CIfA | Graphic Archaeology Group

newsletter

GAG Exhibition 2018

Entries are sought for the 2018 Exhibition which will be launched at the CIfA Conference in Brighton in April. This is your chance to display your work to the archaeological profession; we are looking for eye-catching and innovative graphics as well as high-quality and accurate recording. Any aspect of archaeological graphics can be presented, whether artefact illustration, reconstruction art, survey or site plans, photography or information panels. Contact us at groups@archaeologists.net by **April 6th 2018** if you wish to display your work.

Members also have the opportunity to display work in the GAG website Gallery, which is open to all corporate-grade members of the Group (MCIfA and ACIfA): details of how to submit work can be obtained by sending an email to GAG at groups@archaeologists.net
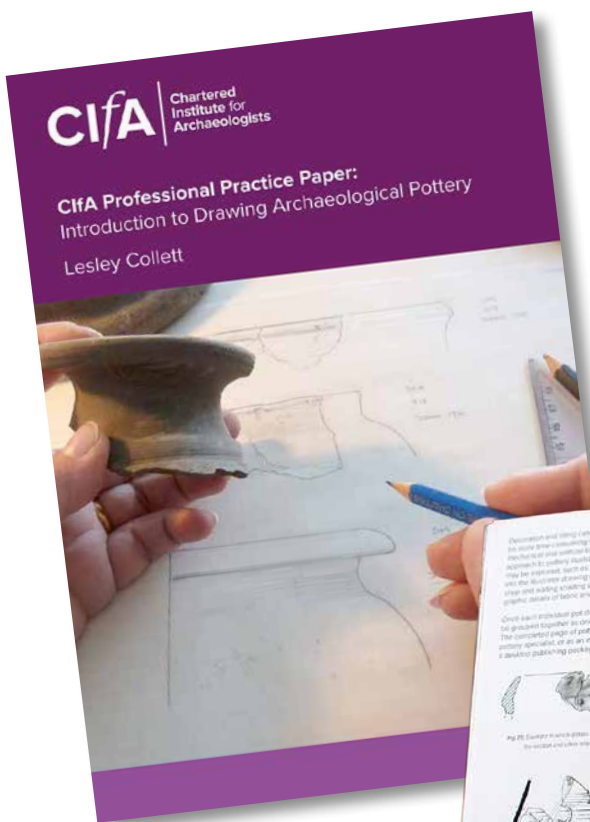
GAG AGM 2018

The next GAG AGM will be held on Thursday 26 April at the CIfA Conference at Brighton Racecourse. As Lesley Collett, Tom Small, Liz Gardner and Sarah Lambert Gates have all completed their terms and must stand down, there are four vacancies on the Committee. Nomination forms for election will be sent out with this Newsletter: please consider standing; we are looking for enthusiastic and efficient people to get something done! Come and talk to us at the Conference or drop us an email if you think you might like to get more active in the Group but aren't sure what's involved.

We apologise for the long delay in getting this Newsletter out; our Chair, Lesley Collett, has recently gone back to University after a 35-year gap to complete a part-time Master's, so with coursework on top of earning a living has had little spare time for GAG responsibilities. In future we aim to produce one large Newsletter per year, with features and articles from members, and hopefully several shorter email updates throughout the course of the year.

However – we are planning a one-day conference or day-school to be held later in the year, possibly early September, on the subject of **Reconstruction** – ideas for speakers, topics and venues would all be welcome! If you would like to help organise this, let us know; you don't necessarily have to be on the Committee to get involved.
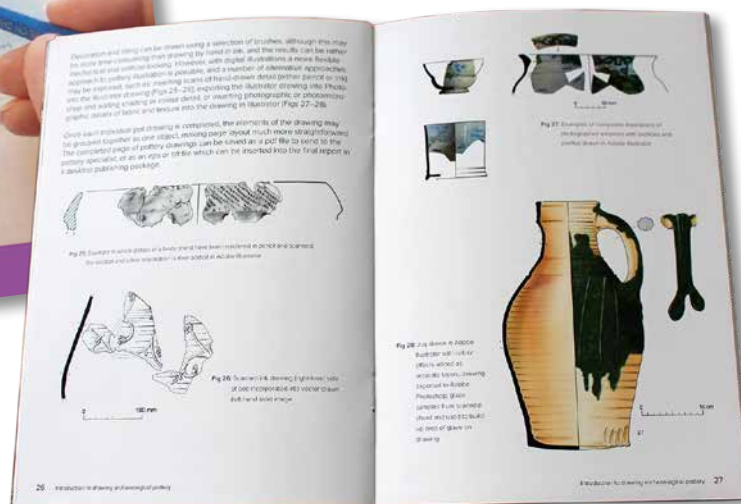
Pottery paper re-issued

CIfA has recently re-issued the Professional Practice Paper *'Introduction to Drawing Archaeological Pottery'* in a new edition.

The paper covers the basics of pottery illustration and is aimed at the novice illustrator, whether students or community groups. It is available free to CIfA members as a downloadable pdf from: www.archaeologists.net/members/downloadpapers

Printed copies are also available: contact admin@archaeologists.net

We would be interested in suggestions for future titles in the series with graphics or visualisation-related subject matter – even more so if you would be willing to consider writing one!

New Committee Members

Three new members were elected to Committee at the AGM in April 2017: Mark Hoyle, Norma Oldfield and Mikko Kriek. They were invited to introduce themselves:

Mark Hoyle MCIfA

My passion for archaeology and history started at a very young age, being dragged around various Roman Forts, Castles and other ancient monuments all over Britain as a child by my parents.

After leaving school I attended art college, and used to spend many days with sketch book in hand visiting sites all along Hadrian's Wall. It was on such a day, by chance, that I volunteered to dig at Segedunum Roman Fort in Wallsend. This led to me volunteering and working there and at Arbeia Roman Fort for four years as an archaeologist and, due to my artistic background, where I started to learn the skills as an archaeological illustrator.

I then moved to the archaeology section of Newcastle's planning department, where I worked as a site supervisor and archaeological Illustrator until its closure, in 1997.

Following the closure of the unit, I moved to Norwich and worked as an archaeological illustrator for three years, within a team of five illustrators, which really helped me develop my skill-set in archaeological illustration.

I then dabbled in the corporate world doing diverse roles such as senior graphic designer and IT manager for the country's leading independent planning consultancy, developing their online presence and creating large format displays, leaflets, and planning documents for community consultations whilst studying for a History Degree at the same time (of which I'm very proud to say I achieved a 1st class honours degree)!

It was around this time that I realised I really did have a passion for archaeology and history and it was the career I wanted to pursue, so I re-trained to become a History teacher in 2012. I loved the interaction and engagement with the students, but sadly not the paperwork and endless evenings, weekends and holidays spent marking and lesson planning. I still combine the skills I learned on my PGCE course with illustration, as I run beginners and advanced workshops several times a year at The Vindolanda Trust.

In 2016 I took the plunge and went freelance full-time; I had been working part-time as an illustrator on top of the previous jobs over the years and have worked for clients such as Vindolanda Trust, Norfolk Wildlife Trust, The Institute of World Archaeology-Butrint, Pre-Construct Archaeology, Norfolk Archaeological Unit, Durham University, The Portable Antiquities Scheme, Northern Counties Archaeological Services,York University, Newcastle University, and many more.

From January 2017 I have been employed full time as the archaeological illustrator for Northern Archaeological Associates, where I am heavily involved in the production of illustrations and the development of a monograph series for future publications.

I was a member of AAI&S from 1999 until the Association merged with IFA back in 2011. I look forward to being more involved within GAG and contributing toward the growth of the group and to the wider discussions on the development of the archaeological profession as a whole.

When not involved in archaeology I love to spend time with my two children and if I find the time, I still have a passion to draw and paint, with my preference being oils on canvas.
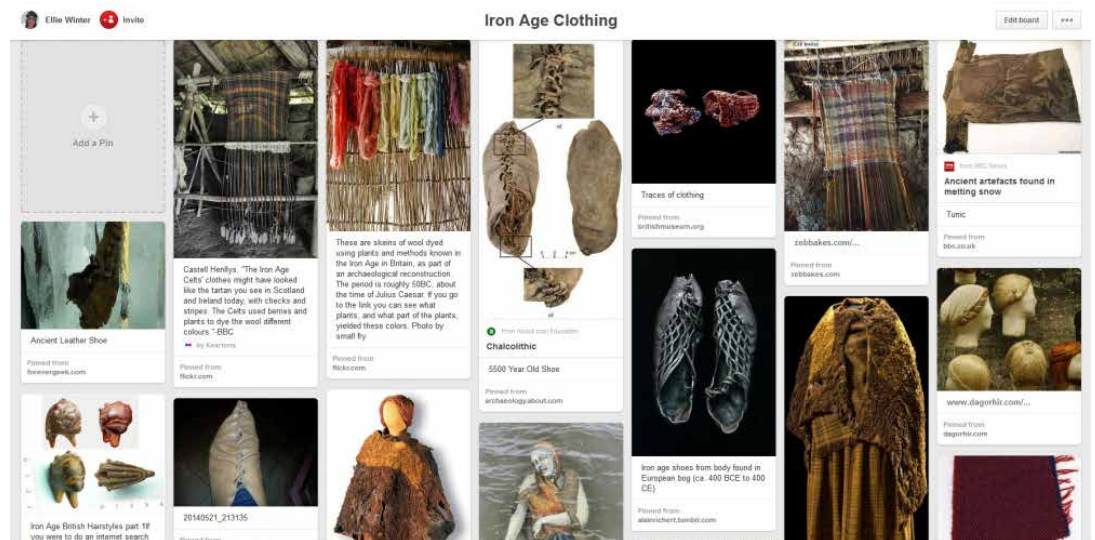
Starting out in illustration

Eleanor Winter, a new recruit to the GAG team, tells us about her experiences on the CIfA work-based training programme

In 2015– 16, I undertook the CIfA Work-Based Training Placement in Heritage Reconstruction and Illustration. Here is a summary of my time in training, which took place at Historic England's Fort Cumberland office in Portsmouth. I have summarised my blog posts from the time, which you can read at https://visualisationheblog.wordpress.com.

This placement was my first time working in the heritage sector, having only volunteered in archaeology units and museums before. It was designed to give me the experience I needed to do graphics and reconstruction illustrations as a career, something I had been hoping to do for a while. I started in October 2015 and was assigned two projects to work on initially; one was a set of reconstruction drawings of Carn Euny, a prehistoric site in Cornwall, and the other was a generalised drawing of a watermill system. The written briefs contained all sorts of terminology I was not yet familiar with, and my first roughs for the latter project revealed my lack of skill at drawing landscapes. This was something I knew I was not good at but something that I worked hard on while on the placement.
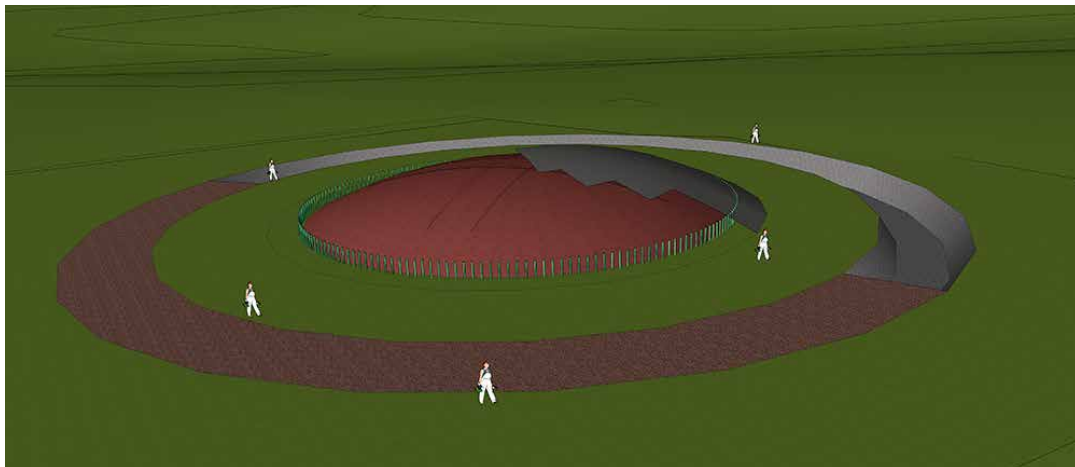
Early on, I visited Carn Euny with my mentor and supervisor. This visit gave me a much better sense of the site than just the photos and excavation drawings and informed how I clothed the figures in my drawings; the weather was harsher than I had imagined and my sketches of short sleeves were quickly corrected to long sleeves and cloaks. I didn't know very much about the clothing of Iron Age Britain before, but I scoured the British Museum's Collection online and looked at many photographs of bog bodies. I revelled in the opportunity to do this sort of research at work, for the first time in my career.

My Pinterest board on Iron Age clothing coming together

Fort Cumberland has a fantastic collection of animal bones and when I wanted to include animals in my Iron Age project, I had conversations with the zooarchaeologists about how domestic Iron Age animals would have looked. My mentor also pointed me to Butser Ancient Farm, where I had a good day of drawing, feeding the sheep and goats and discussing various aspects of pre-Roman Britain with the helpful and informative staff on site. It was incredibly useful to see what an Iron Age-style site in use would look like; where the dirt gathers, where the grass is trampled, where wild plants grow, etc.
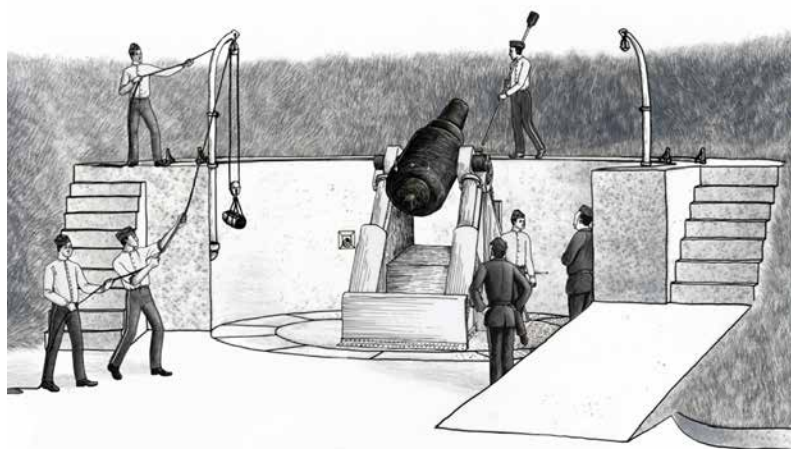
I approached many projects on the placement in a different way to drawings I had done in the past, since I had excavation drawings to work from and I realised that it would be very useful to have 3D models. Thus began my use of SketchUp, which I continued to use throughout my placement.

My quick SketchUp model of a barrow, with people dotted about for scale

To address my difficulty with landscapes, I was tasked with drawing natural features around the Fort every day. I knew this would be really useful; and really difficult! I tried several different approaches: focussing on tone, then on colour, then on mark-making and so on. Once I was getting somewhere, I switched to drawing buildings within landscapes. This culminated in a week-long trip to York drawing historic buildings. At the beginning of the week my drawings were wobbly and lacking in confidence. By the end of the week...they still were a bit, but less so!

My longest-running project was the High Angle Fire battery in Fort Cumberland. This is where an enormous gun was mounted to fire out over the Solent in the late 19th century. Initially I was somewhat intimidated by the project because I had not drawn anything to do with warfare as recent as the 19th century. Since the gun and its mounting are no longer in existence, all I had to work from was old technical drawings: one from the side, one from above. This took a lot of working out but after a lot of decipherment and consultation, I managed to translate it all into something believable with the help of SketchUp. These illustrations were used for a Festival of Archaeology 2016 blog post, which I wrote on the subject. This was a different type of project; one for web instead of print. I was really getting some variety.

Men loading the Mark I; reconstruction drawing by Eleanor Winter

Not all my projects were reconstruction drawings; for example, I also produced a set of infographics for a document for the Research team. For this, I attended a meeting in the Swindon office with the team working on the document. While there I got the opportunity to see some of the Historic England archive and the wonderful resource that is the collection of aerial photography. I wished I had utilised this resource already! The infographics project helped me to better understand what it is like to work to a very corporate brief. It also helped me to really work on my Illustrator skills; I had only ever used this minimally before but would prove incredibly valuable later on.

I had several outings while on the placement as well, including the Digital Past 2016 conference in Llandudno and the CIfA Conference in Leicester. I had never had the opportunity to attend conferences for work before. I loved that the conference attendees and speakers had very varied jobs within the sector so everybody had something interesting and new to tell me about. I came back enthused and with a better idea of what else is going on in the sector outside HE. When I returned from the conferences, my most pressing project was a reconstruction drawing of a long barrow not far from Stonehenge. I decided to paint this digitally so that I could make changes as I went along based on what the experts say. This is an approach I found incredibly useful and returned to in later projects.

I had a lovely quick project to do when the education team needed updated colour drawings of eight specific denominations of monk and one nun. I completed these images in a bold style, since I knew they would be printed quite small. Something I was missing, however, was maps, plans, and sections. This was a problem, since this is the sort of work many would want to see. So I got cracking with some of these, which expanded my experience with Illustrator greatly. It also helped me to think about graphics differently, and this has proved incredibly useful in my work after my placement was over. I had got quite envious of the lovely graphics I had seen colleagues produce for the Survey of London and concluded that I needed to draw an elevation. Luckily my workplace was a scheduled ancient monument so I chose one of the buildings in Fort Cumberland. I took photographs to rectify in Photoshop and draw from. Since I didn't have any survey data or definite measurements, my drawing was not bang on but it was a valuable training exercise nonetheless.

While on holiday in the Czech Republic I received the news that I had a job to go to after my placement. However, a skill I did not yet have had been highlighted; using ArcGIS. A colleague in Swindon kindly showed me the ropes and we had a little look at producing hachures in AutoCAD while we were at it. AutoCAD was also something I needed to work on, so I spent some of my last days of the placement going on a short training course and applying what I learned in the office. When I finished my placement and started my new job, I still had an awful lot to learn, but that is another story.

Giant's Grave

Sarah Lambert Gates

My job as Graphics Technician here at the University of Reading whisked me away on a series of three fieldwork projects during the summer. One of the projects I am involved with is with Islay Heritage, (http://islayheritage.org/) a charity set up by Professor Steve Mithen, involving local volunteers as well as students from Reading and Bournemouth. This August we completed the final excavation season at Giant's Grave on Islay, led by Dr Darko Marecevic, recording a megalithic Neolithic chambered tomb. It has been sinking into peat for several hundred years and is in a state of collapse. As well as lending a hand with the excavation side of things, and supervising students, my other role was site photographer. More and more I have been adding to the site record with Photogrammetry. It enables one to do a measured site plan with basic outlines of contexts with the traditional drafting film and pencil method, later adding stone by stone detail in the office, without all those pesky midges and rain showers to torment one. As well as photogrammetry, I have a wonderful hexagonal telescopic "pixie" pole, upon which I mount my Canon 70D, and use an app on my smartphone, to connect it remotely with wifi. I can see on my phone what the camera can see 6.9 metres up. It's pretty fab, and fun. In the spring a small team of us went to Islay and did survey of archaeological monuments with the primary school children of the island. They made videos and also enjoyed using my "giant selfie-stick" to capture photos of themselves with the monuments. Obviously used also for formal overhead shots previously attempted with a camera with timer taped to a staff or ranging pole, it's also good for team photos, such as the photo of the Giant's Grave team below.

Over the summer I created photogrammetry models for Silchester temple site and Little London Roman tile kiln down the road. My PC has been whirring away every night building meshes and dense clouds. So far I've only managed to get a couple of the models up on our Sketchfab page. They need scales and labels adding, but it's a work in progress. More will follow, including artefact models which my placement student Diana is working on. The two UAV models were created by a colleague Dr Kevin White, from the Dept of Geography and Environmental Science. He has the prerequisite pilot's licence.

Watch this space for more as I slowly upload the backlog from the summer in between teaching students how to do good old fashioned artefact illustration!

https://sketchfab.com/sagesuav

Also here's a link to the Islay heritage Youtube channel: https://www.youtube.com/channel/UCWcI7-mPl5gcXHger3tEMRg).

Taking a Teaching Collection Virtual

Diana Pearl McNutt, University of Reading

3D model of a copper-alloy brooch of Hod Hill type from the University of Reading excavations on Silchester (Insula IX); this brooch is dated to the mid 1st century AD. SF 2269. (click on image for link to 3D model)

Access through Photogrammetry: Fragile Materials and Digital Models in Archaeology Project is an innovative approach to create supplemental material to help students learn and engage with the fragile small artefacts and specimens in our teaching collection. Creating 3D models will not replace the student handling of the original artefacts and biological specimens but enhance the experience. This supplemental approach allows students to access the primary material both inside and outside the classroom. The use of virtual models will minimize the risks of over handling of the fragile artefacts and allow students the opportunity to closely examine the artefacts from every angle. I will be creating ten models in total focusing on artefacts and human bone specimens that are fragile due to their age and material.

One of the main teaching applications of these models is helping communicate the principles of typology. Typology is a difficult concept to grasp without being able to handle and compare objects. Currently, we have originals and reproductions for students to examine from our Silchester Town Collection. From this collection, models will be made from six Romano-British brooches in a wide variety of types and construction methods. With these models, students will have access to closely examine the different types construction methods without the need to physically handle the artefacts. Also, these models can be used outside the classroom for reference purposes or assignments once uploaded to a sharing platform like Sketchfab.

Other artefacts from the Silchester Town Collection that will be modelled include an elephant ivory handled knife or shaving razor and a figurine of Harpocrates. The figurine is a perfect example of why this 3D modeling approach can be so valuable for the long-term study of artefacts. The figurine is often on display which limits the overall access to the object and adds to the potential for damage every time it is removed for examination. By creating the model the need to move the figurine from the display is lessened increasing the object's lifespan as teaching material.

The other two models will be part of our palaeopathology master courses. These include a human hip showing extensive tuberculosis damage and a femur fractured in three places. Both specimens are extremely rare and fragile due to their preservation and age. By creating a 3D model of the hip students can examine the bone virtually allowing them to closely study the lesions caused by the tuberculosis from all sides without risking damage.

This is an exciting project to work on, teaching with 3D modelling is a new yet expanding frontier of possibilities. Virtual teaching materials are an extension of teaching methods, in general, expanding into the digital realm. This project though marries the virtual with the classic practical teaching methods with intriguing new possibilities. I am looking forward to seeing the completion of the project and its use in the future of our department.

Quick 'n' dirty RTI

Lesley Collett

Most people believe Reflectance Transformation Imaging to be a hi-tech technique needing lots of expensive gear: in reality RTI is a relatively cheap and simple method which can be used effectively to produce a 3D effect (although not fully three-dimensional), giving a result in which the user can actively vary the light source on the image to bring out details. Although most often used for enhancing such features as rock art, inscriptions on stone or clay tablets, I was curious to see whether the technique would produce good results on flint artefacts. This could be a very useful tool for lithic specialists and illustrators, and also has potential for display and dissemination purposes.

Traditionally flint artefacts are drawn in great detail to accentuate the ridges and scars over the surface of the artefact and present an accurate graphical record so that technical aspects such as the order of flake removal can be discerned (Martingell & Saville 1988,1–4; Raczynski-Henk 2017, 11–12). Ripples and facets not easily visible to the naked eye or in photographs are emphasised by the illustrator to produce an image which includes as much information as possible about manufacture.

As the skills required for traditional flint illustration are becoming rarer, photography or 3D imaging may be considered as an alternative. However, flint tools are difficult to depict adequately by photography alone, as facets and other details will not all be visible in one view lit from a single light source. The glossy reflective surface of flint can also be a hindrance to both photography and laser scanning techniques. Fortunately the handaxe used in this project has a relatively matte surface so the reflectivity problem will be lessened.

The technique works by capturing a series of images from a fixed camera position while lighting the object from varying angles. The images are then processed to allow the user to control a virtual light source and vary the lighting on the image. The software for both processing and viewing the images are freely available open source tools. There are two principal methods – dome capture (expensive, but easier to control) and highlight capture, or H-RTI, for which the only tools needed are a camera, tripod, a moveable light source and a reflecting sphere (Duffy 2013, 3-13). The drawback of the latter method is that this technique is not repeatable and gives different results each time.

Fig. 1: *Equipment and set-up used to record the flint.*

Methodology

This particular RTI project was undertaken with the most minimal equipment possible, to see whether this process is suitable for use by amateur/community groups, or freelance illustrators and finds specialists working without the support of a University department or commercial unit. It's a 'quick and dirty' approach, easily attempted on a kitchen table (or in this case, a kitchen floor). Apart from the camera and tripod, all the equipment and software came in for less than £12.

Equipment

- Portable light source: in this case an inexpensive LED inspection light
- Camera: Canon EOS 700D digital SLR with 18-55mm lens, tripod and remote control (the remote control was not strictly essential and the same results could have been achieved by setting the camera on 2-second self-timer to avoid camera shake).
- Reflecting sphere: a black snooker ball is the commonest item used for this purpose. In this case a 22mm diameter black glass marble was used.
- Software: RTIBuilder and RTIViewer (available from http://culturalheritageimaging.org)

Procedure

The camera and tripod were set up vertically above the subject, at a distance approximately three times its diagonal size. The image was focussed manually, ensuring both the reflective sphere and scale were in shot. Tip: Autofocus can cause blurring, so it is better to focus manually and use the same setting throughout. With adequate depth of field to keep the object fully in focus, shutter speed was set so that exposure was correct while the portable light source was operating. Camera settings were f/13, 0.5 second exposure, ISO 100, 32mm focal length. (Camera details were recorded in the metadata embedded in the image files.)

The principle of RTI involves lighting the subject equally from all angles of a notional hemispherical dome. For repeatable results a real dome with fixed lights is used, but in this field method it is only necessary to move a portable light to different positions on an imaginary dome, possibly by imagining a hemispherical clockface around the subject and moving the light to low, medium and high positions at each 'hour', attempting to keep the light source at the same distance from the subject. A photograph was taken at each new light position. In this example, 42 images of each face of the handaxe were captured.
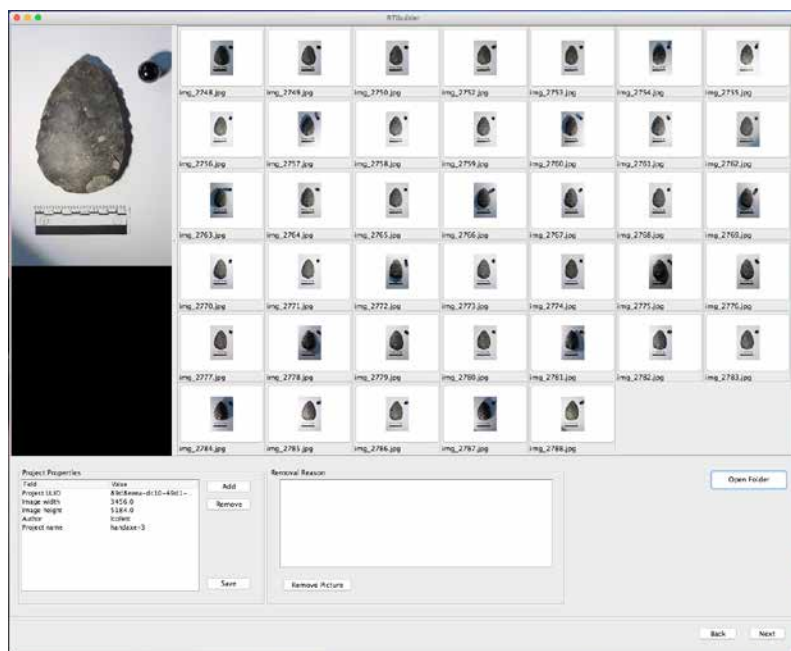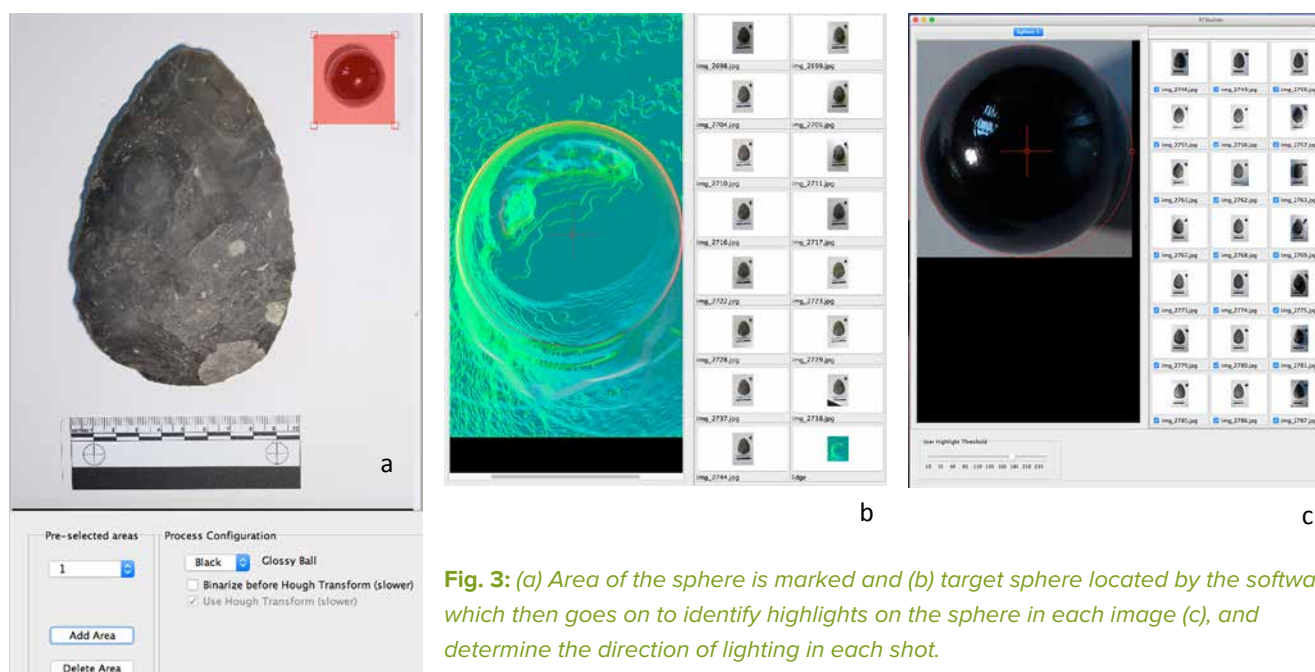

Fig. 2: *Images loaded into RTIBuilder*

When the image capture was completed, the files were renamed in lower case (RTIBuilder software does not accept capital letters). The photographs had been taken in landscape format to suit the shape of the handaxe, so they were rotated 90° to orientate the images correctly, then saved into a folder named handaxe/jpeg-exports and loaded into RTIBuilder. Any unusable images (under- or over-exposed) were then discarded. For the view reported on here, 40 of the 42 original images were used.

The next step in the process was to identify the sphere so that the software could locate the highlights and determine the direction of the lighting in each shot. A square area was drawn around the target sphere, enabling the software to determine the target and locate the highlights. Once this process is

a

b

c

Fig. 3: *(a) Area of the sphere is marked and (b) target sphere located by the software, which then goes on to identify highlights on the sphere in each image (c), and determine the direction of lighting in each shot.*

completed the software can build the .ptm file which can then be opened in the separate RTIViewer software. A further piece of software, HP PTMFitter, also needs to be downloaded from the Hewlett Packard website (see Downloads section below) in order for this process to work.

These are quite large files (the .ptm file for one face of this handaxe is 71MB) so distribution and storage may not be as easy as for photographs and scanned drawings. However there

Fig. 4: *The final .ptm file* (above) allows the viewer to select the direction of the light source, zoom in on areas of interest and apply various filters which can help accentuate details (as in the example top right, using diffuse gain, and bottom right, with specular enhancement).*

are clear advantages in being able to pick out details not readily visible, particularly for a remote specialist who could not access the object directly, or if an illustrator is finishing a drawing from a pencil draft without access to the original object. The ability to change lighting direction and zoom in on detail is certainly helpful.

Software downloads:
RTIBuilder and RTIViewer available from Cultural Heritage Imaging:
http://culturalheritageimaging.org
HP PTMFitter: http://www.hpl.hp.com/research/ptm/downloads/download.html

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accessed 24 Nov 2017

Obituary: David Williams

Former members of AAI&S in particular will be saddened to hear that David Williams passed away on 9th December 2017. A Fellow of the Society of Antiquaries, David was for many years the Finds Liaison officer for the Portable Antiquities Scheme in Surrey and East Berkshire and author of the standard work on Late Saxon Stirrup Strap mounts. Graphic specialists knew David as a highly skilled finds illustrator and as one of the leading lights of the former Association of Archaeological Illustrators and Surveyors.

David was a regular attendee at AAI&S Conferences and wrote many articles for the newsletter and journal. A stickler for high standards, he was always willing to advise and guide others on technical conventions, methods of depiction and quality, and moreover shared his skills through published articles. For most of the 1990s, he was an AAI&S Council member and chaired the assessment panel, developing criteria for assessment through an interview process that determined the outcome of an application for full membership, and which evolved over the years into the Graphic Archaeology Groups' specialist assessment panel procedures.

Much of David's illustration work was UK based freelance commissions, and his illustrations feature as the definitive depictions of several major finds, most notably perhaps the Romano-British chain harness from Wanborough in Surrey. He also devoted time to work abroad and many of us remember his write-up of his escape from Iraq in 1990, having at the time been working for the British School of Archaeology in Iraq. It is quite possible he also held the distinction of being the only AAI&S member to have turned up to a fancy dress party actually wearing fancy dress!

In short, David will be greatly missed.

Steve Allen