely woven material was highly durable and provided a non-slip surface (Margarita Gleba, 2020).

The positioning of the pistols would indicate that they were previously in a case. This, and their small calibre (being only 21 centimetres in length), would suggest that they are travelling pistols, probably owned by a higher-ranking member of crew or a passenger. Further research by Dutch weapons expert Jan Piet Puype (former chief curator at the Royal Netherlands Army Museum) will hopefully shed more light on these fascinating artefacts. The next steps will be to undertake wood species-identification on the wooden stocks and to analyse the composition of the copper-alloy fittings through Energy Dispersive X-Ray Fluorescence (EDXRF) spectrometry. >>

Below top: Pistols with textile and detached copper alloy butt during de-concreting. **Below left:** X-Ray showing pistol orientation and copper-alloy elements. **Below right:** Digital microscope image of textile weave. © #*Rooswijk*1740 project

Below right: SEM image of textile fibre. © #*Rooswijk*1740 project



Above: Large concretion containing shot (left) and a cleaned barshot (right). © #*Rooswijk*1740 project

Ongoing work

While the more unique pieces of post excavation research are often highlighted, there are numerous tasks within archaeological assemblages which, while usually less newsworthy, are essential for understanding a site. At present, work continues on a large quantity of structural timbers from the *Rooswijk*; these are undergoing cleaning, recording and scale illustration by the project archaeologist. In addition, a considerable number of cannon balls and bar shot excavated from a two metre long 'megaconcretion' in 2017 are now undergoing conservation.

At present the methods of removing harmful chlorides from iron, a process known as desalination, is a big research topic within conservation. There are several methodologies which can be employed. In the case of the *Rooswijk*, the decision was made to desalinate the iron using alkaline washes, a method which prevents the iron from corroding while simultaneously accelerating the desalination process. This can take years of monitoring to complete and much like the recording of the ship's timbers represents one of many day-to-day project tasks.

Closing thoughts

Work on the *Rooswijk* assemblage has clearly demonstrated that even from studying the tiniest fragments, valuable information about the ship, its cargo and those that sailed upon its final fateful voyage in 1740 is revealed. The case studies presented above illustrate just a few discoveries within the general framework of the project's post-excavation phase. Although much has been attained and a great deal of headway made, there is still a great deal to accomplish in the coming months. We go forward with tools ready in hand, intrepid explorers 'at the chisel's edge' ■

The case studies presented above illustrate just a few discoveries within the general framework of the project's post-excavation phase.

The authors

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Conservator with MSDS Marine.

Heather is Project Conservator on the *Rooswijk* project, employed by MSDS Marine. A qualified diver and holder of an MA in Museum and Archaeological Conservation from Durham University, she has extensive experience working on assemblages of maritime finds.

Further information

Twitter/Facebook/Instagram: @*Rooswijk*1740 *Rooswijk*
virtual dive trail: https://www.cloudtour.tv/Rooswijk

RCE sketchfab profile (3D models of artefacts): https://sketchfab.com/maritimeheritage

Filling in the retrofit gaps

A new report highlights research into the energy efficiency and performance of traditional buildings and the gaps that still exist.

To achieve the UK Government's target to bring all greenhouse gas emissions to net zero by 2050, many historic and traditionally constructed buildings will need to be upgraded to improve their performance and reduce their carbon footprint. There are nearly 5 million houses of traditional construction in England, built mostly before 1919, accounting for around 21 per cent of the housing stock. These include houses that are designated as listed buildings, as well as nearly 2 million households that are in conservation areas. These houses are generally built with solid walls, rather than cavity walls, or are of timber-frame construction.

Assumptions about the poor energy performance of older buildings are often not borne out by the evidence. For example, research carried out by Historic England showed that the measured performance of solid brick walls was a third better than the performance predicted by energy-performance models. But that doesn't mean that there isn't scope for improvement. However, we want to see the retrofit of historic buildings delivering improved energy performance in a sustainable way that conserves their values and significance, without harming building fabric and the health of the occupants or risking other unintended consequences. >>

Left: Historic England has carried out research into the hygrothermal behaviour of internally insulated brick walls at Shrewsbury Flaxmill Maltings. © Historic England Archive. Photographer Peter Williams, DP026477

Tackling these issues is a key part of Historic England's technical conservation research programme and will help to ensure that historic buildings retain their character and remain viable and useful, now and into the future. Historic buildings are durable, repairable and adaptable, which is why they have survived over so many generations. They are also culturally, socially, economically and environmentally valuable to society.

Our research is aimed at informing best practice and reducing risks from maladaptation. We work with a range of researchers from universities to historic environment specialists.

This year we commissioned the Sustainable Traditional Buildings Alliance (STBA) to identify where new research is still required, and in June we published *Performance and Energy Efficiency of Traditional Buildings: Gap Analysis, Update 2020.*

Background to the research

The STBA was launched in 2012 to act as a forum for organisations interested in trying to better understand the performance of traditional buildings as well as improving research, policy, training, practice and guidance.

In that same year, STBA was funded by Historic England and the Construction Industry Training Board Construction Skills to produce *Performance and Energy Efficiency of Traditional Buildings: Gap Analysis* which mapped the current state of knowledge of this area among institutions and professionals.

The STBA study revealed that there was very limited published evidence about the performance of traditional buildings. There were significant gaps in understanding how buildings perform and how they behave when changed, and critically a lack of accurate data.

The study also encouraged debate and further investigation into retrofitting traditional buildings. It helped to shape thinking on areas requiring new or further research, training and skills development, and promoting best practice.

In 2012, STBA was also commissioned by the Department of Energy and Climate Change to undertake a similar but more in-depth exercise. This commission arose from concerns about the application of certain Green Deal retrofit measures to traditional buildings, including the possibility that they might fail to achieve financial and energy payback, the risk of harm to building fabric and human health, as well as missed opportunities for the improvement of traditional building performance. This report, *Responsible Retrofit for Traditional Buildings*, focused on identifying significant gaps in research as well as guidance. >>

Above left: Routine maintenance helps to keep walls dry, optimises their thermal performance and saves energy. However, more research is needed to quantify the carbon savings. © Historic England

Right: There are nearly 5 million houses of traditional construction in England, built mostly before 1919, accounting for around 21% of the housing stock. © Historic England

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The 2020 Gap Analysis

The updated analysis takes stock of the considerable amount of research that has been undertaken since the initial report. Significant research on traditional buildings has been carried out since 2012 by Historic England, Historic Environment Scotland, the Society for the Protection of Ancient Buildings, STBA and others, including studies into thermal performance which led to the Government changing the default U-value of sold brick walls from 2.1 W/m2K to 1.7. Yet, while we now have a much better understanding of building performance and the risks of retrofit, substantial gaps remain.

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The updated analysis explores 13 topics that have an impact on the sustainable retrofit of traditional buildings including ventilation, thermal comfort, energy and thermal performance, and occupant interactions. For each topic the issues and existing research are summarised, and the gaps identified where research is needed to inform best practice.

One area where more research is needed is the impact of the retrofit on the health and well-being of occupants. For example, we know that excessively cold and draughty buildings can affect people's health, but insulating too tightly without considering adequate ventilation can result in poor indoor air quality, damp and mould – all of which can adversely affect health and wellbeing. We need a better understanding about the impact of retrofit on air quality.

Above and below right: Research carried out by Historic England and others has helped to inform advice and guidance on improving the thermal performance of traditional windows. © Historic England

Another area of interest is moisture. Despite much research since 2012 into the moisture performance of retrofitted buildings, there is still a lack of long-term monitoring of the effects on moisture accumulation. This is essential to fully understand the risks to historic fabric and to the health of the occupants as a result of retrofit measures. The establishment of the UK Centre for Moisture in Buildings is a step in the right direction.

It is widely recognised that basic repair and maintenance to traditional buildings can significantly improve their heat and moisture behaviour, yet there is no research to back this up. Therefore research is needed to gather data on energy use and hygrothermal performance before and after basic repairs.

Other areas highlighted where further research is needed include: impact on character and significance; energy performance data; heating and fuel sources; overheating and cooling; embodied carbon and the circular economy; public and political understanding; professional understanding; the cost of retrofit measures; properties of building materials, and technical specifications.

The report also provides an overview of 15 current research programmes in universities around the country. An appendix provides an extensive literature review of key research and some significant guidance published since 2012 to the present. >>

Our research and guidance

In recent years, Historic England's research programme has helped to inform our comprehensive guidance on improving the thermal performance of historic and traditionally constructed buildings.

Historic and traditionally constructed buildings are very diverse. There are no 'one-size-fits-all' energy-performance solutions. Fabric improvements are only part of the solution and in many cases an exclusive focus on 'fabric first' risks harming fabric and people's health and failing to achieve the hoped-for benefits. We believe that a holistic – or 'whole building' – approach, that takes into account the building's context, condition, occupant behaviour, and services, as well as wider issues such as energy supply, is essential to achieve effective and sustainable improvements in building performance whilst maintaining significance, reducing greenhouse gas emissions and avoiding unintended consequences, such as damp. This is explained in our guidance publication *Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency* (2018).

Our current research is concentrating on this whole building approach. Our projects include an investigation into the thermal performance of traditional buildings; risks from moisture accumulation as a result of retrofit; hygrothermal behaviour of building fabric; and assessing carbon in the built historic environment. >>

Above: Traditional buildings deal with internally generated moisture loads through natural air leakage but also through the moisture buffering capacity of certain insulation materials. © NTPL/ Alexander Caminada

Above: Tests using thermal imaging can help in understanding the performance of a building. © Historic England

You can expect more reports on topics such as low-energy approaches to thermal comfort, case studies on a retrofitted Victorian terraced house, and the hygrothermal performance of walls, to be published in the near future, so look out for more on these soon.

The findings of the *Gap Analysis* report will help shape Historic England's own climate change adaptation research agenda, as well as that of the wider sector ■

The findings of the *Gap Analysis* report will help shape Historic England's own climate change adaptation research agenda, as well as that of the wider sector.

The author

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Jessica joined Historic England in early 2020 and works on producing and promoting new guidance publications and research reports in the National Specialist Services Department.

Further information

Sustainable Traditional Buildings Alliance 2020 *Performance and energy efficiency of traditional buildings: Gap Analysis, Update 2020*, Research Report Series 210/2020. https://research.historicengland.org.uk/Report.aspx?i=16746

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Griffiths, N and May, N 2015 *Planning Responsible Retrofit of Traditional Buildings* https://historicengland.org.uk/images-books/publications/planning-responsible-retrofit-of-traditional-buildings/

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Historic England's advice on energy efficiency and historic buildings: https://historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/

Historic England's current research on energy efficiency: https://historicengland.org.uk/research/current/conservation-research/energy-efficiency/

Historic England's research on *Carbon in the Historic Environment* https://historicengland.org.uk/research/heritage-counts/2019-carbon-in-built-environment/carbon-in-built-historic-environment/

Historic England 2020 Written evidence to the Parliamentary Environmental Audit Committee *EEH0104 – Energy Efficiency of Existing Homes* inquiry. https://committees.parliament.uk/writtenevidence/8694/pdf/

Webinar on 'Climate change adaptation: Whole house approach to retrofit', September 2020. https://historicengland.adobeconnect.com/pki9tsr364vt/?proto=true

Historic England 2014 *Practical Building Conservation: Building Environment*, Ashgate Publishing: Farnham. https://historicengland.org.uk/images-books/publications/building-environment-conservation/

Gods and goddesses, heroes and heroines in the Nene Valley

Roman sculpture from Stanwick, Northamptonshire

Excavation of the villa in 1990. The aisled hall is central and the hypocaust is in the room furthest left. © Historic England

EH funded the work in advance of gravel extraction because of the importance of the site

Below left: The first discovery– horse's hoof and the head of a barbarian. 17 x 32 centimetres. © Historic England

Most excavations produce surprises, and our work at Stanwick, Northamptonshire, was certainly no exception, with the discovery of an impressive assemblage of monumental Roman sculpture re-used as building material in the later fourth century.

The site was excavated between 1984 and 1992 by teams formerly part of English Heritage (now Historic England) led by David Neal (then a field officer in EH's Central Excavation Unit). EH funded the work in advance of gravel extraction because of the importance of the site – the area is now the Stanwick Lakes nature reserve and country park, and there's a lake where the villa once stood.

David's excavations extended over 30 hectares (more than 75 acres), revealing extensive activity from the early Iron Age to the end of the Romano-British period. The scattered houses and ditches from the early Iron Age were followed by the development of an unenclosed settlement in an organised landscape in the middle Iron Age. The enclosure and trackways established by the first century AD formed the framework for the development of a Romano-British agricultural village set between the River Nene and the Roman road. Complex buildings including a large aisled hall were constructed during the third century AD; the hall was incorporated into a corridor villa during the later fourth century. The sequence is described in a Historic England Research Report.

In 1990 David was focussing on excavating the villa. Sometime after AD364, the aisled hall was enlarged with additional rooms to each side fronted by a corridor with wing rooms, and the construction of a new bath suite. The changes are dated by a coin sealed under one of the new mosaic floors. One room had a channelled hypocaust providing underfloor heating. To help unpick the sequence of the buildings, David used a high-pressure air gun to clean the stonework and reveal differences in construction and materials.

This soon produced exciting and unexpected results – a large corner stone (17 centimetres high, 32 centimetres wide and 47 centimetres deep) different from the surrounding masonry was the first (and one of the most spectacular) pieces of sculpture found, showing a horse's foreleg and hoof trampling on the head of a figure who probably represents a fallen giant or barbarian (a non-Roman).

Work on the villa continued, and a week or two later the channels of the hypocaust were cleared. The team soon found more fragments of sculpture built into their walls, and the scale of the discoveries became apparent. The walls were surveyed and photographed, and then carefully dismantled. In all, 280 pieces of sculpture and architectural stonework were recovered from in and around the villa complex, and David felt that this remarkable collection probably came from an elaborate monument. The discovery created considerable public interest, with both newspaper and television coverage.

Thirty years on, specialists Martin Henig and Penny Coombe (University of Oxford) and Kevin Hayward (University of Reading) have just completed analysis of the sculpture, including a report by Sarah Paynter (Historic England Materials Scientist) on the pigments used. The full report will appear in the journal *Britannia* next year, and some of their results and interpretations are described here. >>

The discovery created considerable public interest, with both newspaper and television coverage.

Below right: Wall of the hypocaust channel, showing sculpture of Minerva and Jupiter and part of a circular column. © Historic England

Right: The tower tomb monument for the Secundinii family at Igel, near Trier, Germany. Photograph © Penny Coombe

The sculpture

The pieces of sculpture and architectural details together comprise the largest and most important collection of such material from Eastern Britain, except for the sculpture from a monumental arch re-used as building blocks in the late-Roman riverside wall in London. It's clear that we only have a very small part of what had once existed, as can be seen from one of the key pieces: we have the horse's foreleg and the barbarian with his splendid moustache but nothing else survives of the horse or its rider.

Martin and Penny dated the sculpture to the early third century AD on stylistic grounds. Based on the scale and quality of the sculptured stones and the scenes portrayed, they suggest that the stones derive from at least two impressive monuments which presumably stood nearby. The likeliest location is within a walled enclosure east of the aisled hall, which contained two small shrines of late second or third century date and seems to have formed a ritual focus.

The tower tomb

They argue that most of the stones came from a tower-tomb of a type represented by a surviving example at Igel near Trier in Germany. This stands 23 metres high, and even if the Stanwick tomb were smaller, perhaps half to three-quarters the size, it would have dominated the flat landscape and been clearly visible from the road along the valley.

It is tempting to attempt a reconstruction from what remains. At the top there was a pyramidal crown embellished with leaves or leaf-like tiles. Similar examples from tombs have been found in London and at Verulamium – the modern St Albans). Below there is likely to have been a pediment and the most suitable motif here would have been the strikingly dramatic mask of a water-god (the size of a human head) of which one side remains. This is most probably Oceanus, the classical personification of the sea, and a suitable figure for tombs as the souls of the dead >>

It is tempting to attempt a reconstruction from what remains.

Far left: Leaf patterned fragment, probably from the top of the tomb. 16 x 13 centimetres. © Historic England. Photographer Ian Leonard, aao44381

Left: Half of the head of a water god (Oceanus). 47 x 22 centimetres. © Historic England. Photographer Ian Leonard, aa044350

Above left: Sculpted shell canopy with dolphin and human foot above. The larger piece is 47 x 67 centimetres. © Historic England. Photographer Ian Leonard, aa044348

were believed to pass over the sea to the Isles of the Blessed. Similar heads of Oceanus are shown on a recently discovered tombstone from Cirencester and on the pediment of a small tomb at Chester.

The middle and principal stage of the tomb may have been dominated by a niche in the form of a scallop or cockle shell, flanked on each side by dolphins and maintaining the maritime theme. If the canopy was semi-circular, its diameter would have been about 1.10 metres. A bare human foot on top of the shell suggests a figure about 1.2 metres high (about two-thirds life size), and these pieces give an idea of the scale of this section. What stood in the niche? We suggest a free-standing sculpture of the deceased, perhaps half to three-quarters life size.

Other fragments of sculpture clearly allude to Graeco-Roman mythology. One of them almost certainly represents the hero Perseus, who was probably depicted rescuing Andromeda from a sea-monster. However, the bound female figure is likely to be the mythical Trojan princess Hesione, waiting to be rescued by Hercules (that episode is represented on a sculpture from Chester). The scale of the two pieces are different, suggesting that both stories were represented.

As for the rider trampling a fallen opponent: this is no ordinary barbarian but probably represents Death itself. The idea of a heroic rider is well known from the tombstones of Roman auxiliary soldiers, but in eastern Britain, for example at Stragglethorpe, Lincolnshire, there are figurines and reliefs which equate him with Mars, normally a god of war but here less a military figure than a god offering protection from misfortune.

The tomb would have been richly embellished, and was probably the source of some of the architectural elements, including fragments from a decorative frieze. Traces of red and white pigment survived on some of the carvings. It must have been built for a wealthy individual or family, and along with the aisled hall may have represented their increasing wealth and importance during the third century. The Igel monument was erected for the Secundinii family, wealthy local cloth merchants. >>

Above centre: Male figure with drapery over arm, perhaps Perseus. 46 x 27 centimetres. © Historic England. Photographer Ian Leonard, 044372

Above right: Naked woman with trees in the background, perhaps Hesione. 41 x 32 centimetres. © Historic England. Photographer Ian Leonard, aa044370

fragments of sculpture clearly allude to Graeco-Roman mythology

The tomb would have been richly embellished, and was probably the source of some of the architectural elements

Above right: Minerva, with Jupiter's right arm. 21 x 24 centimetres and 21 x 29 centimetres © Historic England. Photographer Ian Leonard, aa044349

Below right: Sculpture of an eagle. 34 x 23 centimetres. © Historic England. Photographer Ian Leonard, DP00196

A statue to Jupiter?

Three other pieces of sculpture appear to come from a different type of monument. One of them is a relief depicting the upper parts of three deities: Minerva, Jupiter (only his right arm survives) and the neck and shoulder of another figure, probably Juno. These were the chief deities of the Roman state, known as the Capitoline Triad. The relief is likely to come from a major, official shrine, serving either as an altar or as a statue base on which a figure of Jupiter himself would have been carved in the round.

Two pieces may be all that survives of the statue. One is a part of a muscular male torso, possibly Jupiter himself. The other is the eagle, Jupiter's companion and messenger, which would have looked up at him, an association known from other monuments. Both pieces are carved in the same Weldon stone (Kevin's analysis of the stone used in the carvings has greatly contributed to our understanding of the monuments).

An inscription – and an official role?

There is support for an official presence from the fragmentary remains of an inscription dedicated to a deity (probably Jupiter) 'in honour of the Divine House' (i.e. the Imperial Family) by three people (one with the Greek name Ischolaos) probably serving in an official capacity at what may have been an imperial estate centre. The inscription may relate to the Jupiter monument, though it seems too insubstantial to have come from its base, which may have had a prominent inscription, like a base from Chichester reading simply I ♦ O ♦ M (standing for *Iovi Optimo Maximo*, Jupiter the best and greatest), above a similar phrase honouring the 'divine house'.

Could Stanwick and its apsidal aisled hall have had an official role in the administration of land owned by the emperor in this part of the Nene valley? That's a further research question for investigation! >>

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Destruction and re-use

We do not know why these monuments were desecrated, although we do know that this happened before the fragments were re-used in the villa, and the tower tomb may have been removed along with the small shrine when a large courtyard was laid out in front of the villa. It's possible that the relatively soft limestone had become weathered and the monuments had fallen into such disrepair that despite strict Roman laws about the desecration of tombs, the monumental tomb was a tempting source for building material. Maybe it had simply fallen down through age. However a shrine to Jupiter in honour of the Imperial Family could have been quite another matter: desecrating it could have implied treason, *Maiestas*.

Christian iconoclasm?

A tempting explanation, especially as the date of re-use was well into the 4th century, is that as the Empire had become Christian, many temples and shrines were being closed and vandalised and their raw materials taken to serve secular purposes. Maybe this was the fate of the Jupiter monument. The tower tomb may have fared better. Most tombs of this type also show domestic scenes, but we found only one fragment of this type. So possibly only the religious sculpture was stripped from the tomb – perhaps scenes from the life of the deceased and possibly even their portraits were allowed to remain alongside the villa into the later fourth century ■

The authors

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Rev. Dr Martin Henig is an archaeologist and art-historian who lives in Oxford and works on Roman engraved gemstones and the art and culture of Roman Britain. His books include *Religion in Roman Britain* (1984), *The Art of Roman Britain* (1995) and *The Heirs of King Verica* (2002) as well as three volumes of the *Corpus of Roman Sculpture from Britain*, the last on London and the South-East with Penny Coombe and Kevin Hayward who were partners in working on the sculpture from Stanwick. Most recently he published *The Complete Content Cameos*, the largest collection of Roman cameos in private hands, with Helen Molesworth. From 1984 to 2006 he was Editor of the Journal of the British Archaeological Association. Outside archaeology he is an Anglican priest with especial interest in Animal Ethics.

So possibly only the religious sculpture was stripped from the tomb

Vicky Crosby PhD
Archaeologist with Historic England.

Vicky has worked on Stanwick and the Raunds Iron Age and Romano-British Project since she joined English Heritage/Historic England. She has contributed to many other projects, including work on the Romano-British landscape around Silbury Hill. She is interested in Iron Age and Romano-British rural settlement and economy, and in developing excavation and recording methods.

Further information

The development of the Stanwick Iron Age and Romano-British settlement is described in Vicky Crosby and Liz Muldowney 2013 *Stanwick Quarry, Northamptonshire: Raunds Area Project: Phasing the Iron Age and Romano-British settlements at Stanwick, Northamptonshire (excavations 1984-1992)*, volumes 1 and 2. English Heritage Research Department Report Series, no. 54-2011. https://research.historicengland.org.uk/Report.aspx?i=15006&ru=%2fResults.aspx%3fp%3d1%26n%3d10%26a%3d4429%26ns%3d1

The article on the sculpture will be published in the journal *Britannia* for 2021. It will then be open access and available for download via the Britannia website: https://www.romansociety.org/Publications/Britannia
Penny Coombe, Kevin Hayward and Martin Henig, with Vicky Crosby, Andrew Lowerre, David Neal and Sarah Paynter The sculpted and architectural stonework from Stanwick Roman villa, Northamptonshire. *Britannia* **52**

To find out more about other Roman sculpture in south-east England, see Penny Coombe, Frances Grew, Kevin Hayward and Martin Henig 2015 *Corpus Signorum Imperii Romani, Great Britain, i.10: Roman Sculpture from London and the South East*. Oxford University Press.

The inscription (RIB 3135) is described and illustrated in the *Roman Inscriptions of Britain* online database. https://romaninscriptionsofbritain.org/inscriptions/3135

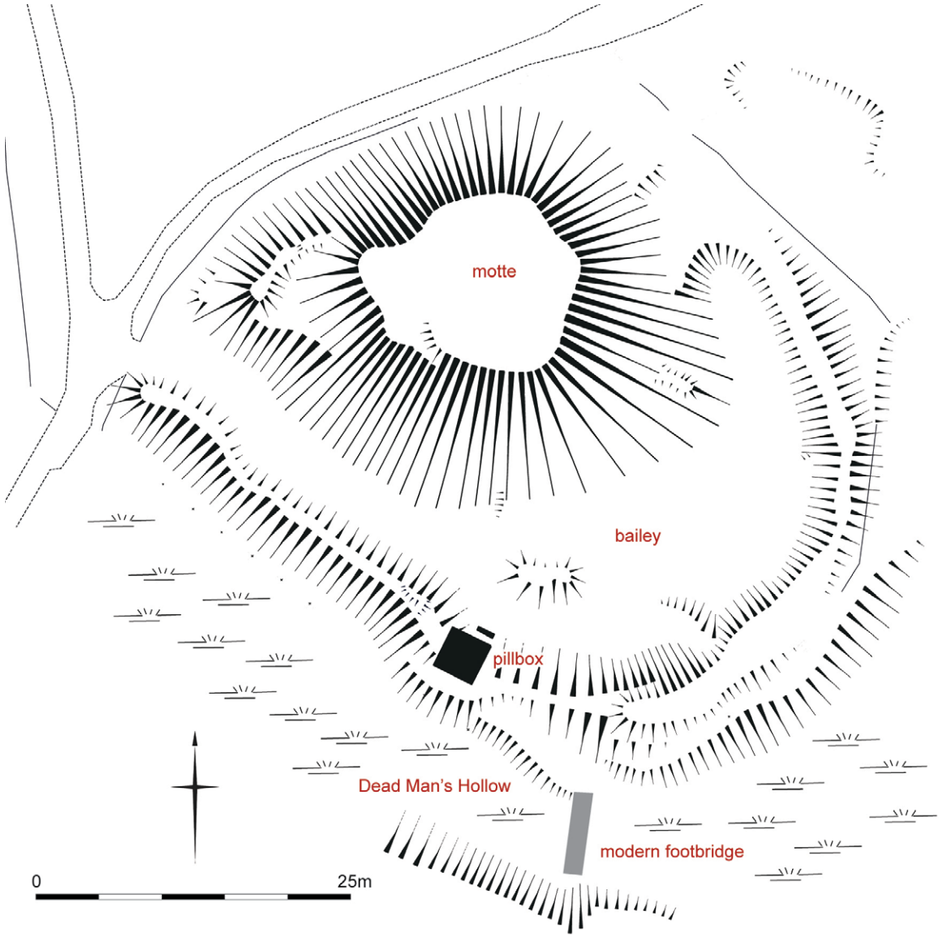
The castle at Apple Dumpling Bridge, Gosport

'Underwhelming mounds of earth'?

Research for the Gosport HAZ (Heritage Action Zone) has drawn attention to a previously neglected castle in the Alver Valley.

Surveying the castle. Photograph courtesy of Mark Bowden.

By the River Alver where it flows through Rowner, near the delightfully named Apple Dumpling Bridge, are the remains of a small castle consisting of a motte (mound) and a bailey (enclosed court) surrounded by a bank. There is no sign of a surrounding defensive ditch but the south side of the castle is flanked by a marshy channel, apparently known at one time as 'Dead Man's Hollow'. The motte is no more than 3.5 metres high (though it was probably higher originally) and the whole site is no more than 60 metres across. In fact it is so modest that for a long time the motte was considered to be a windmill mound or even just the upcast from gravel digging. However, our recent survey as part of the research underlying the Gosport HAZ initiative has confirmed that it is indeed a medieval castle. The site is protected as a Scheduled Monument and is currently in woodland accessible to the public.



Left: Survey plan of the castle. © Historic England. Drawing by Olaf Bayer.

The significance of the commonplace

Ten years ago a historian regrettably referred to small earthwork castles like this as 'underwhelming mounds of earth'. Compared with palatial stone castles such as Windsor, Dover or Kenilworth these earthwork castles are indeed modest but their archaeological and historic importance is huge and they give a broader context to the great castles. Small motte-and-bailey castles such as this and the closely comparable 'ringworks' (small circular timber castles) are numerous. The remains of about 625 mottes and ringworks are known in England (Higham and Barker 1992, 46). They are frequently found on the borders of Scotland and particularly Wales (there are no less than 12 within a 10-mile length of the Golden Valley in Herefordshire) but also in other, less obviously warlike, parts of the country.

These small castles were manorial centres established by the many minor feudal lords of Norman and Angevin England; they were symbols of their lordship and were familiar places to themselves, their families, retainers, dependents and tenants. They therefore represent the life-experience of far more people in this period than the relatively few 'great' castles. On the other hand it has to be admitted that most of the small earthwork castles seem to have been very short-lived, while many of the 'great' castles were in use for centuries. The early castles represent the wholesale redistribution of land and power following the Norman Conquest of 1066.

Though they present to the modern viewer as rather amorphous mounds, the earthworks of small castles conceal great complexity and diversity.

There are hardly any contemporary pictures or descriptions of these castles and very few of them have been excavated; our detailed knowledge of them is slight but where excavation has taken place it has revealed a complex of timber buildings, which could be elaborate, densely packed and frequently replaced.

At this site there was limited scope for domestic accommodation in the tiny bailey but there will have been a hall, lodgings and functional buildings. The timber defences themselves, though not as long-lived as stone walls, may have been rendered and painted so as to be indistinguishable from masonry. Those defences will have included curtain walls around the bailey and a tower, maybe as much as 15 metres tall, on top of the motte (Wyeth 2018, 147). >>

The early castles represent the wholesale redistribution of land and power following the Norman Conquest of 1066.

The castle's history and location

Like nearly all earthwork castles, the date of the motte-and-bailey at Apple Dumpling Bridge is unknown but it was probably established at some time between the late 11th and the end of the 12th centuries. It was built either by the Mauduit or the Falaise families. William Mauduit held the manor of Rowner at Domesday but by the later 12th century it was in the hands of William de la Falaise. Mauduit was a relatively minor landowner but he was a personal companion of William the Conqueror and his family was on the rise; by the 13th century they had come to prominence as hereditary chamberlains of the exchequer. The Falaise family, on the other hand, held 25 manors at Domesday, mainly in Devon, Dorset and Somerset, but by the time they acquired Rowner in the mid 12th century they were in decline; one of them lost the manor in the late 13th century because he had been convicted of a felony.

Castles were often established adjacent to parish churches, emphasising the twin authorities of king (through the lord of the manor) and church, but at Rowner the church is 1.5 kilometres away to the north, at the other end of this elongated parish. There is supposed to have been a manor house near the church, though no traces now remain; whether this was a replacement for the castle or whether the two were contemporaries is uncertain. Rowner had more than one manor in the later middle ages so the manor house and castle may have belonged to different manors. The location of the castle may be significant.

It is often argued that these small earthwork castles occupied important strategic locations. In most cases these claims are unconvincing but the Apple Dumpling castle is a rare exception. If 'Dead Man's Hollow' is a former course of the River Alver, as seems probable, the castle may have been built here to guard a river crossing, which could have been within bowshot of its walls, and also to watch the nearby coast, which would have been clearly visible from a tower on the motte. Perhaps William Mauduit built this modest castle as a coastal outpost to the great castle at Portchester that he held for the king. >>

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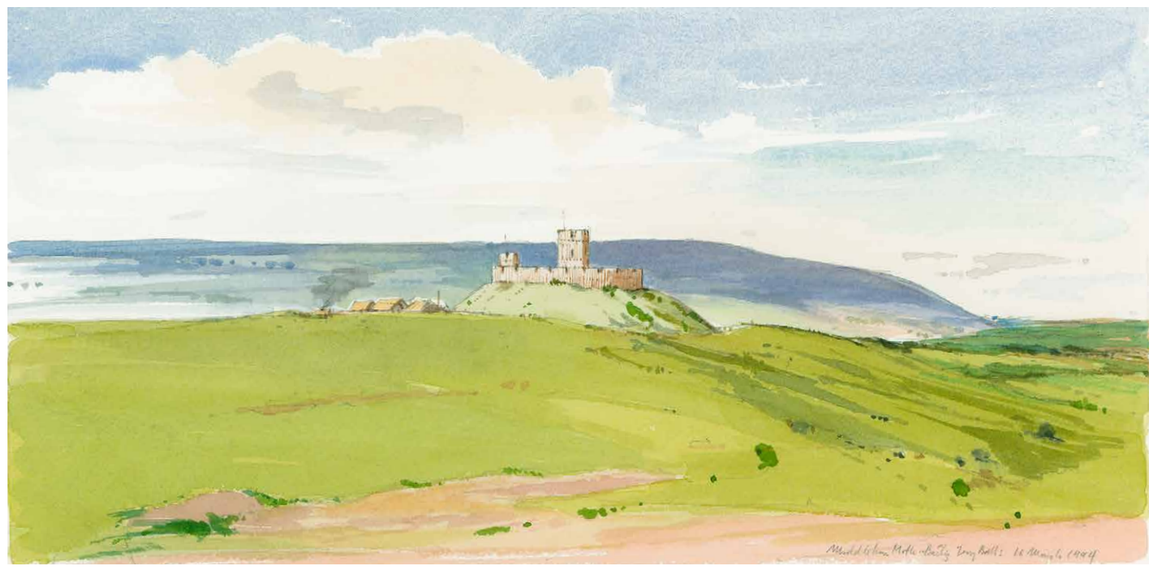
Far left: The location of the castle and other places mentioned in the text, with the HAZ boundary marked in red. © Historic England. Illustrator Sharon Soutar. Contains OS data © Crown copyright and database right 2020

Near left: The motte at Castle Bromwich, West Midlands. Photograph by A Clarke of the Ordnance Survey, 1953. Historic England Archive, OS53/F153/4

Below: William's Hill, Middleham, North Yorkshire. Reconstruction of the motte-and-bailey castle by Terry Ball. © Historic England Archive, IC065/004



Above left: Toot Hill motte-and-bailey adjacent to St Mary's Church, Pirton, Hertfordshire. © Historic England Archive. Photographer Patricia Payne, DP141790

Above right: The pillbox built into the bailey bank in 1940-42. Photograph courtesy of Mark Bowden.

A fore-runner to Gosport's military character

In this regard the castle at Apple Dumpling Bridge pre-figures the coastal defences of Gosport established in the 18th, 19th and 20th centuries (see Cocroft and Bayer 2020). Forts Grange and Rowner were built behind the castle in the 1850s and in the early 20th century the intervening land became a military airfield. This led to the re-fortification of the castle when a Type 26 variant pillbox was built into the southern bailey bank during the Second World War, to defend the south-western approach to the airfield.

Our research has established the significance of the motte-and-bailey castle at Apple Dumpling Bridge, an example of a very common type often overlooked, but a vital element in the imposition of the new landholding regime following the Norman Conquest. As such it forms the earliest link in the long military history of Gosport, the character of which will be sustained by the HAZ initiative and will support the physical, economic and social regeneration of the borough ■

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The author

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Mark has recently retired, having worked for Historic England and its predecessor bodies for over 30 years as an Archaeological Investigator and latterly leader of the Archaeological Survey & Investigation Team for South and West England. Timber and earthwork castles have been a particular research interest throughout Mark's career. He has published widely on various aspects of landscape archaeology and history and is currently Chair of the Landscape Survey Group.

Further information

Cocroft, WD and Bayer, OJ 2020 'Gosport: a town defined by its military heritage' *Historic England Research* **15**. 18-27

Higham, R and Barker, P 1992 *Timber Castles* Batsford: London

Wyeth, W 2018 'Medieval timber motte towers' *Medieval Archaeology* **62.1**. 135-56

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