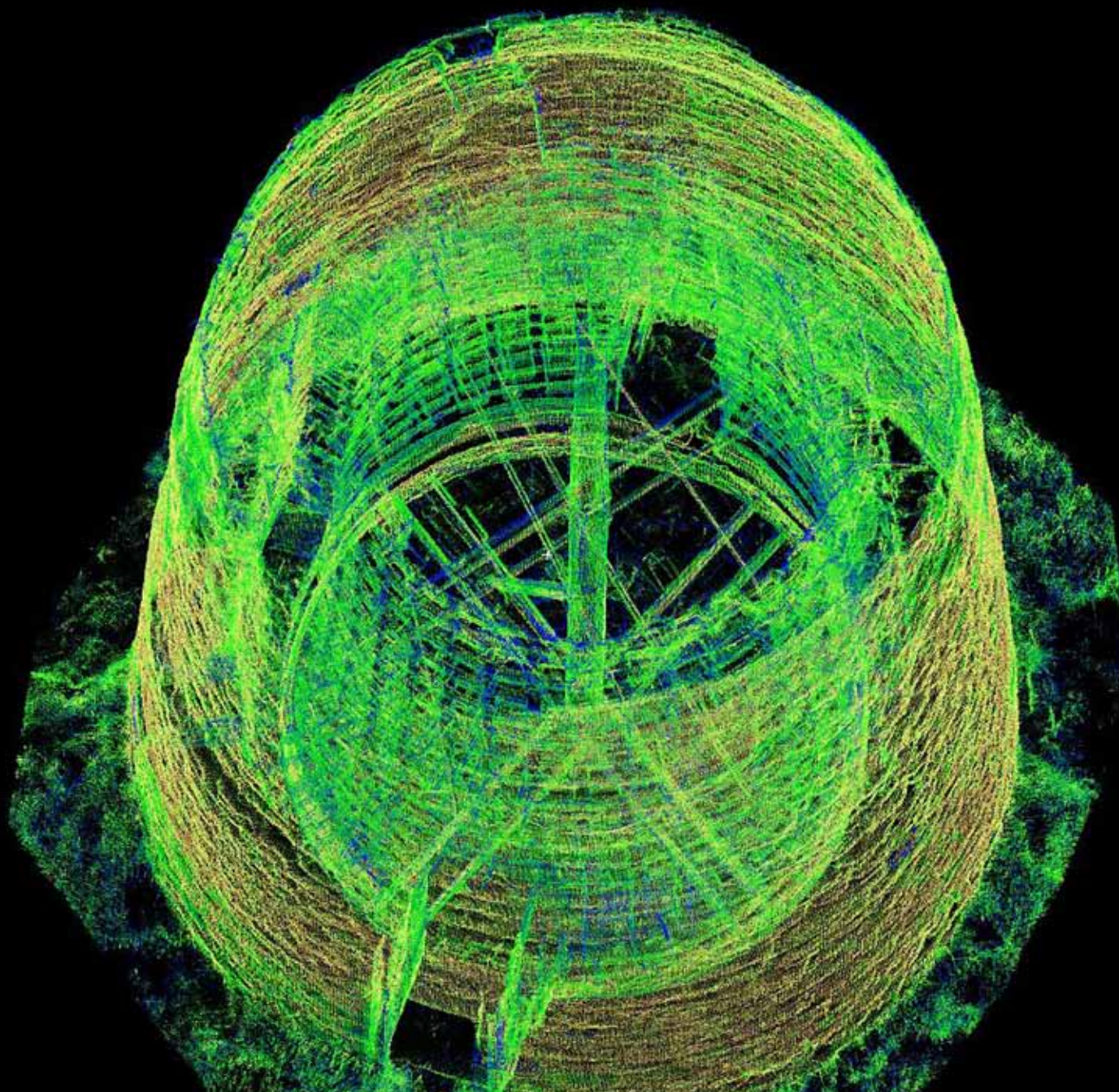


GRAPHIC NEWS ARCHAEOLOGY

SPRING 2012



COVER IMAGE: Point cloud data image showing part of dovecot interior, from laser scan survey of Haggerstone Dovecot, Northumberland

Leeanne Whitelaw, CFA Archaeology

INSIDE:

CONFERENCE 2012

ROMAN ENFIELD

HAGGERSTONE DOVECOT

What's in a name?

... well quite a lot apparently! We have heard that since the name change from Illustration & Surveyors Special Interest Group (ISSIG) to Graphic Archaeology Group (GAG) some people are under the impression that we no longer represent Surveyors, which could not be further from the truth. The name change was designed as a positive move to broaden the membership to all those visualising archaeological data and although their roles may be perceived as independent, in reality they interact with, contribute to and manipulate visual data originated by other groups and disciplines.

We hope that the name change will encourage those involved with, for example, photography, 3D animation, display, web, graphic design etc. to join the group and take an active part in its activities and contribute to the establishment of CPD/ training, standards and guidelines within their interest areas.

GAG is in essence an umbrella group representing members with a broad range of interests and visualisation skills some of whom would otherwise have difficulty in finding a representative group. The AGM at the IfA conference in April is the first since the merger of the AAI&S and now the dust is settled the ambition is to become an active, effective group truly representing and supporting its members in all aspects of their profession and career development.

So why not join in and get involved, we have a huge pool of experience and knowledge within the membership which is often undervalued so let's start working together and begin the conversations which will help develop the appreciation of the value of visual data and its originators within the broader profession.

Rob Read
Chair GAG



ELECTIONS AND AGM

The Group's AGM will take place on **Friday 20th April** at the IfA Conference in Oxford. This year elections must take place for places on the Group's Committee, as Laura Templeton (Hon. Treasurer) and Lesley Collett (Hon. Secretary) have completed three years' service and must stand down, and those committee members who were co-opted from the former AAI&S Council must either stand down or stand for election.

Nominations are invited to fill the vacant posts on the committee; there will be up to seven vacancies. Nomination forms will be sent out by IfA office shortly; nominations must be received by **19th March**, and elections will take place at the AGM on 20th April.

New Members

The committee of the GAG is working towards integrating the former AAI&S assessment into the IfA Validation system. At the time of merger there were a few outstanding applications for AAI&S full membership that had not been processed and on 6th December two of these were assessed. This was the first panel to be held following the merger of AAI&S with IfA and will inform the development and improvement of the process. Margaret Mathews MfA (Graphics Archaeology Group assessment co-ordinator), Drew Smith MfA (Freelance illustrator), Bob Hill MfA (Buildings surveyor/archaeologist) and Kathryn Whittington AfA (IfA officer) formed the panel. After seeing the candidates, a recommendation went forward from the panel to the validation committee, resulting in the successful transfer to MfA of Jon Bedford and Jennie Anderson.

Jon presented CAD-based drawings of buildings as well as plans, elevations and stills of 3D models of a variety of sites where he had also been responsible for the survey, including examples from the Survey of London. Jennie's presentation focussed on reconstruction and interpretative artwork which represents her chosen professional direction as a freelance illustrator, following a vocational MA in Archaeological Illustration. Look out for examples of their work in forthcoming newsletters.

Currently, we are planning to hold further discussions on developing the process to bring the assessment into line with IfA validation criteria and to produce guidance for illustrators and surveyors who are seeking membership upgrade.

Margaret Mathews



Scottish Group IfA Archaeological Measured Survey Illustration Workshop

The Scottish Group of IfA intends to host a workshop showcasing archaeological measured survey illustration, collecting a number of contemporary Scottish case studies for discussion. The workshop will focus upon management objectives (the 'why' of measured survey), the wider strategic framework (particularly the research context), presentational methodology and archival requirements and/or opportunities. The aim is to highlight best practice presentation – survey product but not necessarily survey technique – and explore wider issues of 'informed archiving'. It is intended that the workshop will focus upon skills sharing rather than training.

The workshop will comprise short presentations and discussions about methods and best practice. We also hope to include a poster session during the workshop.

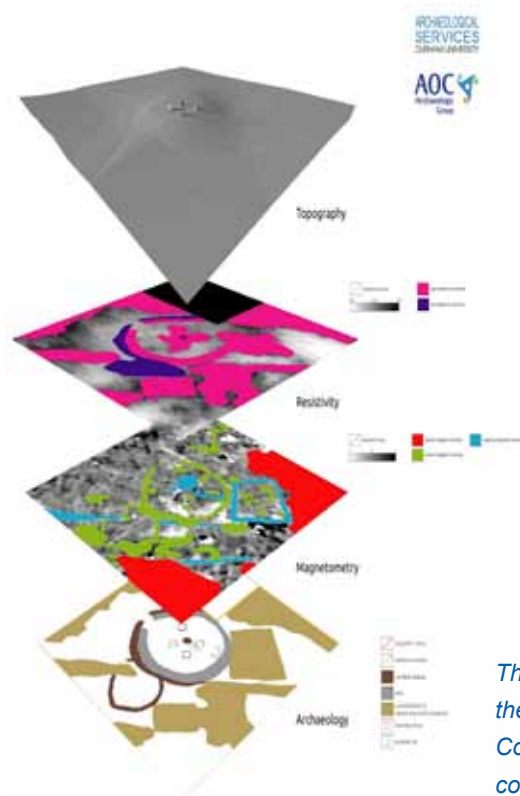
An organisational steering group will meet in April or May to discuss content and how best to encourage attendance / submissions / papers.

A representative from GAG would be most welcome to attend.

Matt Ritchie MfA
FCS Archaeologist

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The Na Clachan Aoraidh 'Four Poster' stone circle above Loch Tummel was recently the subject of a topographic and geophysical survey by AOC Archaeology for Forestry Commission Scotland. The 3D view resulting from the laser scan survey data was combined with the geophysics to produce this unusual isometric view (facing N).



CONFERENCE 2012



For the last 30 years the AAI&S ran a series of annual conferences which provided a venue and forum where anyone involved in the creation and dissemination of archaeological graphics could meet and learn from fellow professionals. Following the merger with IfA the Graphics Archaeology Group is continuing this event with a full day of contributions, discussions and CPD workshops within the IfA Conference at Oxford Town Hall on Friday 20th April, under the title:

Graphic images and visual communication in archaeology

Speakers and abstracts of papers:

A Visual Exposé: the 'How', the 'Why', and the 'Who' of Archaeological Illustration.

Garry Gibbons,

Co-director, Visualisation in Archaeology Project

Illustrators hold an object under sustained scrutiny for longer and in more detail than most other practitioners specifically in order to forefront an artefact's archaeological 'credentials'; how effectively that is done relates directly to an understanding of discipline-specific visual codes of image production. Nevertheless, the process of generating and communicating knowledge through visual materials is fundamentally a collaborative enterprise ranging from an initial brief through to the intended audience.

Drawing on detailed data collected from two wide-ranging surveys undertaken by the Visualisation in Archaeology project, this paper not only explores 'how' and 'why' visual materials are produced but will also examine precisely who makes the 'how' and the 'why' possible.

Debating the future of Archaeological Visualisation

Dr Sara Perry, Lecturer in Cultural Heritage Management,

Archaeology Department, University of York

Critical enquiry into archaeological visual practices and outputs has a long genealogy in the discipline. Arguably, the last three decades have seen an increasing consolidation of such enquiry, marked by a proliferation of scholarship and the growth of an engaged academic community—if not by the emergence of a veritable sub-discipline. Ironically, alongside these developments, capacity in the professional archaeological visualisation sector seems to have diminished, as commercial and government-based image units have been downsized or their skillsets challenged by shifting ideals in visual production. I will speak here to the current state of academic engagement with matters of visualisation in archaeology, and its relationship to professional practitioners. At stake is a concern for demonstrating the aligned interests of both communities and, at once, opening up a larger conversation about means to continue deepening the intellectual record associated with image-making in the discipline.

The role and importance of survey and landscape investigation in the archaeological process

Mark Bowden,

Archaeological Survey & Investigation English Heritage

Field survey is one of the oldest of archaeological activities but has rarely been widely practised. It is part of the suite of non-invasive techniques for archaeological prospection and interpretation and has considerable strengths in drawing together the threads of evidence from all these techniques in a critical analysis. The potential impact of such analysis falls across a wide spectrum from high-level curatorial management and standard setting to community involvement. Despite major advances in recent years in both techniques and technology, analytical landscape survey is today facing a crisis, in England at least, partly because such survey has accrued no commercial value. This paper will review the current position and explore one or two possible ways forward.

Archaeology on the Internet

Lorna Richardson,

Centre for Digital Humanities, UCL

The technological developments of the Internet over the past two decades have fundamentally and irrevocably changed the landscape and format of human interaction. There has been a critical cultural shift in Internet use. For archaeology, the Internet and social media platforms can provide professional and voluntary sectors of archaeology and heritage with low-cost public engagement tools.

Archaeology, like many academic disciplines, frequently invests resources in the development of new data-generation tools (eg, scientific techniques) or data-management tools (eg, digital preservation) but rarely considers its data-sharing tools, let alone the social factors entangled with these.

Archaeologists, as a group with a number of well-established infrastructures (universities, units, publishing, conferences and so on) have been slower to make use of social media than other sectors of society. The facility of social media to decentralise the power structures of these infrastructures has rarely been explicitly discussed within archaeology.

This paper will look at Public Archaeology perspectives and my research into the interface between archaeology, society and technology, and try to understand how social media might affect archaeology, the development and sustainability of online audiences for archaeology, and the impact of public engagement online.

Staveley Hall: A case study on the integration of traditional archaeological methods with 3-D digital survey, and the concluding public dissemination.

Marcus Abbott,

ArcHeritage, York Archaeological Trust

The three-dimensional mapping and reconstruction of Staveley Hall is a cutting-edge archaeological survey and digital visualisation project. The project's primary objective is to digitally capture the existing structure of the manor house and its surrounding landscape and to integrate this digital information with archaeological investigation and documentary research in order to produce a 3-D model of Staveley Hall as it would have appeared in 1680.

The on-site survey was conducted with a Leica C10 laser scanner and consisted of over 50 individual scans. These independent scans were merged into one project file, creating a detailed 3-D representation of the house and the surrounding landscape. With the information from the laser scan assembled into a navigable file, we could then edit and organise the data from the scans into discrete historical phases, thus creating a 3-D dataset which shows only the features that have survived from a particular phase or period. Processing the data in this way we were able to visually identify gaps in our knowledge about the structure of the house, and effectively target these 'data voids' with archaeological and documentary investigation.

This incomplete model of historic Staveley Hall provides us with a 3-D platform on which we can expand and experiment with our interpretation of the archaeological and historical data for the house. We were able to fill the gaps in our knowledge through documentary information and archaeological trenches which investigated missing features of the house. Much like archaeologists use geophysics to target subsurface archaeology, we used the laser scan data as a starting point to create a research and investigation strategy focused on exploring and reconstruct the appearance of the house and landscape in 1680.

While archaeology and documentary evidence will always be the driving force behind interpretation of the past, the ability to clearly visualise different interpretations and hypotheses is immensely useful for identifying gaps in our knowledge of a site, for highlighting areas of agreement or disagreement between practitioners, for challenging our level of understanding of the details of the past. Using the survey and visualization process as an integral part of the investigation and understanding of archaeology may redefine the role of archaeological visualisation from an image to accompany the text to a dynamic digital product which inspires the text.

Sandstone Pointcloud Smartphone Footfall: using laser-scanned data to engage visitors with hidden cultural heritage

Dr David Strange-Walker & Julia E Clarke,

Trent & Peak Archaeology, York Archaeological Trust

The English Heritage-funded Nottingham Caves Survey has over the last two years recorded nearly a hundred of the 539 known man-made sandstone caves beneath the city of Nottingham, UK. The caves, some of which date back to Anglo-Saxon times, have been used for a huge range of purposes from 20th-century air-raid shelters, through 19th-century stables, breweries and houses, to medieval factories and chapels.

The project was designed to produce a number of outcomes, combining traditional text-based archaeological recording and photography with modern metric survey. Using a phase-based terrestrial laser scanner coupled with HDR photography, the team creates 3D pointcloud models which can be animated, rendered to video and stills, and uploaded to www.NottinghamCavesSurvey.org.uk and our YouTube site. At the same time this data and related documentary material is recorded in the project's GIS layer, which is designed to complement the city's Urban Archaeological Database.

The benefits of high-accuracy laser scanning for cultural heritage recording are by now almost taken as read, but it has been the visualisation elements of the project that have proved most effective and informative. While Nottingham's underground heritage has traditionally been difficult to present coherently, the project's photorealistic point cloud models have been avidly consumed and broadly shared by a variety of audiences across the globe.

A major goal of the project has always been to re-engage visitors to and citizens of Nottingham with the heritage on the ground – to use the point cloud data to help people understand and experience the hidden heritage around them. This paper will discuss how the Nottingham Caves Survey has explored various smartphone technologies including pointcloud rendering and full AR, but has currently settled on Cuttlefish's Empedia platform as a low-cost, user-friendly method of providing rich, informative tours of the city's caves.

Digital images and print publication: How to make a happy printer.

Lesley Collett,

Graphics and Publications Manager, York Archaeological Trust

Although the role of on-line publication is growing in archaeology, much of our work still goes into print, but the way that images are produced and printed have changed radically in recent decades. Many archaeologists have adopted digital techniques and use drawing software, but often fail to fully understand the techniques required to supply a printable product to the publisher. This paper will look at some of the more common pitfalls and problems that can arise when preparing digital artwork.

In addition to these sessions, an exhibition of members' work will be on display throughout the Conference in the panel room of the Town Hall.

Finally can we remind you that the Group AGM which will also take place on Friday (provisionally after the last paper, times to be confirmed).

For full Conference details and booking, visit:

<http://www.archaeologists.net/conferences>

ROMAN ENFIELD:

RECONSTRUCTIONS FOR AN EXHIBITION

Spring 2011 saw the launch of “Roman Enfield”: an exhibition mounted jointly by London Borough of Enfield Museum Service and the Museum of London, as part of London’s “Cultural Olympiad”.

Substantially, Roman Enfield means the suburb of Bush Hill Park. Beneath the Edwardian villas and gardens lies the first roadside settlement north of Londinium. Flavian in origin, and lasting into the fourth century, it occupied a 210m x 450m strip along the western edge of Ermine Street.

Neil and John Pinchbeck of Enfield Archaeological Society were commissioned as freelance illustrators to produce traditional artwork, computer generated stills and animated reconstructions for the exhibition.

Since 1966, excavation has been limited to small trenches in over 20 gardens, with one larger excavation ahead of housing development in 1977. A major challenge was to incorporate the results of these piecemeal investigations and fill in the gaps with plausible speculation. It helped greatly that the illustrators were active members of the excavation team. Even whilst the exhibition was in progress, an excavation took place which revised the southern boundary of the settlement, yielding ditches, animal remains and over 2,000 pottery sherds.

Recognisable buildings in functioning groupings were what the exhibition designers needed to engage the public interest, where only post holes, beam slots, ditches and cobbled surfaces spoke of their presence. The ideal solution was deemed to be a computer generated “fly through” of the whole settlement, but an eight week deadline and limited budget conspired against this and a compromise had to be reached.

The solution was a traditional “birds eye” overview of the settlement with computer generated “fly through” sequences of selected buildings. John Pinchbeck had already produced computer reconstructions of elements of Elsyng Tudor palace using free and open source software for Enfield Archaeological Society and this experience was now brought to bear.

Buildings selected for the “fly through” treatment had to include a low status and contrasting high status example. These were a typical timber framed house, known from beam slots and post holes, a *mansio*, conjectured from sandstone and roof tile debris, and a wayside tavern of the type known from the Cheshunt settlement, six Roman miles north of Enfield.

John created animated sequences for each. An external orbit of the building was followed by a tour of the principal interior areas.

The mansio is thought to have been a sandstone structure with classical elements and a tiled roof. The speculative format chosen was a two storey building around a central court, with a bath suite and furnace for a hypocaust on the north side.





Several versions of the low status timber framed house were illustrated. Set in the known site topography, this one has lime-washed wattle and daub walls and a tiled roof.



Inside, the timber framed house is furnished with many artefacts, such as the quern stone and iron candle stick, recovered from site excavations.

A wayside inn, of the type excavated at Cheshunt, the next settlement to the north on Ermine Street, was included to represent the commercial relationship between the settlement and the road.



With the timber framed building in particular, John took great care to include artefacts and pottery known from excavation.

Finally, the animations were uploaded to DVD and included in a video sequence with archive footage of excavations and shown on monitors at the exhibition. Stills and the “birds eye” illustration were printed in poster form.

A highly professional looking presentation, including traditional illustration and computer generated animation, was achieved within a modest budget. “Roman Enfield” was the first exhibition held in Enfield’s new Dugdale Centre and proved a great success for the collaboration of an internationally renowned museum, local authority and local archaeologists.

Neil Pinchbeck PIfA

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www.enfarchsoc.org

Background

Haggerstone Dovecot in Northumberland is a scheduled and Grade B listed structure built in the 17th century. Originally a windmill with a vaulted basement, it was later converted to a dovecote in the 18th century and was first annotated as such on Fryer's 1820 map of Northumberland (fig. 1).



Fig. 1

The interior shell of the building is brick lined and accommodates 418 nest boxes in 17 courses. Most notable is a surviving *in situ* potence: a central mast which supported the upper floor of the dovecote and rotated to afford access to the higher nest boxes. There are only 5 dovecots in the UK with a surviving potence so this feature alone makes this dovecote rather special. (figs 2–4)

The significance of the dovecote overall lies in both the date and function of the original building and the economic/social/agricultural implications of its conversion to a dovecote. The post-medieval research agenda for *The North East Regional Research Framework for the Historic Environment* (2006) states that the use of a range of motive power sources, such as water, wind, steam and horses, varied widely across the region. Further research is required into their



▲ Fig. 3

▼ Fig. 4





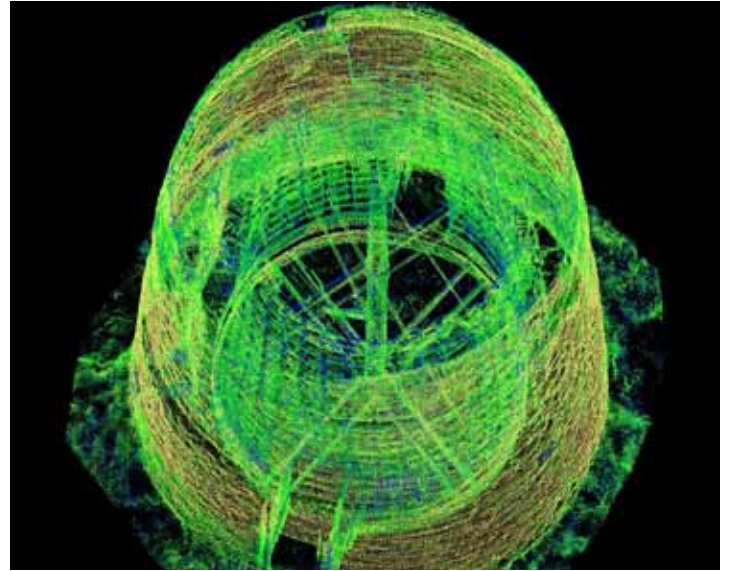
▲ Fig.5

technological development and the social context of their adoption, which would include the original windmill at Haggerstone.

In support of its conversion into a sustainable semi-circular house CFA were commissioned, in September 2010, to supervise clearance works and undertake a detailed metric survey of the structure prior to development. Using a combination of 3D laser scanning technology and photographic rectification, detailed plans and elevations were produced which included a single 2D elevation of the interior accounting for the irregular curvature of the building. The positions of fallen timbers in the interior were recorded in order to provide information about the roof and potence. Timbers, fallen brick, masonry and roof tiles were set aside for potential reuse following removal.

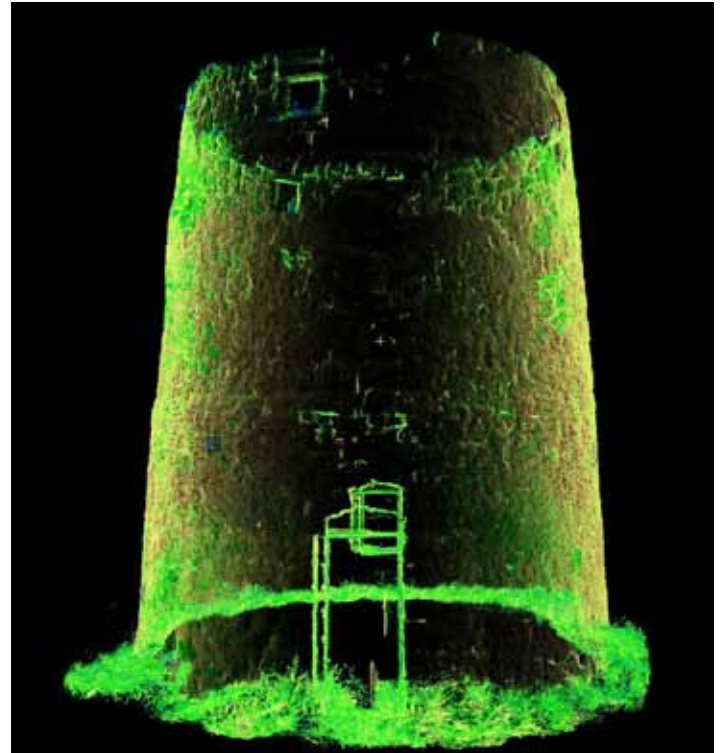
Survey and visualisation

In profile, Haggerstone has a slight batter and is built in three faintly discernible tiers. The top is incomplete, although a few roof timbers do survive *in situ*. Clearly the main obstacle facing the survey team was the



▲ Fig.6

▼ Fig.7

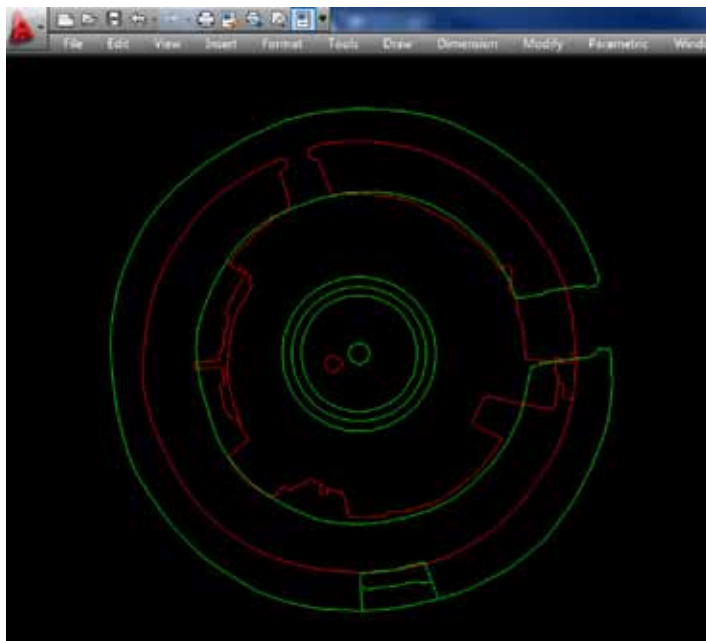


narrowness of the interior and due to the presence of the potence and supportive structures, the difficulty in gaining access to the full height of the interior shell to undertake the metric survey (fig 5).

Through a combination of mast photography and point-cloud data it was possible to build up a picture of the entire internal surface from the newly excavated floor all the way to the brick work at the higher levels and indeed the substantially deteriorated stone work at roof level. Whilst the 3D scanning rendered impressive results (fig 6-7) from the base to approximately midway up the interior surface, the angularity of the pitch of the scan provided less clear results for the rest of the surface.

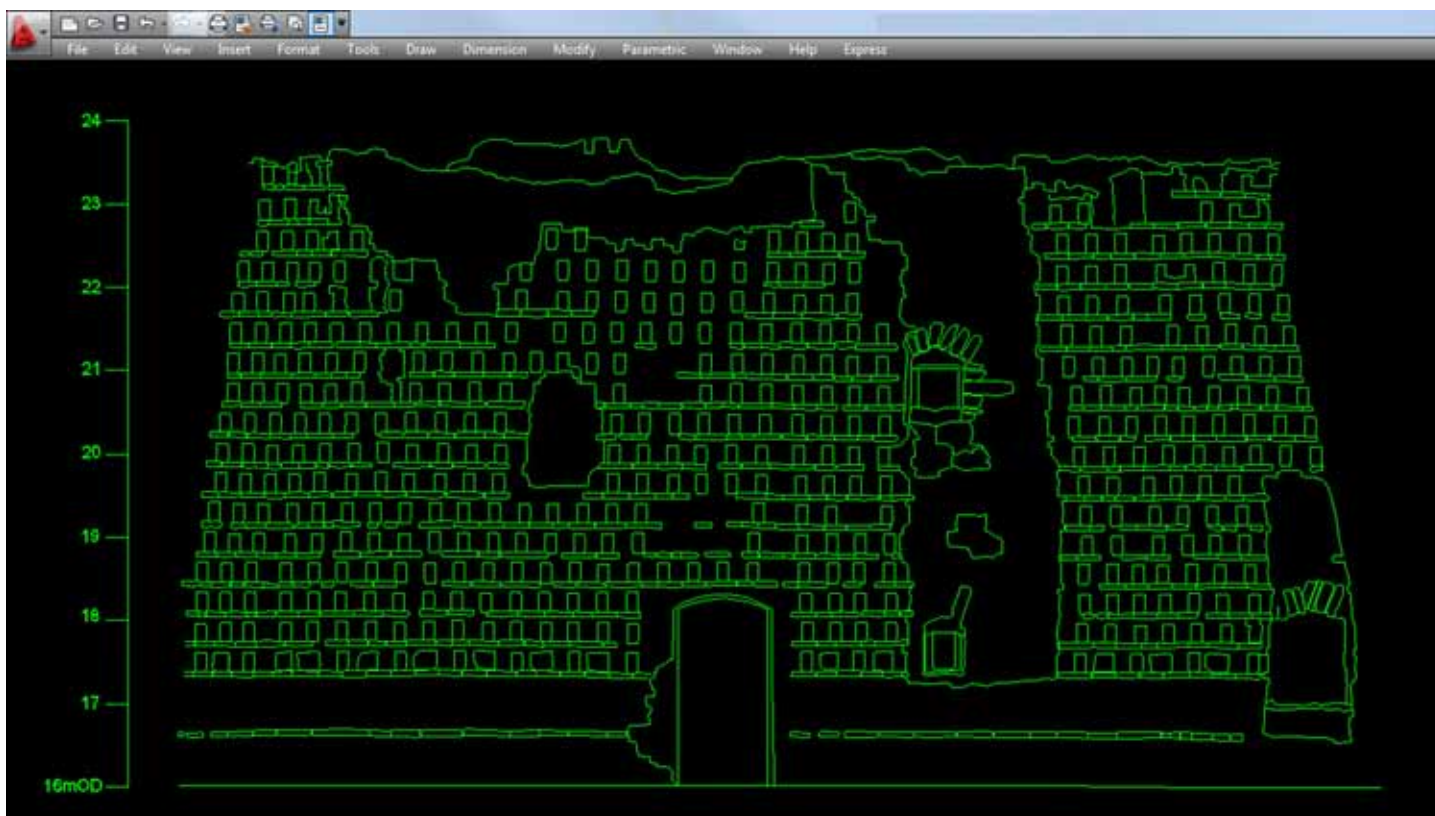
Here, the use of the photographic mast proved invaluable and it enabled the team to complete the picture whilst retaining a high level of accuracy when used in combination with the metric data.

The 'rolled out' 2D representation of the entire internal surface presented its own set of challenges - there is no quick fix in programmes like AutoCAD to unroll 3D point data. The principal difficulty lay in controlling the accuracy of interior survey results on the Y axis when undergoing the 'un-rolling' process.



▲ Fig. 8

▼ Fig. 9



Therefore, in order maintain accuracy, the point-cloud data on the y axis was controlled at increments of 0.5m. However, the axis could not be simply flipped to view the elevation. Instead it was necessary to rotate the interior from a central point and view from a predetermined angle of axis. Those familiar with AutoCAD will appreciate the mind-boggling complexity involved in representing the data on this platform. Many hours of hair pulling was spent to get this method to work correctly on the correct axis! Images were double-checked against the point-cloud data using the detailed photography to confirm surface relationships and enhance structural details. Figure 9 shows the slight batter from the ground plan to the top level plan. Figure 9 shows the simplified results of the interior elevation and many painful hours of work!

The results obtained would not have been possible without the use of both laser scanning technology and photography together. If used correctly they are able to complement one another and fill gaps in the data capturing process where they exist. It is important, however, to understand the limitations of both techniques in order to provide the necessary levels of accuracy required in any given situation.

Leeanne Whitelaw MIFA BSc

CFA Archaeology Ltd

Measured Survey for Cultural Heritage

at Wrest Park, Silsoe, Bedfordshire
Monday 9th July - Friday 13th July 2012

Accurate and appropriate measured survey and imaging data is a fundamental requirement for the effective conservation, management and understanding of our cultural heritage. Such data needs to be appropriate, timely and sensitive to the nature of the site and any interventions proposed.

An extensive array of differing measured survey techniques is available today, ranging from traditional hand-drawn survey through to total stations, 3D laser scanners and other advanced digital methods. Both survey practitioners and those procuring survey need to know the range of techniques available and understand their benefits and limitations in any given situation.

This 5 day residential course is designed to introduce the range of measured survey techniques currently available and to provide participants with both theoretical and practical instruction, focussing on the production of scaled drawings of selected buildings and landscape survey at Wrest Park.

Instruction will be provided by English Heritage staff who have extensive experience in the use of both traditional and advanced methods of imaging, survey and graphics.

Details and booking form: <http://www.helm.org.uk/server/show/ConWebDoc.18132>

A five-day summer school
on the wide range of survey
techniques available to
conservation practitioners

For more information and an
application form please contact:

Sarah Prince on 01793 - 414809
CHSS@english-heritage.org.uk

Image: The Bowling Green House and Archer Pavilion, Wrest Park



ENGLISH HERITAGE

UPCOMING EVENTS

18-20th April 2012
IfA Annual Conference
and CPD workshops:
GAG Session and Exhibition

GAG Committee:

Chair: Rob Read

Secretary: Lesley Collett

Treasurer: Laura Templeton

Survey: Colin Berks

Co-opted Members:

Steve Allen, Jennie Anderson,
Sarah Lucas, Hugh Kavanagh,
Mikko Kriek, Margaret Mathews,
Peter Moore, Tom Small

Contact details for all GAG
matters:

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GAG

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United Kingdom



YOU ARE NOT ALONE!



Find us on
Facebook

Linked in

Calling all GAG members! There are two recently formed groups, 'Graphics Archaeology Group' on Facebook - and 'Archaeological Illustration and Graphics' on Linked In to join.

Swap tips and pass on information - learn something you didn't know you needed to know! Meet fellow professionals for info share and discussion.

The groups are there to keep us in day to day contact - a useful tool for illustrators, surveyors and photographers, particularly those who are working on their own, whether freelance or within an organisation there will often only be one person dealing with the major graphics or survey work.

Need advice on how to get something done? Using Illustrator or Photoshop but coming up against problems? Or maybe you just want to get rid of Myriad constantly being Illustrator's default font. This is the place to ask for help and get quick tips and tricks.

Found something interesting? OK maybe not, but maybe there's a great illustration or photo or weird thing seen on site you want to share. This is the place. Get on line and keep in touch with other professionals ...

Joining is easy but you will need to register and become a member if you want to be able to post any comments.

Laura Templeton
MifA



Newsletter contributions

We welcome contributions of all kinds, whether articles, news or comments; the next GAG newsletter is due out in July. Please contact us at issig@archaeologists.net

Copy deadline for next issue: 29th June 2012

