

Icon NEWS

THE MAGAZINE OF THE INSTITUTE OF CONSERVATION • MAY 2015 • ISSUE 58

A thorny situation

Also in this issue

The interns' end of year show

Dust management

Making replicas



conservation register

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THE INSTITUTE OF CONSERVATION

MAY 2015 Issue 58



From the Editor

'Dry as dust' may be a pejorative phrase in normal parlance but there is nothing dry about our article on how best to tackle dust in The National Archives. The value of scientific study to conservation practice is also demonstrated with the article on 3D printing and its use to create replicas

where the originals could not be made available. This successful harnessing of new technology to traditional skills may help to keep us from being replaced by robots and automata if our CEO's glimpse into the future comes to pass. But I think it will be a long while before a robot possesses the ingenuity and lateral thinking exemplified by our front cover illustration in which nature's bounty is harnessed to 21st century conservation.

Whether robots will be able to fight fires and salvage museum and stately homes' contents in the future is moot. For now it is down to us and, as I write this, it is an unhappy coincidence that our emerging conservator article is about training for emergencies, as the news breaks of a devastating fire at Clandon House in Surrey.

Lynette Gill



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ISSN 1749-8988

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Cover photo:
Boxes of thorns from different plants ready for use as a cleaning tool on the Staffordshire Hoard project.
© Birmingham Museums Trust

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Deadlines:

For the July 2015 issue
Editorial: 1 June
Adverts: 17 June

Icon is registered as a Charity in England and Wales (Number 1108380) and in Scotland (Number SC039336) and is a Company Limited by Guarantee, (Number 5201058)

professional update

FROM THE CHIEF EXECUTIVE



Photo: Matt Wrieford

THE FUTURE OF PROFESSIONS

**Alison Richmond ACR FIIC
on what next for
conservation and related
professions**

Last month the Chartered Institute for Archaeologists (CIfA) held their annual conference in Cardiff. It was called 'The Future of Your Profession' and it followed swiftly on the heels of IfA receiving their royal charter. Although it is probably too early to tell what difference becoming a chartered

institute has made, CIfA already asserts that '[It] acknowledges the professionalism of CIfA members, and allows us all to seek or assert parity of esteem with fellow professionals in other chartered institutes.'

To answer the question 'What next?', CIfA invited other professions, some working exclusively in the historic environment sector (Institute of Historic Building Conservation [IHBC] and Icon) and others that have some members who do so all or some of the time (Royal Institute of British Architects [RIBA] and Royal Institution of Chartered Surveyors [RICS]). These range in size from IHBC's 2200 members to RICS's 118,000 worldwide. Each has its own distinctive membership structure, mode of incorporation, professional qualifications and so on. Nevertheless, it never ceases to amaze me how much we all have in common. Moreover, the challenges facing us are shared, whether on a global scale – growth of urban populations, movement of people, scarcity of resources, interconnectivity, pervasive technology – or more local – shift from public sector funding to private philanthropy; growth of private practices; and multi-generational workplaces.

I came away with three important things that I think Icon should be thinking about.

RIBA has commissioned research into what the professional body for architects of the future would look like. Robert Firth, RIBA Council member, introduced Generation Z born after 1994. Unlike its predecessor, Generation Y, this generation is born digital and has known nothing else. Z wants information in bite-sized chunks, immediately so as to move on to the next thing quickly, is unlikely to be interested in governance structures invented in the 19th century (Boards, committees), wants a portfolio career, maintaining wide ranging interests throughout, wants authentic experience and to learn from more experienced professionals in an environment that is altruistic, fast paced, creative, collaborative and connected. We need to think about how we can meet the requirements of Generation Z because Z is not going to mould itself to our

shape. What would Icon look like? For example, trying to compete on information might be a lost cause, but what we can offer is mentoring.

The second key idea is achieving wider recognition for professionals. This was a shared goal for all of the professions present, even the ones that had been established for over a hundred years. Cross-marketing (telling your client that they should be using a professionally qualified architect/surveyor/conservator or professional bodies insisting that their members use accredited professionals) and collaboration (joint marketing campaigns highlighting the value of professionals in the historic environment sector) or educating supporter networks about the value added of using a professional expert. This all fell under the heading of 'Creating better clients'. Moreover, according to Lynda Jubb, Chair RICS Building Conservation Forum, this has a knock-on effect – clients become advocates.

Another tried and tested way of increasing recognition is going for chartership. Alastair McCapra, Chief Executive of the Chartered Institute of Public Relations, put it like this: It is a public declaration, a social contract that clearly states your purpose for society: at the most fundamental level, you are declaring that you are a profession that acts in the public interest and your members commit themselves to their own development. What is the benefit to the profession? Alastair's experience tells him that it establishes the goodwill of related professions, helps you to think through your purpose, commits you to CPD, and is the first step to individual chartered status for your members. The question of whether chartership would be good for Icon members has not yet been broached. We will have our eyes on CIfA to see how they fare.

The third trend to be taken on board is competition. Professor Andy Friedman, Chief Executive of PARN, identified a number of forms, for example professions expanding into related areas and the growth of amateurism fuelled by readily available information. Competition can also come from new technology (think of the driver-less car and the taxi cab driver). Intriguingly, research into the likelihood of your profession or trade being automated has led to some interesting results in a list of over 700, with psychotherapist being the least likely and telemarketer being the most likely. (Archaeologists were the 39th least likely!) The roles that were least likely to be automated were those that required any of the following

- perception and manipulation (surgeon)
- creative intelligence (fashion designer)
- social intelligence (PR specialist)

Conservators certainly fall into the first two categories and, I would argue, also the third given their need to understand shifting social values ascribed to art and heritage. So we are probably safe from automation for the moment!

It is always educational to reflect on Icon in comparison to other professional bodies and this time I was struck by, even in relation to the old, well-established ones, how far we have come, how much we have achieved in our short history, that we now have most of the building blocks of a profession in place, and we are now in a good position to focus on our future.

ICON SEEKS NEW CHAIR

Icon is seeking an exceptional person to become the new Chair of its Board of Trustees. This is a fantastic opportunity to help Icon develop strategically and spread its influence, both into the conservation sector as well as the outside world.

The candidate should know Icon well and have a solid understanding of its culture, people and its commitment to high standards and professional ethos. But more than that, they should have a strong desire to see Icon succeed in challenging times by providing energising leadership.

The Chair will work closely with the Chief Executive, Alison Richmond, and will be responsible for maintaining the smooth running of Trustee business. The role is well supported by an active group of Trustees, through established committees and governance procedures, as well as the industrious and ever-helpful Icon staff.

It is recognised that the Chair can be a time-consuming position and so the Interview Panel will also consider a joint application by two people with a view to sharing the role.

If you are interested, please consider applying, or finding out more about the position. Or if you have a colleague or associate who you think would be perfect for the role, then please encourage them to apply.

For more information, please look at the website www.icon.org.uk under About Icon/Trustee Vacancies: Chair of Board.

Deadline for applications: 1 June 2015

Starting date: after the Board meeting on 23 September 2015

NEW WEBSITE LAUNCH

Icon is to launch a new website this summer, which we hope will reflect the dynamic and outward-looking nature of conservation in the 21st century.

As many of our members will know, we invited tenders in December last year, and this February appointed Kolab Digital to design the new site. Kolab is a fairly young business based in Poole, Dorset with an office in Hatton Garden.

In March we held a workshop with Kolab and the pace has since been hectic. We are currently surveying the 'wireframes', which are used to develop the overall structure of the site, and working on the final graphic design concept.

Representatives from each of Icon's specialist groups were invited to attend a presentation on 29 March, to obtain their suggestions for the new site. Nine members from eight of Icon's groups attended, along with members of staff from the Icon office. The workshop was a great success and many positive ideas were put forward.

The new site will be based on the Drupal 7 content management system, which is not only very powerful and flexible but also very easy to use. More information and training will be given to groups' editorial teams very soon.

In another exciting development, Katie Allen joined us in late March as our new Digital Content Officer. You will be hearing a lot from Katie as she will not only be running the new

website but she will be generating social media output alongside Michael Nelles, Membership Manager, and Alison Richmond, Chief Executive. You can read more about Katie on page 10.

The new site will be very 'image rich', with plenty of opportunities for photos and videos of the conservation community and their work. Please send anything you think might be of interest to Katie at kallen@icon.org.uk.

The planned launch date of the new website is July 2015. Watch this space!

ICON CONSERVATION AWARDS UPDATE

Thanks to all members who have sent in applications. Screening of applications are underway and shortlists will be announced week beginning 15 June. Judges are getting ready to visit the projects during June and July.

NEW QUALIFICATION LAUNCH NEWS

A new Conservation and Collections Care Qualification is to be launched in July 2015. Icon has been working in partnership with the V&A to develop the new qualification which brings together the V&A's Museum Technician Qualification and Icon's Conservation Technician Qualification. There are two clear routes through the qualification with some shared units.

There is a bit more work to do on how the qualification will be delivered. Our aim was to launch in May but 3CQ will now be launched in July and ready to go for recruitment in October. We know that there have been a number of expressions of interest in the new qualification. Please be assured that we are working hard to make this great new qualification available as soon as possible. Please direct any questions you may have to Susan Bradshaw sbradshaw@icon.org.uk

ADAPT & EVOLVE TAKES FLIGHT

The Icon Book & Paper Group Conference Adapt and Evolve launched in spectacular style on Wednesday 8 March, with a well-attended evening reception at the Foundling Museum. Delegates mingled and enjoyed wine and canapés, hearing addresses from Alison Richmond, Icon Chief Executive, and

Icon's CEO Alison Richmond at the Foundling Museum reception





Guest speaker Sir Peter Bazalgette, Chair of Arts Council England



Enjoying the reception at the Foundling Museum



An attentive audience



The reception after the first day of conference

special guest Sir Peter Bazalgette, Chair of Arts Council England.

In the days leading up to the launch, the team worked tirelessly to get everything in order for nearly three hundred delegates. Conference bags were all stuffed by hand at the Icon office in the days before the team drove everything over to the venue. 'I couldn't stop myself from having a rummage while I worked and from flipping through the beautiful conference brochure and leaflet,' says Amy Heslip, Conference Committee Chair. 'Both were carefully and tirelessly created and edited by Melissa Lewis and Anna Johnson. Well done for all their hard work!'

At the time of writing, the event was in high gear at a University of London venue, having attracted delegates from

up and down the UK and also from as far away as Canada, Estonia, Germany, Kuwait and the United States.

Thanks to everyone who has worked so hard to make the conference a success. Look out for a full report on the proceedings in the next Icon News!

ASK THE EXPERTS EVENTS

Icon is organising a series of 'Ask the Experts' days linked to a project called *Home Ground*, which is celebrating the cultural heritage of six National League Football Clubs that originated from a local crafts trade tradition.

This is an opportunity to promote conservation to a new audience and, working with the *Home Ground* Project to promote the conservation of specific materials in relation to new artworks which are being created during the programme.

The idea is to have three accredited conservators at each date/venue, who will be able to take public enquiries about the conservation of their own artefacts and promote in general the conservation work of all materials.

This is a chance to highlight the conservation of specific materials associated with the *Home Ground* project and promote your own work. If you are interested in taking part please contact Susan Bradshaw, our Professional Development Manager, on sbradshaw@icon.org.uk or telephone 01626 824510 to find out more and how you can get involved.

The dates and venues are:



At Sheffield United FC and the launch of the Home Ground project. The group includes Erica Steer, CEO of Devon Guild of Craftsmen (second from right), then Saffron Wynne, Exhibitions Officer at the Guild, then Christine Murray of the National Trust, and Icon's Susan Bradshaw in the middle.

Launching the Home Ground project: Mike Blundell, Chairman of Sheffield United, and John Hagger a leather craftsman who made the naturally tanned leather football in the showcase behind him



Location	Venue	Date	Specialism
Macclesfield	Silk Museum	21-Jul	Textiles
Stoke on Trent	Middleport Pottery	01-Oct	Ceramics
Walsall	The Leather Museum	11-Dec	Leather/Saddlery
Luton	TBC	11-Mar 2016	Millinery
Crystal Palace	TBC	29-Apr 2016	Stained Glass

DATES FOR YOUR DIARIES

- Icon's Annual General Meeting will be held on 30 November 2015 at 17.30 at St. Bride Foundation Bride Lane, Fleet Street, London EC4Y 8EQ.
- Icon's next Triennial Conference will be held on June 15 to 17 2016 at the University of Aston, Birmingham. Look out for Call for Papers coming up next.

CELEBRATING EXCELLENCE WITH ICON'S INTERNS

It was a joyful event, albeit with that little tinge of sadness that always comes with the end of an era. It was this year's end of year show for Icon's interns, which also marked the conclusion of the Heritage Lottery funding for the bursary scheme.

Hosted by the British Museum (BM) in its splendid and spacious new Department of Conservation and Scientific Research and warmly welcomed by Anna Bülow, Acting Head of the Department, the event was very well attended with interns past and present, supervisors, funders, Icon trustees, representatives of host organisations and well-wishers.

Icon staff, Jayne Sheraton and Kath Whittam, who have been so vital to the running of the scheme, also came up trumps with the organisation of this celebration, with the invaluable help of BM staff Faye Miles and Jordina Ferrando.

The mixture of tours of the BM's new studios, posters,

Anna Bülow welcomes guests to the interns' end of year show



Photo: Helen Hughes



Demonstrations of conservation in action were laid on

speeches, food and drink and lots of colleagues to catch up with made for a noisy and good humoured occasion. Even a spectacular meltdown on the part of the BM's lifts, which resulted in some heavy duty stair climbing, couldn't dim the good cheer.

And there was a lot to be cheerful about. The posters were absorbing individually and striking collectively in the overview they provided of just what the interns do: the breadth of their specialisms and the range of their projects, the interesting treatments they undertake, the great places they work.

Especially notable were the posters presented by three former interns - Rachel Swift, Mel Houston and Andrew Thackray; for each showed a poster from their intern days and one of their recent work. What is thrilling is that all three are now accredited.

What an internship can offer

Three former interns spoke enthusiastically about what their experience on the programme had meant to them. Rachel



Rachel Morley



Ellin Belton

Morley, fresh from recent triumphs appearing on the Antiques Roadshow Detectives and publishing her monograph on *The Stones of Stamford*, claimed that none of these things would have happened without the internship and Icon opening the door for her. It was, she said, 'a golden ticket to go anywhere, see anything, talk to anyone'.

Ellin Belton concurred, describing it as 'an invaluable gateway'. The Icon internship had given her 'skills and a belief in her own skills base and confidence'. She noted, with justifiable pride, the logos of institutions where she has worked since her internship days: Chatsworth House, English Heritage and the National Trust.

Mel Houston observed that she is poacher turned gamekeeper: once an intern and now an intern supervisor. 'You know where the problems are' she said darkly. She too agreed that an Icon internship 'lets you in so many doors'.

A gold standard

Our CEO Alison Richmond celebrated the fact that a

Touring the British Museum's new conservation facilities



Some numbers

146 interns over 9 years

- 100 Heritage Lottery funded
- 46 funded by 17 other funders

Over 90% retention in the sector

38 specialisms covered

77 host organisations

- 49 public sector or civil society
- 28 private practices

£3.53 total funding

- £2.45m from the Heritage Lottery Fund grant
- £1.08m from other sources

generation of former interns are working towards accreditation or have already achieved it; they are taking on their own interns; they are taking up leadership roles in the profession.

The Icon internship programme, she noted, is a gold standard for training in the sector: research identifies where the skills gaps are; recruitment carefully matches host, student and supervisor and Advisor; Icon's Professional Standards provide the framework for assessing an intern's development; supportive networks are set up for the interns and they are paid a living stipend.

The view from HLF

According to Nick Randell, Icon's Grant Manager over the nine years, Icon hit the deck running after the award of its grant in December 2005 and it had been a privilege to follow the progress since. He reflected on the importance of providing new training routes into the profession and, although there was more to do, the project had increased diversity in the workforce with 42% of interns coming in without a prior conservation qualification. In accomplishing this, Icon had shown the importance of paid internships.

Other points to celebrate were the great networks that had developed from the programme, the higher profile that some of the smaller hosts had gained from being associated with it and the potential to continue benefiting from lottery money by funding traineeships through HLF's *Skills for the Future* programme. Good examples of this are the opportunities provided by Lizzie Neville's PZ Conservation and the five years' of painting and textile internships offered by the Bowes Museum. He looked forward to seeing more such opportunities being taken up. Icon offered a great, sustainable model for others. He wished Icon continuing success into the future and urged the interns to carry on the legacy and employ interns in their own practices in due course.

Looking to the future

The show celebrated a major achievement: the successful running of the HLF internship bursary scheme for the past nine years. Lottery funding awarded direct to Icon for training purposes may have come to an end but the Icon Internship

Programme is open for business as usual. Other funders have provided significant sums for internships as well during that period and continue to do so. There are internships in the pipeline and the capacity to manage many more. If you would like to know more about how Icon can help you with funding for training, please contact Susan Bradshaw sbradshaw@icon.org.uk

As Alison Richmond described it

'Icon has grown up with the Training Bursary Scheme The TBS was set up at the same time that Icon was formed. The TBS is in our DNA.'

So if you or your organisation is preparing a funding bid for a project, do build in the opportunity to benefit an emerging conservator and the profession!

Nick Randell of the Heritage Lottery Fund



Photo: Helen Hughes

An atrium forms part of the new building's design



Photo: Helen Hughes

THE JUNE BAKER TRUST

Awards for Conservators in Scotland

The June Baker Trust has made awards in the first round of its new annual grant scheme 'Grants for emerging conservators in Scotland'. The scheme gives grants to support recently-qualified conservators in the process of gaining their early workplace experience to fund a learning and development plan of their own choosing that will enhance their future employability.

The successful applicants were as follows:

- **Emily Hick** will be learning about conservation surveys by researching methodologies, learning relevant skills from experienced professionals in two different institutions, and implementing her learning by carrying out surveys on two collections in a university in Edinburgh.
- **Erika Freyr** will be volunteering in the conservation studio of a national institution and in a private studio, where she will be working alongside experienced conservators who will include her in projects involving treatments she has not yet had professional experience of, or which she is less likely to be given responsibility for in her first year after training.
- **Marta Garcia Celma** will be working on a two week placement at a national institution gaining knowledge and experience of surveying collections; she will then work for three weeks with a private conservator to learn about the workings of an independent conservation studio.

The trustees were encouraged to see the strong interest in this scheme, and were delighted by many applicants clearly identifying gaps in their learning and finding ways to meet the objectives of the scheme, which are to: build professional networks, gain practical and employability skills and widen sector understanding.

The scheme will run for a further two years. An invitation to apply for the 2015 round will go out in the autumn.

ZIBBY GARNETT TRAVEL FELLOWSHIP AWARDS

The Trustees of the Zibby Garnett Travel Fellowship are proud to announce the 2015 awards. There are nine recipients this year and a total of £10,200 awarded.

- **Kelly Murray** (Twyi Centre, Llandeilo) is going to Ceglie Messapica, Puglia, Italy for a stone restoration workshop
- **Erin Murphy** (UCL Archaeology and Museums) will be studying wall painting conservation at Restoration Works International in Nepal
- **Jan Cutajar** and **Abigale Duckor** (UCL Archaeology and Museums) are going to carry out on site archaeological conservation in the Olduvai Gorge in Tanzania
- **Lisa Clayton** (City & Guilds of London Art School) will travel to Tsurumi University, Japan, to study traditional Japanese Urushi Lacquer
- **Hannah Sutherland** (Glasgow University) will be studying textile conservation at Royal Ontario Museum, Toronto

- **Chenelle Rodrigues** (Edinburgh University, MSc Architectural Conservation) is going to Earth, Hands & Houses in Poland studying traditional mud and lime plastering techniques as part of a straw bale building workshop
- **Tom Vowden** (York University, Stained Glass Conservation) will travel to The Glass Studio in Mumbai, India
- **Puneeta Sharma** (Chester Beatty Library, Dublin – Paper Conservation) will be going to Biblioteca, Montefiascone in Italy to study recreating medieval palette pigments.

The deadline for applications for the 2016 awards is noon on the last day in February next year.

NEWS FROM THE GROUPS

Paintings Group

The next Paintings Group event will be an evening talk by Morwenna Blewett on Thursday 18 June 2015, entitled 'Refugee Restorers, Sir Kenneth Clark & the National Gallery'.

Our usual venue, Freemason's Hall, 60 Great Queen Street London WC2B 5AZ, is close to both Covent Garden and Holborn Tube Stations. Doors will open at 6pm, with the talk scheduled for 6.30pm – 8pm.

Tickets: Icon members £10, Non-members £15, Students £5 (student card required to be shown on the door). Free wine and cheese included in the price of the ticket. For booking and further information please check the Paintings Group section of the Icon website; tickets will be available for online purchase through Eventbrite.com.

Stone and Wall Paintings Group

Call for papers

Thursday 8 October 2015

Icon Stone and Wall Paintings Group Conference: *Fired Earth – the conservation of terracotta and brick*.

Venue: Oxford Town Hall, St Aldate's, Oxford, OX1 1BX

This conference will draw together those who are interested in the conservation of these materials, focusing on their architectural use and the dilemmas they pose and the practical solutions used to conserve them. If you would like to present a technical paper or case study please contact Clara Willett: email swpconference@gmail.com

AGM

The Stone and Wall Painting Group AGM was held in the Headley Lecture Theatre of the Ashmolean Museum in Oxford on 19 March 2015. Twenty five members attended and our Chair Jez Fry expertly presided over the meeting.

From now on the AGM will be held in the Spring followed by talks or a tour. The group will also hold a conference every Autumn (please see the details above for the conference to be held in October 2015). We plan to arrange other site visits on an ad hoc basis. If you are involved in projects that would make an interesting site visit for Icon members, please let us know so that the committee can organise a pop up event.

It was announced that we are getting an email address so that



Stone and Wall Painting Group members view a prototype environmental sensor which uses a mobile phone to transmit stone specific data from a remote archaeological site to a computer in the lab. Katrin Wilhelm (left) uses this equipment to monitor stones at Pompeii



Stone and Wall Painting Group members on the tour of the Rock Breakdown Lab in Oxford.

members can contact the group or our web editor, Berenice Humphreys, who can put information on the website.

The meeting included discussions that will undoubtedly be revisited: about training, work experience, and the concern for the work of professional conservators being devalued.

The group was then split into two tours, the first lead by Su Lockley, Librarian in Charge of Oxford Union Library. The Library has wall paintings representing Arthurian legends painted from 1857 to 1859 by a team of young Pre-Raphaelite artists including Dante Gabriel Rossetti, William Morris and Edward Burne-Jones. SWPG members on this tour speculated about the treatment of the paintings in the 1980s, trying to decipher the during-treatment photographs (if any readers were involved in this treatment we would be very eager to hear about what was done).

The other half of the group went on a tour of the University of Oxford School of Geography and the Environment, Rock Breakdown Lab. Dr Shuaishuai He and Dr Mona Edwards gave us an introduction to the lab, which focuses on the deterioration of stone in historic buildings. The tour was brim-full of useful trials, techniques and equipment that are accessible to conservators in the field. Conservator and PhD student Katrin Wilhelm demonstrated sensors for remote environmental monitoring on archaeological sites. Dr Paula Carmona-Quiroga described her research to assess the suitability and stability of anti-graffiti coatings. Dr Anna Arizzi explained methods to compare the durability of hemp



Dr Martin Coombes talked about the circumstances in which ivy causes damage, how to minimise the problem, and how to manage the growth effectively. He urged us to question whether it needs removal because it can also protect stone walls from other agents of deterioration

mortars that have been exposed to different climates. Conservator Cristina Cabello-Briones described her PhD research to evaluate the effect of shelters in the protection of limestone on archaeological sites. Soil scientist Noreen Zaman described evaluating the chemical weathering of stone during reburial. Dr Martin Coombes described how ivy could be both hazardous to stonework while at the same time providing protection.

So many people enthusiastically contributed to this event, organised by Committee members: Peter Martindale, Jez Fry and Caroline Babington. Thank you to all the contributors for providing such an extremely interesting afternoon.

Sarah Pinchin
SWP Group News Editor

Textile Group

The Textile Spring Forum, Learning Curve: Education, Experience, Reflection was held on April 13 at Birkbeck College. Thank you to all the speakers and to those who produced posters. It was a very successful event with interesting and varied topics explored throughout the day. A review of the event can be found on page 28 of this issue.

The AGM was part of the day. Our Chair, Deborah Phipps, came to the end of her three year term on the committee. She will be missed but thanks go to her for all her hard work and commitment. Three other committee members also stood down: Kate Orfeur, Zoe Lanceley and Susana Fajardo. We also thank them for their hard work.

The new Chair is Alison Lister, Director/Principal Conservator, Textile Conservation Ltd. The other new members are Sarah Glenn from the V&A, Katy Smith from the Bowes Museum and Kim Thüsing from the National Museum, Wales. The committee welcomes them to the team.

The 'Understanding Tapestry' course in Lincoln went very well. A review of the day is featured on page 29.

The Icon triennial conference will be held in Birmingham in June 2016. Look out for further details throughout the year.

Further details of events will be on Iconnect, the website and Facebook.

Moves

Updates from Cambridge: **Edward Cheese** left the Cambridge Colleges' Conservation Consortium and took up the post of Book & Manuscript Conservator at the Fitzwilliam Museum in the New Year.

Following on from Edward's departure, **Bridget Warrington** was appointed to the position of Managing Conservator of the Cambridge Colleges Conservation Consortium based at Corpus Christi College. Bridget worked for the Consortium as Book and Manuscript Conservator for the two years leading up to her appointment.

The Cambridge Conservation Consortium consists of eleven member colleges – Christ's, Clare, Corpus Christi, Downing, Emmanuel, Gonville and Caius, King's, Pembroke, Queens', St John's and Sidney Sussex. The Consortium's conservation team works on a varied collection of manuscripts, books and archival material, including modern archives and papers from all member colleges.

New Icon staff



Katie Allen joins Icon as our new Digital Content Officer. She writes:

I am joining Icon from the world of website editing, copywriting, blogging, journalism and anything else I could turn my keyboard to!

I've always been interested in the arts, history of design and creativity. My first editorial job was on *Knitting* magazine and I have gone on to write for and edit magazines about craft and sewing – even publishing my own craft book in 2012 called *Just Sew Stories*. I previously worked at *The Bookseller*, the trade magazine for the publishing industry, where I was promoted to website editor of thebookseller.com and welovethisbook.com, which saw me juggling writing, editing, commissioning, scheduling, social media and all the other tasks associated with running two very busy websites.

I am very pleased to be coming on board at Icon, and I'm particularly excited to be joining when the website is undergoing a very dynamic and contemporary redesign. I'm looking forward to helping build a vibrant website which will spread the

word about conservation and become a really useful and lively meeting place and industry hub for conservation professionals.

If you have stories, photographs and news to share please get in touch with me on kallen@icon.org.uk and be sure to follow us on Twitter @Conservators_uk and like us on Facebook www.facebook.com/pages/The-Institute-of-Conservation. I'm looking forward to getting to know conservation and all of you!

Katie is in the office on Thursdays and Fridays

Departures



Rebecca Hendry came to Icon in 2009 as a temp to help us with our filing. She officially joined the team at the end of that year and, developing on the job, has since become indispensable in her role as Finance Officer. Her willingness to help and her passion for Icon always set her above and beyond the call of duty.

Rebecca has now moved on to a new job at The Breakfast Club where she will be working in the Finance Department. She says that she was really attracted to this fun, young company and particularly liked their commitment to Corporate Social Responsibility. We will all miss Rebecca and her oasis of calm at the centre of things.

Alison Richmond CEO

Welcome to these new members

We'd like to extend a very warm welcome to everyone who joined us in February and March 2015. We hope to see you at an event soon.

Rose Miller

National Museum Wales
Associate

Masumi Suzuki

Supporter

Adam Marriott

Associate

NRLC

National Research Laboratory
For Conservation
Organisation

Marina Gariani

Student

Aranzazu Blat Burges

Associate

Chiara Mazzoni

Student

Jonathan Kemp

Associate

Julia Robinson

Associate

Juliette Francois

Student

Jonathan Santa Maria

Bouquet

Associate

Shaun Thompson

Associate

Diane Knauf

Student

Emma Bloys

Student

Shobhakar Adhikari

Student

Eri Ohara Anderson

Student

Julie McBain

Student

Erin Walker

Student

Rachael Seculer-Faber

Student

Colleen O'Shea

Student

Angela Warren-Thomas

Associate

Anna Dembicka

Student

Elizabeth Wooley

Student

Kate Clive-Powell

Student

Clare Goulbourn

Associate

Caterina Margheri

Student

Centre For Jewish History

Organisation

Deborah Harris

Associate

Matthew Bresnen

Student

Lucy Cokes

Student

Nick Maddock

Student

Kyoko Kusunoki

Supporter

Andrew Everett

Associate

Anne Maheux

Associate

Adam Gooding

Student

Conservation By Design Ltd

Organisation

Julie Wertz

Student

Snow Fain

Student

Marie de Lauzon

Supporter

Connie Tang

Student

Cesar Cerejo

Associate

Christina Romanowski

Student

Jane Elizabeth Townsend

Student

Timothy Ritson

Associate

Rebecca Pollak

Student

Crystal Maitland

Associate

Julie Goldman

Associate

Cuong Nguyen

Student

Monica Dixon Tripiana

Associate

Michelle Sullivan

Student

Theresa Kamper

Student

Gemma Mathieson

Student

Lucie Page

Associate

Lisa Forman

Associate

Anne Driesse

Associate

Marie Kaladgew

Student

Mary Terese Vigliotti

Student

Rijksdienst Voor Het Cultureel

Erfgoed

Organisation

Martin Marks OBE

Associate

Elaine Troup

Associate

Maria Pardos Mansilla

Student

Feichi Gao

Student

Weissman Preservation

Centre

Organisation

Irmhild Schaefer

Associate

Lucy Hart

Student

Jack Newman

Student

Aline Leclercq

Associate

Sadie Wilson

Associate

Annabel Hall

Associate

Sophie Hetherington

Student

Nadege Dauga

Associate

Sam Johnson

Student

Daria Keynan

Associate

Lisa Clayton

Student

Cristina Rusu

Student

Ruoxuan Chen

Associate

Daniele Pasta

Associate

Panna Kemenes

Student

Janet Lee

Student

Hasan Al Mesaabi

Student

Ruth Murgatroyd

Student

Jennifer Dean

Associate

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Managing dust

Dr Helen Wilson and Amy Sampson of The National Archives report on their study of dust and the influence of context on cleaning strategy

Removing dust from cultural heritage collections is an essential factor in their long-term preservation. Dust can be physically damaging and disfiguring, it can catalyse chemical reactions and abrade surfaces, even during cleaning, and it can also serve as a food source for pests and mould. In 2013 the Conservation Research team at The National Archives (TNA) initiated a project designed to inform a review of current commercial cleaning contracts in the context of how the collection is used, accessed and stored. The outcomes of our study provided recommendations for delivery of a more efficient and cost-effective cleaning regime.

AIMS

This project aimed to assess the risk that dust poses to the collection. The study focused on the sources of dust, rates of accumulation, and the efficacy of mitigation methods, including cleaning and storage.

The risks associated with dust have been extensively investigated in the context of museums and historic buildings (Victoria & Albert Museum, English Heritage, The National Trust), but less so for library and archive collections. The context of an archive, including TNA, is very different, because the majority of the collection is boxed and stored in air-conditioned repositories with low foot traffic. Scanning electron microscopy and energy dispersive X-ray (SEM-EDX) confirmed that repository dust is generated from predominantly internal sources. Analysis of dust samples collected from the repositories found that sources were largely biological material, such as skin cells and hair, fibres from clothing and boxes, natural material brought in on clothing and shoes, such as quartz/silica and aluminosilicates, particles of paint from shelving, and carbon-rich organic particles transferred from outside.

ACCUMULATION

To monitor dust accumulation we expanded upon the non-adhesive, 'loss-of-gloss' method used by the Victoria & Albert Museum.* Glass microscope slides were positioned on boxes in the repositories for periods of 2, 4, 6 and 12 months. The dust that accumulated on each slide reduced the gloss of the slide appreciably. The loss of gloss was measured using a Glossmeter. Unlike those used in static displays, it was highly likely that the glass slides in the repositories would be moved during the monitoring period. Disturbance to the dust layer on the slides would have compromised results. Therefore the slides were fitted in mounts constructed of box board and placed onto a larger piece of polystyrene board to keep them stable.

* (<http://www.vam.ac.uk/content/journals/conservation-journal/spring-2011-issue-59/dust-to-dust.-access-to-access>)

MITIGATION

Currently, TNA cleaners are contracted to clean forty-two km of shelving per year. The task is divided into units of two aisles per day; lamb's wool dusters and microfibre cloths are used to clean surfaces. Central areas with higher foot traffic are cleaned more frequently. In addition, floors are swept weekly using dry mops, central areas are vacuumed and window ledges dusted.

A series of experiments to investigate the efficacy of a variety of cleaning methods and equipment were undertaken. The methods and equipment tested included those currently used



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Typical levels of dust accumulated on boxes of collection material in the repositories prior to cleaning

Equipment tested in cleaning experiments: lambs' wool duster (A), brush (B), Dust Bunny® cloth (C), microfibre cloth (D), cotton duster (E), One-Wipe® cloth (F), and HEPA filter fitted vacuum with multiple brush attachments (G)



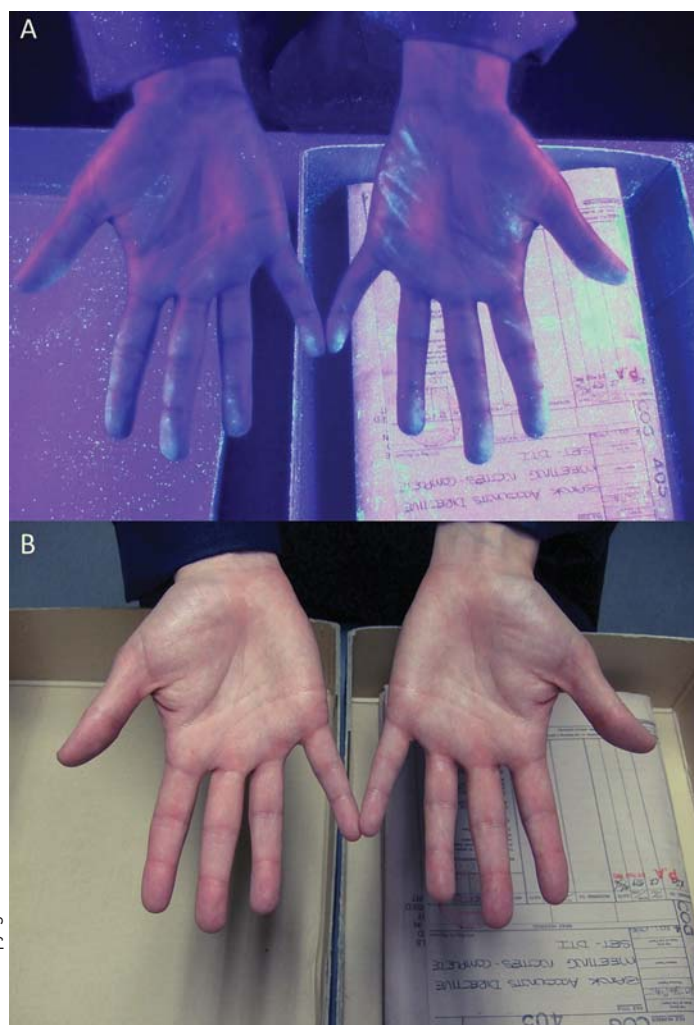
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Boxes containing facsimile documents (A) were dusted with UV-fluorescing powder (B) before simulating standard handling procedures (C)

at The National Archives, as well as others used in historic properties and museums. UV-fluorescent powder was used as a substitute for dust in order to better assess the movement of 'dust' during these cleaning experiments. Scanning electron microscopy analysis confirmed that the particles of powder were comparable in size to those of the smaller particles of dust found in the repositories. The test surfaces and cleaning equipment were examined under UV light, before and after cleaning, to assess how much powder was removed, how much was retained by the cleaning equipment and to what extent the powder was re-circulated into the air and re-deposited on surfaces.

UV-fluorescent powder transferred from the outside of a 'dusty' box to the person handling the box



ADDITIONAL PROTECTION

Protective housings, such as boxes and folders, are another means of moderating the risk of harmful dust to a collection and so the value of these methods in protecting collection items was also assessed. UV-fluorescent powder was distributed over boxes containing facsimile documents; the boxes were handled and opened as they would be in the repository and reading room. Again, UV light was used to visually assess the extent of re-distribution of the powder.

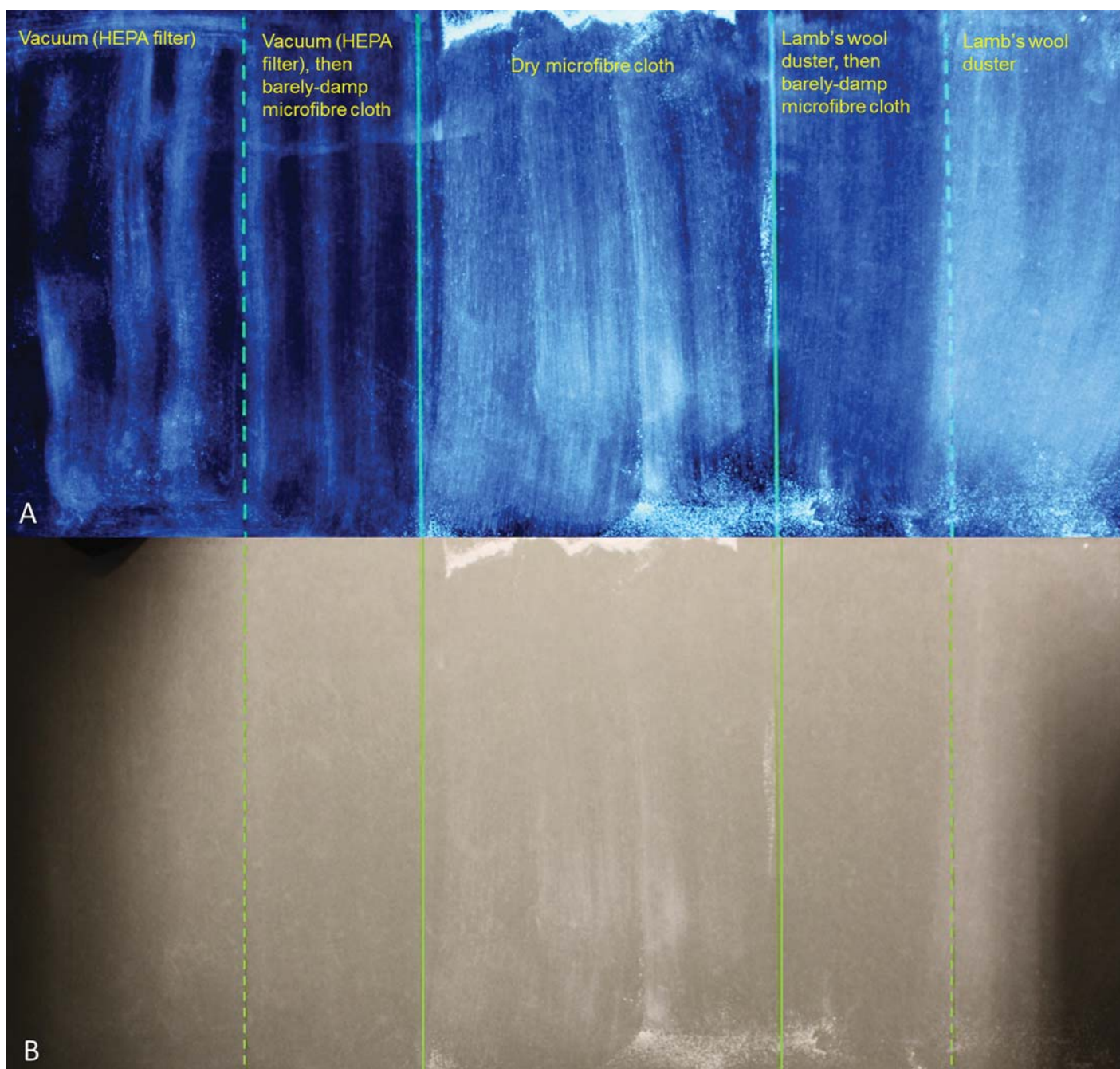
FINDINGS

Dust accumulation was confirmed to be greatest in the busiest areas of the repositories but also in areas adjacent to windows, possibly due to air-flow variations near to heating, ventilation, and air conditioning (HVAC) vents.

Results from the testing of mitigation methods demonstrated that:

1. a HEPA-filtered vacuum cleaner, followed by a dry or barely-damp microfibre cloth was the most efficient method of cleaning, permanently removing powder with minimal re-circulation
2. lambs' wool dusters in particular transferred substantial quantities of powder between surfaces and re-circulated it into the air
3. microfibre cloths removed more powder than cotton ones and both re-circulated powder less than the lambs' wool duster
4. brushes moved the powder but did not remove it
5. some protocols re-distributed, rather than removed dust
6. dust can be present on surfaces without being visible and so cleaning of seemingly 'dust-free' surfaces will benefit the collection
7. dust can become ingrained in the surface of fibrous materials during cleaning using any of the techniques tested, the extent of which is not always discernible; once ingrained, it cannot be fully removed
8. boxes and secondary enclosures reduced the transfer of powder from box to document. However, a degree of powder was still transferred through direct contact with powder-affected surfaces, or indirectly through re-circulation (i.e. when box lids are removed).

Based on these findings, a series of recommendations to decrease dust infiltration in TNA collections was made. These included the use of: clean hands when handling records; dry microfibre cloths for cleaning boxes; barely-damp microfibre cloths for cleaning shelving; and, where possible, vacuum



Distribution of UV-fluorescing powder on card after cleaning with a HEPA filter fitted vacuum, a dry microfibre cloth, and a lamb's wool duster, viewed under UV light (A) and visible light (B)

cleaners with HEPA filters for cleaning all surfaces. The use of lambs' wool dusters for cleaning the repositories was not recommended.

CONCLUSION

The context of use and storage of TNA collections has influenced the methods developed to assess the risks of dust and to evaluate effective ways of mitigating this risk. While the point at which the accumulation of dust becomes hazardous to collections has yet to be established, it is clear that dust removal, combined with adequate housing is necessary to minimize the risk of dust affecting collections. The evidence-based recommendations emerging from this research are informing on-going discussions with TNA's Estates team to implement the most appropriate and cost-effective method of reducing dust levels. In this way, sound scientific evidence is informing organisational practice and policy.

Further information can be found on The National Archives blog, at <http://blog.nationalarchives.gov.uk/> under the authors' names and at <http://www.nationalarchives.gov.uk/about/impact-of-dust.htm>.

Acknowledgements

We thank English Heritage, the Collection Care Department at TNA, and Rachel Gallen (HLF Skills for the Future trainee) for their support and involvement in this project.

The use of 3D scanning and printing in the production of replicas

Annette Townsend¹, Caroline Buttler² and Dominic Eggbeer³ describe the use of a new technology to create replicas for the Stonehenge Visitor Centre

INTRODUCTION

In December 2013 English Heritage opened the new Stonehenge Visitor Centre to the public, it included displays of original artefacts found at the World Heritage site. However not all of the artefacts considered vital for the visitor centre story were available for exhibition. Three such specimens were owned by Salisbury and South Wiltshire Museum. The originals were needed for their own galleries, therefore high quality replicas were required for the Stonehenge displays.

The objects were:

1. A Late Neolithic ceremonial mace head made of highly polished hornblende gneiss, its banded mineralogy producing a distinctive pattern. It is approximately 50mm long, has a hole in the middle for the shaft and is thought to have been a ceremonial object.
2. A Late Neolithic incised chalk plaque. This is a roughly rectangular piece of chalk, broken at two edges and the other two are rounded and slightly convex. Both surfaces are smoothed, one surface is flatter and marked with striations, these can be seen to form a rough chevron design.



The original mace head, chalk plaque and bone skewer pin owned by Salisbury and South Wiltshire Museum

¹ Department of Collection Services, & ² Department of Natural Sciences, Amgueddfa Cymru – National Museum Wales, Cathays Park, Cardiff, CF10 3NP and ³ The National Centre for Product Design & Development Research, Cardiff Metropolitan University, Western Ave, Cardiff UK CF5 2YB



The original mace head specimen mounted and clamped for 3D scanning

3. A Late Neolithic bone skewer pin, approximately 150mm in length. This has at some time been broken and repaired.

METHOD OF REPRODUCTION

To produce the best quality replicas the specimens would have to be moulded, however due to their unique nature, the owner institution understandably did not want the surface of the objects to be covered in moulding materials.

Carving a copy of the mace head out of a piece of gneiss was discussed but it would have been impossible to find a rock that exactly matched the pattern of mineralization seen in the original.

Another option was to sculpt replicas of the three objects. A skilled model maker could do this and although the results would not be exact copies, they would be extremely close. However this method would require the original objects to be available for reference during the process and it was not possible to borrow them for a period long enough to undertake the task.

A non-interventive method was required that would produce accurate casts of the three objects. The recent advances in 3D scanning and printing technology provided techniques that could solve this problem. An accurate copy of the specimen could be created without contact with moulding materials or having to borrow the specimen for long periods of time.



The 3D prints created with polymer jetting-based technology

Different methods of 3D printing were discussed with the National Centre for Product Design & Development Research at Cardiff Metropolitan University. It was considered that, although a printed replica would fabricate the fine details, it would not have the feel or look of the originals. Colour printing does not provide the detail of the original and the resin used by the printer does not give a suitable surface for painting. It was therefore decided that the best way forward would be to make a 3D print, then mould and cast this and then paint the cast to produce an exhibition quality replica.

3D SCANNING

The specimens were scanned using a Next engine 3D scanner in two orientations and then the two scans stitched together. The mace head and chalk plaque were both robust and could be easily mounted in a clamp to be scanned. However the bone pin was quite fragile so a Plastazote support was created to prevent any pressure being exerted on the specimen, which may have caused damage. The scans were saved as 'Obj' files which could be used by the 3D printer.

3D PRINTING

The 3D printing was undertaken at the National Centre for Product Design & Development Research, Cardiff Metropolitan University, using a ProJet 3000 Plus printer. This uses polymer jetting-based technology, whereby an ultraviolet sensitive resin is jetted from fine nozzles and cured layer-by-layer. The resolution is 750 x 750 x 1600 DPI (xyz); 16µ layers. A wax-based support structure supports the polymer part which



Using the 3D prints to create two piece silicon moulds with plaster supports

The filled moulds left to cure in an upright position



is melted away, then the print cleaned and degreased. The process is highly suited to fabricating the fine details apparent on the Stonehenge artefacts.

MOULDING AND CASTING

The 3D prints were placed on a bed of waxy modelling clay and prepared for two part moulding. Platsil Gel 10 platinum cure silicone rubber was brushed onto the surface of the prints and then trimmed once set. Platinum silicones do not shrink when cured and are dimensionally stable, making them perfect for highly detailed replication. Platsil Gel 10 also has a thirty minute demould time, which significantly sped up the moulding process. Walls of clay were built up and a fine dental plaster poured over the first side of the mould to create a hard support case. The moulds were turned over, release agents applied and the process repeated on the second side. The 3D prints were then removed from the moulds.

Different casting materials were tested for strength, colour and tactile qualities. Jesmonite AC300, a non-toxic water based acrylic casting resin, was chosen to replicate the mace head because of its stone like feel and suitability for painting.



Jesmonite was also used for the chalk plaque replica. The bone pin required a stronger material which would support its finer shape, so an epoxy resin was chosen. Pigments were added to the surface of the silicone moulds and mixed into the uncured casting materials to create base colours. The moulds were then filled, closed and stood upright for any excess resin and air bubbles to escape. Elastic bands were wrapped tightly around the moulds, pressing the pieces of the mould closely together whilst curing.

Once set, the casts were removed and trimmed. Pencil outlines were carefully drawn on the surface of the mace head cast using photographs of the real specimen as reference. Layers of colour were stippled and brushed on with acrylic paints. Small scratches that had not been captured by the 3D print were manually recreated with modelling tools on the surface of the bone pin and chalk plaque.

DISPLAY

The replicas went on display in the new Stonehenge Visitor Centre in December 2013 and have been appreciated for their realistic qualities. They have the feel of the original artefacts and an appearance of depth in the surface detail. Further copies were also made to be used as educational handling specimens. This project represented a successful marriage of new technology and traditional skills.

Acknowledgements

We would like to thank James Jepson (Amgueddfa Cymru – National Museum Wales) for scanning the specimens, Mary Davis (Amgueddfa Cymru – National Museum Wales) for valuable technical assistance, Sara Lunt (English Heritage) who initiated the project and Jane Ellis (Salisbury and South Wiltshire Museum) for organising the loan of the specimens.

The final high quality display replicas

A new conservation tool

The Staffordshire Hoard Conservation Team at Birmingham Museums Trust on using thorns to conserve the Staffordshire Hoard

The conservators at Birmingham Museums Trust have been using thorns to clean decorative metalwork, such as vesta cases, coins, buttons and in particular the Staffordshire Hoard, for the past few years.

WHY THORNS?

The idea of using thorns for the Staffordshire Hoard objects was first considered as gramophone records were historically played with thorns, suggesting that it may be a suitable material to trial.

Steel implements such as scalpels, picks and pins are commonly seen in a conservator's toolkit, but these tools are

Visitors around the new conservation and research tables at Birmingham Museum and Art Gallery



much harder than the hoard gold and silver alloy objects and are therefore not suitable due to the risk of scratching and possibly marking the gold. Many hoard objects already have a number of surface scratches, but the majority of these are the result of manufacture construction marks or from the subsequent removal of their component parts from the original objects in the 7th century. Thorns have become the perfect solution for the conservation of the 4000 fragments and objects that make up the Staffordshire Hoard.

THE BENEFIT OF THORNS

Thorns have the advantage of having very fine, naturally sharp but flexible points that can get into very small areas. Many hoard objects have very fine cloisonné or filigree decoration, and a tiny implement is required to remove soil around these decorative features.

Thorns from several species of plant were trialled, but the thorns that had the properties we were looking for – softness, flexibility, and thin/small size – were berberis, pyracanthus, hawthorn and blackthorn. These thorns vary in size and flexibility, which enables us to select the thorn that is most appropriate for a particular object.

OTHER VIRTUES

In addition to being softer than steel and safer to use on hoard objects, using thorns in conservation has other indirect benefits:

- Thorns are a natural product that is completely biodegradable, so they can be disposed of along with regular rubbish
- They are a sustainable and renewable product
- They are free of charge and in abundant supply in the back gardens and allotments of Britain, so they do not affect our budget
- Unlike cocktail sticks, they do not tend to split and splinter; instead, the point grows dull or the entire thorn snaps in half, at which point it is simply thrown away

POSSIBLE DRAWBACKS

A few potential risks to using thorns have been identified, the first one being that insects might hitch a ride into the studio on the thorns and their associated branches and leaves. To minimise this risk, bags of thorns are inspected prior to being brought into the museum, at which point they are held in the conservation offices instead of the studio until they are ready to be clipped. The second risk is that some natural substance such as plant juice/sap might be transferred from the thorns to the objects. To minimise this risk thorns are inspected and only dry, clean thorns are used.



The results of careful cleaning with thorns

THORNS IN ACTION

The use of thorns has been very successful in conserving these important objects and the conservation process can now be seen featuring in the New Staffordshire Hoard Gallery which opened last October at Birmingham Museum and Art

Gallery. Visitors can see the tools, learn about how the hoard has been conserved since its discovery and even look down a microscope to see the cleaning in action.

For more information about the hoard and regular updates you can visit www.staffordshirehoard.org.uk

Cleaning with a thorn



around and about

The Paisley Fountain is a winner!

Remember our serial last year about the work of bringing the Paisley Fountain back to life? If you don't, this picture will surely remind you! Well, it has won the Museums + Heritage Award for Excellence 2015 in the 'Restoration or Conservation' category. The competition was strong with Bletchley Park, Historic Royal Palaces and Tate amongst the shortlisted contenders.

The award may officially be made to Renfrewshire Council but for us the winner is our author Jim Mitchell ACR. As Jim said 'It's good for Icon too'.

Jim also told Icon News that, following the announcement of their win, the team was celebrating into the small hours. Sadly, he wasn't able to be at the awards ceremony as he was down with flu but no doubt the news helped towards his recovery.

The Paisley Fountain wins a prestigious award

Other industrial heritage news

If big stuff like the Paisley Fountain is your thing, then maybe the next *BigStuff* conference is for you. Taking place every two or three years, these international events focus on the challenges of preserving the large industrial structures and technical objects that form such an important part of our modern heritage. The aim is to bring together conservation professionals, curators and those working in or interested in the heritage field to share experiences and ideas, and encourage a consistent approach to preserving technological heritage.

BigStuff 2015 will be held at the mining museum Centre Historique Minier, Lewarde, in France from 3–4 September. Full details can be found at www.bergbaumuseum.de/bigstuff2015





Joshua Reynolds, Studio Experiments in Colour and Media

Flying the flag

On Wednesday 18 March, I went to fly the flag for Icon at the Wallace Collection where, as part of British Science Week, they were hosting a Masterclass on The Science of Conservation for students studying A level physics and chemistry.

The Masterclass centred around the Wallace Collection's current exhibition 'Joshua Reynolds: Experiments in Paint'. This exhibition looks at the themes of experimentation and innovation, tracing Reynolds' working practice and his use of pigments and media. Students met the conservators who conserved these eighteenth-century paintings and found out about the science behind their work. They discovered what museum conservation involves and where taking a science degree can lead.

They looked at technical analysis such as the chemical analysis of paint - including gas chromatography mass spectrometry (GC-MS); a demonstration of x-ray fluorescence analysis (XRF) and UV light examination.

There were workshops, talks and discussion led by experts from The Wallace Collection, The National Gallery and Icon. The students saw how conservation linked with the science they are taking for A level:

- Mass spectrometry (A level Chemistry)
- Magnetic fields deflecting charged particle (A level Physics)
- Energy levels in orbitals – excitation, de-excitation and ionisation (A level Physics)
- EM spectrum (GCSE/A level Physics)

I gave them an introduction to Icon, who we are and what we do. I talked about our members and our membership benefits, including Icon News, Internships, our Groups and PACR.



Joshua Reynolds, Mrs Jane Braddyll, 1788

I took along our Intern at the V&A, Mark Kearney, who is living the dream! Mark told them how he came from a science background, with a BSc in Physics with Astrophysics, followed by a Grad Dip and an MSc in Conservation. He told them how much hard-core science is involved in conservation. He has just completed his 12 months internship in Modern Materials. Look out for his blog: <http://surgeonforplastic.wordpress.com/>

Thanks to Emma Bryant, the Education Officer at the Wallace Collection, for inviting Icon to attend. We are always happy to attend events to raise the profile of conservation and of Icon.

Kath Whittam

Professional Development Support Officer

'Joshua Reynolds: Experiments in Paint' runs at the Wallace Collection in London until 7 June. It reveals discoveries made during a four-year research project into the outstanding collection of twelve Reynolds paintings at the Wallace Collection. As well as celebrated portraits and experimental studies it also includes the hidden stories behind the paintings, archive resources and x-ray-images. One of the curators of the exhibition was Icon member Alexandra Gent, also responsible for paintings conservation for the Reynolds Research Project.

A forthcoming photographic exhibition

Photography: A Victorian Sensation will open at National Museums Scotland (NMS), Edinburgh on 19 June 2015 and run for 5 months. Showcasing the best of the museum's early photographic collection, approximately 1500 photographs will be displayed, complemented by Victorian photographic equipment, jewellery, ceramics and ephemera.

Taking you on a tour of the development of the photographic image, the exhibition will begin with the earliest images made by Daguerre and Talbot, plus a strong Scottish focus. It will follow on with Sir David Brewster's influence on stereo photography, the impact of Frederick Scott Archer's invention



Gathering Water Lilies by Peter Henry Emerson, 1886, platinum print.

of the wet collodion process and its resulting commercialisation.

Photography for the masses will include displays of cartes-de-visite, the production of photographic novelty wares and work by amateur photographers like Julia Margaret Cameron. Displays of tintypes, the low-cost image popularised around the time of the introduction of Bank Holidays in 1871, followed by an AV of the story of George Eastman and the development of the Kodak company from 1888, and taking visitors to the mass commercialisation of photography in the twentieth century, will round the exhibition off.

NMS's Paper Conservators have developed a successful and collaborative relationship with the exhibition team to ensure that optimum conservation and display requirements will be met. To date we have:-

- conducted a survey of the collection in order to prioritise the areas and types of photograph requiring greatest conservation input.
- focussed much of our work on the treatment of daguerreotypes and ambrotypes displaying glass deterioration
- organised a two day Identification and Conservation workshop by Susie Clark, Photographic Conservator for NMS's exhibition team in Autumn 2014
- agreed that the installation schedule will include a six week 'off gassing' period for the case interiors.
- carried out Accelerated Ageing Tests on paint samples and case interior material.
- worked with the National Galleries of Scotland to carry out microfading analysis of all salt paper prints intended for

display to inform the selection process.

- agreed a rotation policy with Curators and Design & Exhibition for the most sensitive material, and agreed that some exceptionally sensitive early material will be shown only as copies.
- held regular mock-up sessions with the exhibition team to ensure best outcomes for lighting and displaying the photographs.

Please access the Museum's website www.nms.ac.uk to find out more information on the exhibition and read forthcoming blogs related to our work.

We are also hoping to hold a seminar and gallery tour, organised between NMS and Icon's Photographic Materials Group after the summer.

Victoria Hanley
Paper Conservator, NMS

The Prince and I

As part of the celebration of 150 years of London's main sewerage system, held at Abbey Mills Pumping Station, the site was visited by HRH The Prince of Wales earlier this year. Helen Hughes ACR, an architectural paint conservator, was on hand to meet him. She and Saskia Huning, an artist and specialist decorator, had been asked by Thames Water to create and present reconstructions of how the polychrome decoration of the internal cast-iron work of Bazalgette's pumping station – known as 'the cathedral of the sewers' would have looked in 1865 when the pumping station was opened.



© Saskia Huning

Full size reconstruction of the original 19th century polychrome decoration painted by Saskia Huning

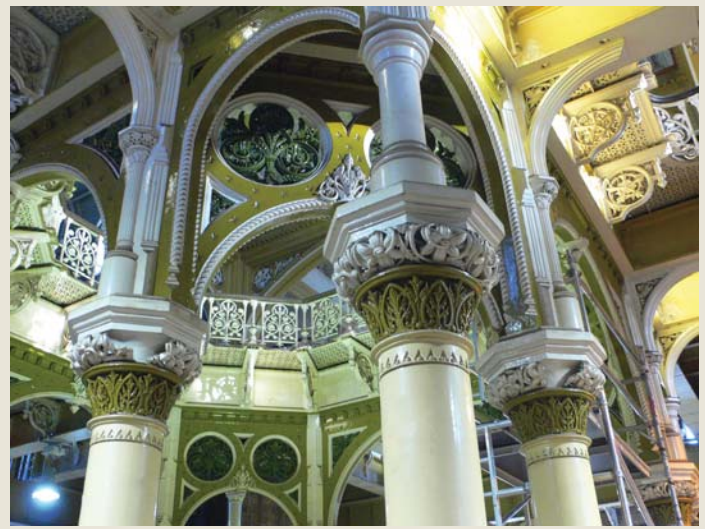
Helen Hughes had already carried out extensive microscopic paint research to establish the existing scheme. She and Saskia spent time on site colour mixing and working out how the main colours would have worked together. During their research they began to appreciate the magical theme of the decorative scheme – the architectural elements sprouted into foliage as the cast-iron structure ascended the building.

From these discussion full size sample boards were painted up by Saskia, of the base of the columns, the capitals and sections of railing. The boards gave a vivid impression of how the interior once looked – and could look again if Thames

Paint sample mounted in cross-section x500 magnification. Showing the original blue picked out on the columns



© Helen Hughes



© Helen Hughes

The existing decoration of Abbey Mills Pumping Station – the building is known as the 'cathedral of the sewers'



© Clearwater Photography UK

The collaboration team – paint researcher Helen Hughes and artist Saskia Huning at the pumping station

Water decides to reconstruct the scheme. It is hoped that local partners can be found to take the project forward and Saskia hopes to direct the repainting, providing training for decorators and involving local schoolchildren.

Prince Charles, an amateur painter himself, took a great interest in the details of the research and the recreation.

Helen reports that it was 'A thoroughly enjoyable project to work on, culminating in meeting HRH Prince Charles and other VIPs on the event day to talk them through the extravagant scheme that would have been in place'.

Helen Hughes ACR explains her research findings to HRH Prince Charles



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CONFERENCES

THE BLUE PERIOD: New Interpretations by Means of Technical Studies

Museu Picasso, Barcelona

30 January 2015

Associated generally with economy, artists reusing canvases, painting over earlier, less resolved work is not new. But in late January Barcelona's Museu Picasso organised a seminar on Picasso's Blue Period that revealed that for Picasso the practice had nothing to do with poverty. Doing it throughout his career it was a creative, not a destructive act.

A range of paintings was discussed but the day centred mainly on five: the Museu Picasso's 1903 *Barcelona Rooftops*, his 1903 *Tragedy* from The National Gallery of Art, Washington DC, his 1903–4 *Woman Ironing* from the Solomon R. Guggenheim Museum, New York, the 1901 *The Blue Room* from The Phillips Collection, Washington DC and his 1903 *The Old Guitarist* from The Art Institute of Chicago, all of them having recently undergone advanced analysis with a range of techniques in their respective institutions. Again and again the conclusions concurred.

Classically trained in 19th century academic painting practices, Picasso was always transgressive. The smooth, muted surfaces beloved of the academy were not for him. Fascinated with the process of painting, he used colour, texture, absorption, scraping and scratching, resulting in textures not always those one might expect from the subjects represented. In his *Barcelona Rooftops* evidently curved brushwork is not in keeping with the straight edges of the painting's subject. Intruding from below X-rays reveal a fairly finished composition relating to his 1903 *La Vie*. Why leave this brushwork so evident?

Similar clues show that the thinly painted *The Blue Room* takes its surface texture from an under layer containing a man in jacket and bow tie, head resting on one hand, known for some time from this texture but more recently revealed more clearly by multi- and hyper-spectral imaging. *Woman Ironing* also has ample clues of a composition below the visible one, again of a man's head.

Some paintings hide several images. The National Gallery of Art's **Ann Hoenigswald** discussed two compositions under *The Family of Saltimbanques*, and below the 1903 *Tragedy* there is one similar to a 1902 drawing, *Corrida de toros: El Arrastre* of a dead horse being dragged from the bullfight arena. Below that is a bullfight scene from 1901, and below that again infra-red photography reveals pencil or ink and dilute oil sketches, done directly on the wooden



Pablo Picasso, *Barcelona Rooftops*, 1903



X-ray of *Barcelona Rooftops* by Pablo Picasso, 1903

panel's surface, which Picasso bought in 1899, using it as an aide memoire for two years before painting the bullfight on it. Reflectance Transformation Imaging, that merges multiple raking light images, reveals that *The Old Guitarist* may have started off as a clean shaven young man, and below this is a seated figure with a child, a cow and calf and then below this a woeful, seated figure that may also relate to *La Vie*.

However, Picasso was not simply hiding previous images. Each surface influenced subsequent ones. He used the similarities of disparate forms; the boy's head in *Tragedy* reuses the outline of part of the horse's head underneath, the man's head under *Woman Ironing* is transformed into the bowl's shadow in the upper image; his moustache becomes folds in the cloth.

In 1895, painting over flowers on a tambourine, Picasso used their colours in the beard and flesh tones of his image of a man, giving it depth and liveliness. His 1901 *Portrait of Sabartes* overlays a woman with a cap and much of the colouring for Sabartes'

portrait comes from the underlying image. In *The Blue Room*, also, colours from the lower image intrude creatively into the visible one. He plays with the layering emphasising edges, adding subtly to his images. With *The Old Guitarist* we find quite a colourful scene sandwiched between two Blue period compositions. What are we to make of this?

Woman Ironing, traditionally dated to 1903–4, has parallel scraping, as though Picasso wanted to dematerialise the woman's image, exposing colour from lower layers, in places using it as shadow. Marilyn McCully has suggested that the man below may be Ricard Canals, who has been credited with introducing Picasso to etching. Picasso's *The Frugal Meal of September* 1904 shares compositional similarities with *Woman Ironing* and other 1904–5 works also show scraping, indicating that it became part of Picasso's repertoire at that time unrelated to media. Thus dating *Woman Ironing* to spring 1904 may be too early.

But we also learn that within a single composition there is no mixing of layers, no

wet in wet. One layer is dry before Picasso applies the next. Fired with his subject, he applies a layer of paint but must wait until that layer is dry before continuing. How long must he wait? Days? Weeks? And all that time his mind does not stop. He sketches and paints other pieces; his thoughts develop. Thus multi layered compositions represent the process of his thinking. You think you are seeing everything until you dig deeper. These multi-layered compositions are the thread of the artist's thoughts twining through different subjects, or as Penrose Golding put it:

'Instead of leaving a record, to see how you can leave a record ... for him, the true subject of the work is always the work that is yet to be done.' *

Clare Finn

* 'The Painter and his Model', Roland Penrose and John Golding, *Picasso 1881-1973*, London, 1973, *Écrits sur l'art*, p. 363.

GLASS DETERIORATION COLLOQUIUM ICCOM-CC & State Academy of Art and Design Stuttgart Stuttgart February 2015

For ten years Gerhard Eggert and Andrea Fischer (State Academy of Art and Design, Stuttgart) have organised a series of focused, popular colloquia covering a range of conservation issues. This year, glass deterioration was the theme, with a particular focus on glass-induced metal corrosion. The colloquium was organised in association with the Glass Deterioration Group of the ICCOM-CC Glass and Ceramics Working Group. It was a well-paced event with lively discussions, and plenty of opportunities to meet speakers and delegates from across Europe and America.

The first session focused on glass deterioration and conservation. **Katherine Eremin** (Harvard University) in *Glass Deterioration: what do we know and how do we measure it*, summarised the complexities of unravelling how composition, manufacture and post-production history of glass may affect its deterioration behaviour. Analysis is key to understanding these aspects and it was hoped that increasingly sophisticated, non-destructive analytical techniques would continue to deepen understanding of glass deterioration and in turn inform conservation practice. Continuing the emphasis on analysis, **Guus Verhaar**, a doctoral student at the University of Amsterdam, in *Identification and documentation of the early stages of glass sickness*, outlined a proposed method of identifying the onset of glass disease through quantitative analysis of surface deposits using ion chromatography. Reflectance Transformation Imaging (RTI) would also be explored for documenting the deterioration of a surface.



A nineteenth century Black Forest Schäppel from the Ethnographic Museum of the von Portheim Foundation, Heidelberg, showing glass-induced metal corrosion (before treatment)

In *The relevance of refractive index for the treatment of crizzled glass*, **Norman Tennent** (University of Amsterdam) considered a means to improve the appearance of crizzled glass by using consolidants to coat the deteriorated surface, matching the Refractive Index (RI) of the consolidant to the glass as closely as possible. The significant ethical aspects of such a process were considered alongside practical constraints, such as the necessity to understand beforehand how deteriorating glass might behave under such treatment.

Returning to analysis, **Chiara Gamarra** (University of Turin), in *Influence of degradation on the production of quantitative data by using portable-XRF on glassy matrices of Limousin composition*, discussed the effectiveness of non-destructive surface analysis on moderately deteriorated glass using SEM-EDX and p-XRF on synthesised enamel samples comparable to Limousin enamels. **Robert Dinnebier** (Max Planck Institute for Solid State Research, Stuttgart), in *Ordered structures from powdered samples: modern x-ray powder diffraction of corrosion products*, looked at the effectiveness of x-ray powder diffraction in studying the crystal structure of deterioration compounds.

The second session of the colloquium focused on glass-induced metal corrosion, with emphasis on the work of the GIMME project (Glass Induced Metal Corrosion on Museum Exhibits). **Gerhard Eggert** summarised the history of GIMME research, begun in 2012, and its confirmation that the alkaline environment on the surface of deteriorating glass can cause corrosion in closely associated metals. Four hitherto unknown glass-induced copper corrosion products have been identified through the GIMME project, and in the following paper: *Copper formates and further unknown corrosion products*, **Andrea Fischer**

presented a series of object case studies. Although copper alloys were the primary focus, zinc and lead alloys were also considered.

Isabel Keller (Swiss National Museum), in *How rare is it? A survey in the Swiss National Museum*, studied the occurrence of what appeared to be glass-induced metal corrosion in their collection, concluding that this was certainly not a rare phenomenon, and noting that carbonyl pollutants, emitted by wood products in cases and storage, were significant in its formation. This was an issue highlighted throughout the colloquium.

Stephanie Wümmers (State Academy of Art and Design, Stuttgart), in *Glass balls falling down: copper and lead corrosion of a Black Forest Schäppel*, detailed the occurrence of corrosion products on a magnificent Schäppel, an elaborate traditional bridal headdress from the Black Forest region of South West Germany. She studied copper corrosion products (from decorative wires and supports) and lead corrosion products (from lead-mirrored glass balls) on the headdress, confirming that the corrosion had resulted from association with deteriorating glass. Further case studies were presented by **Silke Beiner-Büth** in *Glass Deterioration in the Hamburg Museum*. The Hamburg Museum's collection of miniatures had been seriously affected through both glass deterioration and glass-induced metal corrosion, exacerbated by offgassing wood products from 1970s' storage units. The damage here was not just confined to the glass and metal, but also endangered the miniatures, as alkali-rich solutions from the deteriorating glass could drip onto the painted surfaces. This study also highlighted the difficulties faced by a smaller institution in finding the necessary support to address this serious problem.

Four posters were displayed on the first day of the conference. Two showcased issues

that featured throughout the conference: Dana Rohanová (University of Chemistry and Technology, Prague), *Corrosion of potassium archaeological glass*, and Ulrike Rothenhäusler (Swiss National Museum, Zurich), *Historic Swiss pharmacy glasses after 100 years of permanent exhibition – condition and conservation treatment*.

Gerhard Eggert contributed a poster on the work of Wilhelm Geilmann: *Peculiar pictures: the Geilmann album*. Geilmann was an early scientist of glass who kept detailed photographic records (micrographs) of his studies of deteriorating glass. The Museum of London poster: *Hazing of display case glass: a review of recent work*, documented the occurrence of sodium-rich deposits on the interior surfaces of glass display cases. This phenomenon has been observed internationally. Investigations with materials scientists at Imperial College London and manufacturers of display cases are ongoing, with the aim of resolving this issue.

Day two of the colloquium was held in the Landesmuseum Württemberg, with the third session focusing on new theories. Scientists **Olivier Schalm** (University of Antwerp) in *Laminated altered layers in historical glass: density variation of silica nanoparticle random packings as explanation for the observed lamellae* and **Christoph Lenting** (Steinmann-Institut, Bonn): *In situ, real-time and isotope tracer glass corrosion experiments; understanding pattern formation in silicate glass corrosion zones*, addressed the structure of lamellae, the layering feature of some deteriorated glass. The possible benefits to conservation from research into the effectiveness of glass as a material for long-term storage of radioactive waste were also touched upon. Understanding lamellae and how they develop may inform, for example, the way in which wet archaeological glass is dried, and how it might be supported.

The colloquium concluded with a lively round table discussion, expanding on the themes of the sessions. This was followed by the AGM of the ICOM-CC Glass Deterioration Group, which, among other aims, is hoping to establish an international terminology for glass deterioration. The importance of this for condition reporting was emphasised. A bibliography of glass deterioration is also being developed (available at: www.icom-cc.org/ in the Glass Deterioration section of the Glass and Ceramics Working Group). To find out more and to contribute, contact Guus Verhaar at glassdeterioration@gmail.com. The next Group conference will be in Wrocław, Poland (May 2016). The next Stuttgart colloquium, also in May 2016, will consider the conservation of waterlogged wood.

As a final treat, delegates were invited to visit the famous Ernesto Wolf collection of archaeological and historical glass, led by

Astrid Wollmann, conservator at the Landesmuseum Württemberg.

For more details and expanded abstracts see the colloquium website:

<http://objektrestaurierung.abk-stuttgart.de/glass-deterioration/programme.php>.

Hazel would like to thank the Anna Plowden Trust for a grant towards attending the colloquium.

Hazel Gardiner (British Museum) & **Helen Ganiaris** (Museum of London)

LEARNING CURVE: Education, Experience, Reflection

Icon Textile Group Spring Forum London 13 April 2015

The annual meeting of the Icon Textile Group provided a day packed with twenty minute lectures and an array of interesting posters on recent and past ways of learning, sharing experiences and looking back to the past and what we can learn for the future.

The day started with a presentation from **Frances Lennard** and **Sarah Foskett** (Centre for Textile Conservation, University of Glasgow) on textile conservation education. As 2015 marks the fortieth anniversary for the TCC, this was a good opportunity to reflect on the course and how a good balance between academic and practical education has been reached. **Katriina Simila** (Collections Unit, ICCROM) showed in her paper how everyone's point-of-view is dependent on who we are and what we believe and know. Being conscious of this can help us recognise the positions of others and lead to better communication.

Jacqueline Hyman (The Textile Restoration Studio) and **Pierrette Squires** (Bolton Museum) talked about their successful collaborative working between private and public conservation practices. This has given interns the opportunity of working with both as part of their internship and has enabled them to learn and experience different approaches.

The second part of the morning contained presentations on conservation treatments.

Maria Jordan and **Libby Thompson** (Historic Royal Palaces) shared their experience with polychrome patterned nylon net, describing the successes and challenges with both digitally printed net and hand-painted net. The paper presented by **Sarah Glenn** and **Elizabeth-Anne Haldane** (V&A) discussed different cleaning methods developed for paintings conservation, including the use of chelators, enzymes, gels and emulsions, that can also have an application in textile conservation. Through case studies they showed alternative cleaning methods where, in the past, treatment was not possible owing to various factors. **Aimee Grice-Venour** (National Trust

Textile Conservation Studio) discussed the treatment of a large chenille carpet and the challenges encountered when handling and working on a large and complicated object. Her paper explained the significance the carpet holds and how the conservation of such a large object is undertaken.

The afternoon started with a presentation on the conservation of the Doddington Hall tapestries by **Alice Brown** and **Sophie Minnis** (Doddington Hall Project). They provided a good insight into the estimating process and time-keeping in tapestry conservation. As young, emerging conservators the project has been invaluable in providing them with opportunities to develop their practical skills, their communication skills and the importance of good estimating, time management and decision making. **Jennifer Cruise** (Professor of Science, University of St. Thomas, Minnesota) looked at the scientific information that is available to conservators. In her study she identified the factors that limit the utility of conservation science and what is needed to improve this.

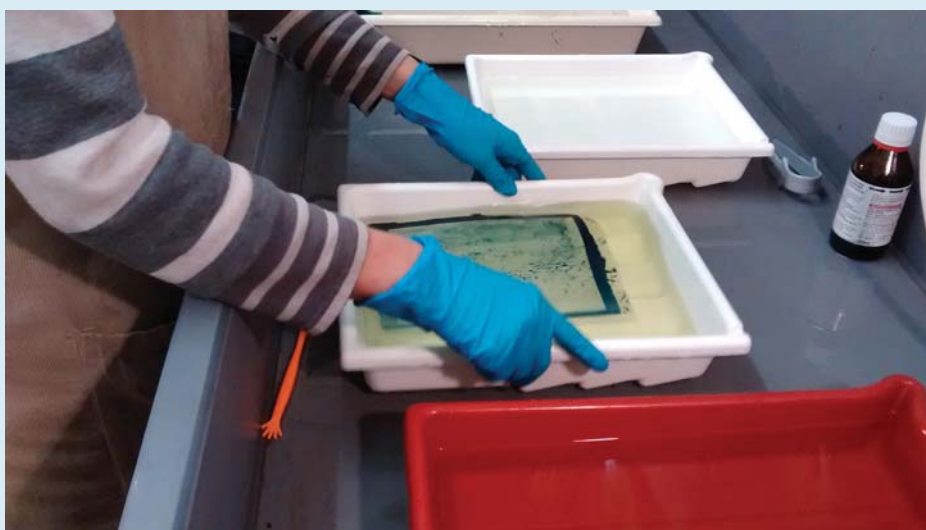
The next two presentations were self-reflective. The first was by **Nora Meller** (Royal Museums Greenwich) on her internship at the National Maritime Museum. She focussed on the interdisciplinary collaboration and the methods of documenting, condition assessing and preparing for storage and display that she learned during her internship. The second presentation by **Ann French** (The Whitworth Art Gallery, Manchester) connected personal self-reflection to professional change. As 2014 marked her thirtieth year in conservation, this was a good opportunity to reflect on how the profession has changed during the last thirty years and how professional and personal events have impacted on her understanding of and attitudes towards conservation practice.

Where the day started with education for future textile conservators, it finished with a presentation by **Joan Kendall** (Textile Consultant at Hatfield House) on how she trained and managed volunteers for the textile conservation group at Hatfield House for almost forty years. Her account gave the audience a good and amusing insight into how she taught, managed and inspired the volunteers.

It was a very successful and interesting day for people at any stage of their textile conservation career. Afterwards there was a great opportunity to catch up and discuss the day over a glass of wine.

Yoko Hanegreefs

Levy Textile Conservation Intern
National Trust Textile Conservation Studio



Sayaka Fukuda washing a cyanotype print



Cyanotype images developed by Judith Lee

WORKSHOPS

CYANOTYPES

Icon Book & Paper and Photographic Materials Groups
London March 2015

On March 26 **Constanza Isaza Martínez** of Lux Darkroom (www.luxdarkroom.co.uk) welcomed eight attendees to her studio for an evening workshop on cyanotypes. She, along with colleague Melanie King, founder of the London Alternative Photography Collective*, provided excellent, hands on, introduction to the cyanotype process.

Invented in the 1840s by Englishman Sir John Herschel, cyanotypes use light-sensitive iron salts to form blue photographic images. Since the chemicals involved have a low level of toxicity it is an excellent introduction to photographic printing.

Like the majority of the participants I'm a photo developing novice but the small group and approachable teaching style quickly put me at ease. After an overview of the chemistry involved, everyone was given the chance to coat a variety of papers with the light sensitive material. Several students brought their own handmade paper and

Constanza was very excited to have other 'paper nerds' in the studio. In addition to Fabriano Artistic, the paper she frequently uses for workshops, she also provided Zerkall Extra Smooth and Zerkall Hammered as well as a variety of Japanese papers for us to experiment with.

Participants were each given two negatives made from images they had submitted – a nice touch, giving the workshop a personal feel. The coated papers were exposed to UV light in a special vacuum unit. Since each exposure took 800 seconds there was plenty of time to ask questions and observe as the exposed images were developed. The images could be left a vibrant blue or could be toned using baths of black or green tea.

As a photographic conservator this workshop was very useful, providing me with a deeper understanding of how the images were made. Given that Lux Darkroom works with a variety of different processes including Vandyck brown, salt and albumen printing I hope that Icon runs more workshops like this.

Elspeth Jordan

Photograph and Paper Conservator

*(<https://londonalternativephotography.wordpress.com/>)

UNDERSTANDING TAPESTRY

Icon Textile Group
Lincoln March 2015

In March a group of textile conservators gathered eagerly at the Heritage Skills Centre, Lincoln Castle, to learn more about the processes of tapestry weaving. Most, if not all of us, had some experience of working with either historic or more modern tapestries but little to no hands-on experience of how they would originally have been woven, so the two-day course promised to be enlightening and challenging in equal measure. We were not disappointed in either respect.

Our tutor for the two-day course was **Caron Penney**, Master Weaver, formerly Tapestry Studio Director at West Dean, and founder of the 'Weftfaced' tapestry workshop. Caron was ably assisted by **Katharine Swailes**, also a Master Weaver with West Dean. The course started right at the very beginning (a very good place to start), with warping up a simple weaving frame, including guidance on warp count, tension and other considerations that we were able to recognise from 'the other side' of the process. Caron and Katharine were endlessly patient as most of us became quickly befuddled over slip knots and other things which had looked so easy in the demonstration, and everyone was soon ready to begin weaving.

The content of the course aimed to introduce techniques for forming shapes and creating shaded effects, working from both the front and the back of a tapestry. All materials were included and each weaver took away a sample to proudly show their friends and families at the end of the two days. Some even took home their frame, so keen were they to carry on practising their new skill.

We began by weaving a simple diagonal shape, then blocks of colour to practise how to deal with slits – single interlocks, double interlocks and sewing up slits (something that I think we all felt comfortable with!). Helped on by Caron's relaxed, learner-driven style of teaching – where each new weaver progressed at their own pace and new techniques were introduced and demonstrated as and when the group were ready to move on (or even repeated more than once, if some sections of the group progressed faster than others) – the first day passed in no time at all, and the 'home-time bell' was only rung when it looked as though we might be locked in to the Castle overnight.

Day two continued in the same relaxed style, this time with the more complicated shading techniques – hatching, hachures, the demi duite and blending. These required more concentration, with a number of us committing that cardinal weaving sin: falling



The participants on the Back to Basics 'Understanding Tapestry' course



Abigail Tyler on the 'Understanding Tapestry' course

'out of shed'. Nevertheless, all mistakes were greeted with good humour; such was the friendly atmosphere between participants and tutors.

As the afternoon of the second day drew in, weavers were invited to view the tapestries from Doddington Hall, which are currently being conserved at the Heritage Skills Centre. This was a real treat for those who had not seen these tapestries before, but equally beneficial for those of us more familiar with them, as we looked at the techniques used by the 17th century weavers with new eyes and, I think it's fair to say, even greater respect.

The second day was rounded off with that

staple of textile conservation – tea and cake – and a chance to view each others' work. Considering that we all worked with the same basic structure and techniques, the variety introduced through colour choice and individual styling was extraordinary.

The course was very memorable and utterly fascinating. The practical skills we learned will, I'm sure, help enormously in our work with tapestries as Conservators, giving us a new level of appreciation and understanding of these very special works of art. In addition though, I found spending two days immersed in a new craft skill, in the company of like-minded people immensely enjoyable. I hope very much that it is an experience I will be able to repeat in the future.

Leah Warriner-Wood

Conservator, WHConservation & Lecturer, University of Lincoln

TALKS

A NEW TECHNIQUE FOR WASHING ARTWORKS ON PAPER

Independent Paper Conservators' Group
London March 2015

This talk was given by **Nicholas Burnett**, ACR, Chief Executive/Chief Conservator of Museums Conservation Services Ltd. He focused on the problems associated with the aqueous treatment of multi-layered objects and what we can do to alleviate them. Works such as Chine-collé, (India Laid), paste boards and other works with secondary supports are prone to blistering, bubbling and partial or complete delamination during washing.

Problems can emerge from their layered composition, poorly adhered layers or the lamination of papers of various degrees of porosity which can react in unfavourable ways when washed. Multi-layered objects are prone to stresses which can be caused by differential expansion and contraction of the layers. Added to this mix, gases can become trapped between the layers forming

bubbles. These bubbles are potentially damaging. Bubble development and pressure build-up can happen quickly, as the bubbles form at nucleation sites within the paper, potentially leading to unwanted stretching, rupture and tears.

Chine-collé prints, it was emphasised, are complex works to treat. These prints are traditionally made of a thin Oriental paper adhered overall with adhesive to a heavier Western plate paper (which is more porous and contains more air) and run through a roller press during printing. The forces of the press can push the ink through the top sheet into the backing paper creating an additional bond which can interfere with separation, should it become necessary. If removing the print paper from the plate paper becomes necessary due to the formation of bubbles or de-lamination during aqueous treatments, then re-assembly in the precise original position can be a challenge. Clearly it is far better to avoid being in such a position by preventing the problems rather than rectifying them.

So gas is a problem during washing which we want to eliminate; but where is it all coming from? Surprisingly paper can have as much as 70% air positioned within its recesses and voids. Gases are also dissolved in tap water. Indeed, water fresh from the tap is supersaturated with gas. What happens with this gas when we wash multi-layer papers? Most of it is displaced by water. The passage of water through different papers is very complex but essentially air can become trapped within paper or can come out of solution forming bubbles within the paper.

Nicholas has found ways to minimise the potentially damaging gas. The first way is to displace the air within the paper by filling the paper voids with Industrial Methylated Spirits by saturating (immersing) the print before aqueous treatment. The second is to use de-gassed (de-aerated) water during treatment. The prints are initially floated, to allow air to escape, and then washed by immersion. Washing face down was also trialled.

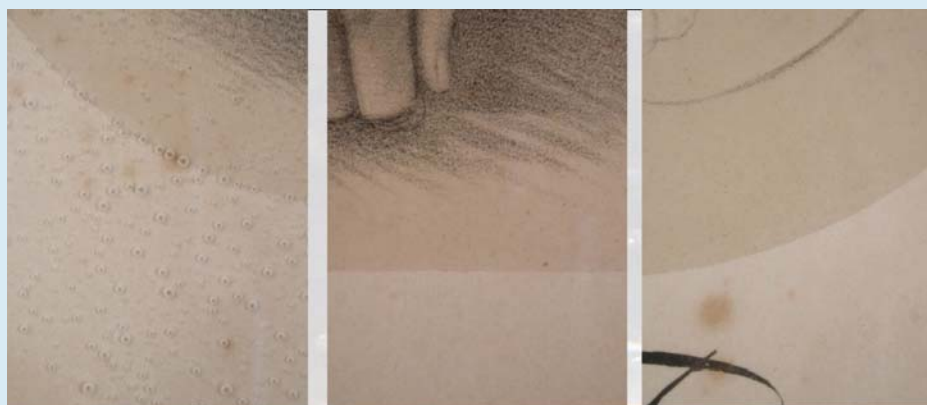
There are various methods available to degas water. The most simple is boiling water for five to ten minutes in a kettle, as gas becomes less soluble as the water temperature increases. The 'Burco' boiler can be used for larger quantities. Once boiled, the water must be left to cool. The water should not be stirred and, if placed in a completely full, sealed container, can be stored for several months. Other methods of degassing include vacuum degassers and ultrasonic degassing. Freezing can also be used as the gas is forced out of solution with freezing, however, this is a slow method. Vortex degassing and using a hydrophobic membrane were also mentioned. Combining methods, such as bubbling with nitrogen



Print fragment donated for testing

Museum Conservation Services Ltd

Illustrations from Nicholas Burnett's talk



Normal tap water
(detail)

Prewetted in IMS and
immersed in tap water
(detail)

Degassed water (detail)

Museum Conservation Services Ltd

and then boiling will produce very low levels of dissolved gas.

Practical experimentation included comparing techniques using a large group of Chine-collé prints. This showed that tap water gave the worst results whereas pre-wetting with IMS and using degassed water gave the best. In contrast, washing face down did not give an advantage for these prints. Videos showing how the plate paper wetted quickly compared with the print paper demonstrated why this was so.

Nicholas also expressed his need for a large group of homogeneous Chine-collé prints for further testing. When assessing a multi-layered work before treatment, he explained, by gently flexing the sheet one

can check for localised adhesive layer failure. One interesting observation was that re-washing after drying produced significantly worse results. This was probably due to the shearing forces that can be created during drying and which can be reduced by slowing the drying time and ensuring both sides dry at the same rate. This is simply carried out by sandwiching the works between blotting paper. It was also noted that paste, ink, mould or damage will affect the permeability when washing.

To avoid bubbles etc when carrying out subsequent wet treatments Nicholas suggested either non aqueous de-acidification or aqueous de-acidification via a suction table, or using, of course, a de-

gassed water solution. For sizing, using a suction table was recommended.

If air is largely removed from the artwork and water before washing, the problems associated with washing these multilayered works can be alleviated. The air can be displaced from the paper by IMS and the water degassed by any of the methods mentioned. Another simple tip suggested by Nicholas was that if you do not have degassed water, you can leave tap water to stand overnight to allow the level of dissolved air to fall until it is no longer supersaturated; it's better than using water straight from a tap.

Interestingly, research has shown that highly degassed water (gas levels of 1ppm) allows oil and water to mix. This could have potentially great benefits for conservators; facilitating for example, the removal of grease stains or finger prints from photographs without the use of solvents or surfactants and enabling more effective washing for numerous types of artefacts.

Following the talk there were some interesting questions from a packed room relating to the practical aspects of washing. During the washing procedure Nicholas explained that he pre-humidifies the artwork, and after the initial float washing the item is immersed in the de-gassed water, sometimes using glass rods to hold the item down.

Julie Fitzgerald ACR

Independent Paper Conservator.

The next Independent Paper Conservators Group lecture, given by Catherine Rickman ACR FIIC & Clare Reynolds ACR, will be on November 24 2015. The title is the Conservation of the cartoon for 'The Meeting of Wellington and Blücher after the Battle of Waterloo' by Daniel Maclise, from the Royal Academy of Art's Collection. For more information about the IPCG please contact Laila Hackforth-Jones: laila.hj@blueyonder.co.uk

THE CONSERVATION AND ANALYSIS OF SOME PAINTED STONES

Vicky Garlick MA of Conservation Services, Durham University, discusses work on stones from the Bishop's Manor House in Darlington

Introduction

In August 2014 approximately two hundred and fifty pieces of building stone with roll moulding, keel moulding and painted decoration were recovered from the site of the Manor House of the Prince Bishop of Durham in Darlington during excavation by Archaeological Services.

The Manor House was built towards the end of the 12th century along the banks of the River Skerne and was the Bishop's residence when administering his lands in the south of County Durham. Due to lack of use by the Bishop it quickly became an estate office and lodgings for members of royalty and aristocracy when they were passing through the district. Part of the manor house was damaged during the 17th century civil war, later rebuilt by Bishop, John Cosin, then at the start of the 18th century it was converted into a workhouse.

The stones received for conservation work were found as part of the foundations for the workhouse, and out of the two hundred and fifty that were recovered, only six were found to have a significant amount of plaster, whitewash and painted decoration on them.

Treatment

Although there was obvious dirt coating the surface of the painted stones, the actual stonework required little attention. The stone itself was stable and a stiff bristled brush was able to dislodge the majority of the loose surface dirt. For those areas where the dirt was thicker and had adhered to the surface, they were dampened using a 50:50 ethanol/distilled water solution, while the dirt was removed gently using a scalpel.

Before the hydrogen peroxide treatment



The stones in situ

Areas where the mortar was still attached were incredibly friable; as they required more care, they were gently brushed to remove surface dirt. The mortar was then consolidated using a 6% Paraloid B72 in acetone solution, which was applied both by brushing onto the surface and injecting into cracks in order to increase penetration.

There were three layers of painted decoration on the stones: a white plaster layer, the original decoration and a whitewash layer. This was treated using a 25:75 solution of distilled water/ethanol on cotton wool swabs to safely remove the surface dirt without removing any of the pigment layers.

There were several areas of green organic staining on the surface of the stones, most likely derived from algae infestation; the worst areas were on the painted decoration of the stones. Attempts were made to remove this staining using the ethanol and distilled water solution, however this only removed the surface material and not the underlying staining. A 2% hydrogen peroxide in distilled water solution was applied locally to the areas of staining using a small soft brush. The areas were then rinsed using pure ethanol and blotted with an absorbent soft cloth. This treatment successfully removed the surface staining without causing damage to the stone or pigments. To prevent future surface loss, the painted decoration was also consolidated using the 6% Paraloid B72 in acetone solution, which was applied with a small soft brush.

After the hydrogen peroxide treatment





Analysing pigments

Analysis

To aid possible provenance and evidence of the age of the painted decoration, the surface pigments were analysed. Samples of the pigments, approximately 1mm³ were removed from the surface of the decorated areas on the stones in order to place them in the scanning electron microscope (SEM, Hitachi TM 3000 model) and determine their composition. The table below shows the pigment elements present.

Stone Pigment	Bright Red	Pale Red/ Pink	White	Buff	Black
24	Ca, Pb, Hg, Fe	n/a	Ca	Ca, Fe	Ca, C
56	n/a	n/a	Ca	Ca, Fe	n/a
146	n/a	Ca, Fe	Ca	Ca, Fe	Ca, C
156	n/a	Ca, Pb	Ca, Pb	Ca, Pb, Fe	Ca, C
202	Ca, Pb, Hg	Ca, Pb	Ca	Ca, Fe	C
221	Ca, Fe	n/a	Ca	Ca, Fe	Ca, C

All of the white samples contained calcium (Ca), typical for wall-plaster; the absence of sulphur (S) indicates a lime plaster (CaCO₃) rather than a gypsum plaster. The black pigments showed high concentrations of carbon, a commonly used material during the medieval period to create black pigments.

There were substantial levels of iron, as well as aluminium and silica in the buff pigment present on a number of stones, which may suggest that an iron rich clay was added to create the colour.

There were two main shades of red pigment; a bright red and a dark red. Both red pigments found only in small quantities beneath the over-paint had traces of lead (Pb) and mercury (Hg). This suggests that the red pigments are made from cinnabar (mercury sulphide, HgS), which was often extended through the addition of red lead (minium, Pb₃O₄). However the darker red pigment also had traces of iron (Fe) on the spectrum, which suggests an iron oxide such as haematite was added to create the darker shade.

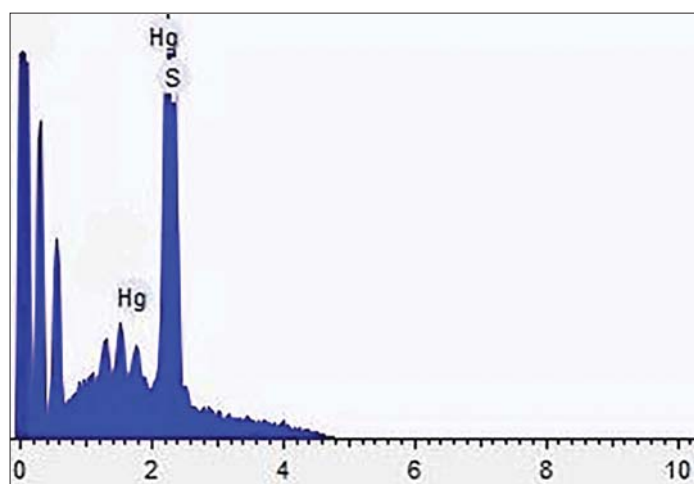
Conclusion

The traces of paint form a simple stone block pattern, which has been created over a white plaster layer and is the most common pattern seen in medieval wall painting. The pigments, such as carbon black, haematite, red lead and cinnabar, are consistent with a medieval date between the 12th and 17th centuries. The presence of cinnabar speaks of the quality of these wall paintings and the wealth of the Bishop of Durham, as it was mined and imported from Spain.

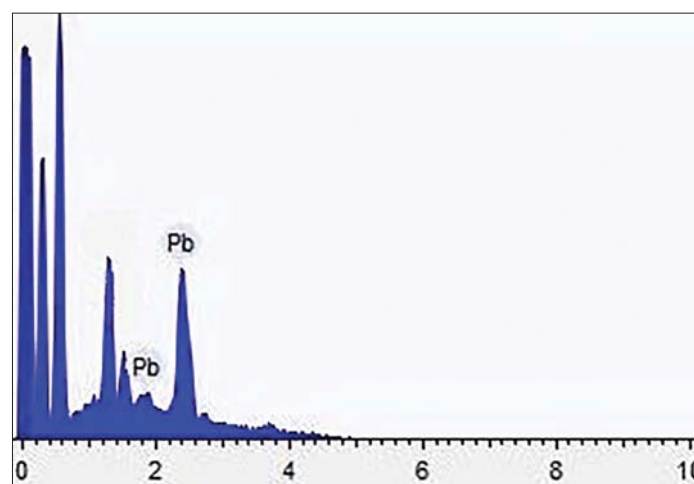
References

- Caple, C. (2007) Excavations at Dryslwyn Castle 1980-95, Society for Medieval Archaeology.
- Eastaugh, N. (2004) The Pigment Compendium: a dictionary of historical pigments. Oxford, Elsevier Butterworth Heinemann.
- Howard, H (2003) Pigments of English Medieval Wallpainting. London, Archetype.
- Ryder, P (2014) Worked Stones from Excavations on the Site of the Bishops' Manor House Darlington.
- <http://archaeosoup.com/what-lies-beneath-darlington-town-hall/>
- http://www.thenorthernecho.co.uk/history/10817042.Haunted_palace_in_the_mud/
- <http://www.workhouses.org.uk/Darlington/>

Mercury in the red pigments



Lead in the red pigments



the emerging conservator

PLANNING FOR AN EMERGENCY

Martha Infray, who has just completed an Icon internship at Norfolk Museums Service, commends the value of a practical course in emergency planning and salvage

Preventive conservation is the process that seeks to prevent, reduce or mitigate the effect of the factors that every day threaten an object's continued survival. However accidents do happen and dealing with an emergency becomes a necessity (fire at Uppark in 1989 and at the Glasgow School of Art in 2014, and flooding at Calke Abbey and at Coughton Court in 2007).

Emergency Planning (EP) is a crucial area of preventive conservation but is not always addressed properly. Every museum and institution should have an emergency plan containing information about their local emergency service, the location of keys, the location of salvage kits, phone



Putting on breathing apparatus

numbers of the emergency response team, grab sheets, and other useful information. Sometimes however, emergency plans are not up to date and people feel unsure about what they would actually do in a real life emergency situation; at least this is how I felt.

As part of my twelve months Heritage Lottery funded internship in Preventive Conservation at Norfolk Museums Service (NMS) I have been involved with EP, the writing of grab sheets and the updating of information but I felt I needed to attend a practical course which would give me an insight into all aspects of managing the salvage and first aid treatment of artefacts.

The Emergency Planning and Practical Salvage Course: Working with the Emergency Services is run several times a year at the West Midlands Fire Service Training Centre in Smethwick and I could not recommend it enough. It is presented by experts from English Heritage, the National Trust, the Fire Service and independent professionals. As you will read in the brochure: 'This is the ultimate preparation for

A handling exercise (how to carry paintings properly)



Above & below: a water exercise (how to direct flood water out of a building using ladders, ropes and tarpaulin)





The fire brigade getting ready for intervention



The fire brigade intervenes

dealing with any emergency. Anyone who is either expected to take charge of an emergency situation or participate in the salvage or protection of artefacts in case of fire, flood or other emergency will have the opportunity to practise in realistic conditions.'

During this three day course I learnt about knot tying, the safe use of ladders, managing water, efficient documentation, first aid treatment of collections, proper handling of objects, radio procedures, health and safety, flood prevention, the training of salvage teams, and successful human chains. To understand smoke layering, loss of vision and hearing, and the difficulty of a salvage operation, I and the other course attendees wore a fire-fighter kit complete with breathing apparatus and walked through Phoenix House, the replica historic house at the West Midlands Fire Service Training Centre, which had been set on fire for the exercise.

The highlight of the course for me, but also perhaps the most stressful time, was on Day 2, when we undertook the practical exercise. I volunteered to be the Recovery Team Coordinator. This means that my job for the day was to organise resources for the triage of objects, establish work stations, equipment and teams for wet recovery and dry recovery, ensure that all salvaged objects were treated, packed and labelled, and finally ensure that locations of objects were documented. I found that the following five points were critical:

- clear communication
- delegating
- remaining calm under pressure
- thinking fast

Getting equipment from the quartermaster



- listening to your team needs

I chose to volunteer as the Recovery Team Coordinator because as a conservator, this is what I would be expected to do during an emergency. I had a fair understanding about how I would deal with each material during the first aid stage of the exercise but I knew I was lacking expertise when it came to books, photographs and paintings. Having been trained as an archaeological conservator, my knowledge of all three disciplines is basic.

I was provided with a crafty A4 sheet that can be neatly folded and kept in your pocket which lists the steps which should be taken when administering first aid to artefacts made of different materials. For books, I learned that wind tunnels can easily be created with a fan, tables and polythene sheets for efficient drying of wet specimens. For photographs, I learned that they can be dried vertically suspended from a



The salvage team in action

Objects packed in crates awaiting drying treatment





A wet recovery assistant with appropriate PPE for drying a taxidermy specimen

line held by a plastic peg at the top, avoiding the image, and weighted down by another plastic peg at the bottom. For paintings, I learnt that you should always keep your hands still on the frame because if the frame is wet, the mouldings and gilding will be soft and sticky.

During the exercise, it became apparent that most of the objects arriving in the Recovery Area were wet, in fact there were only two dry objects! This meant that I had to act quickly to reorganise my space. Having to constantly reassess situations and wanting to ensure the safety and well being of my team meant that I was constantly walking through the Recovery Area to keep an eye on things. I advised a member of my team to wear appropriate PPE when he was given a taxidermy bird specimen to dry and ensured that everyone had breaks regularly.

It was an eye opener to work alongside the Emergency Services. They were very professional and quick to act and they managed to empty Phoenix House of all its contents in less than two hours, retrieving the priority objects first as instructed by the Salvage Team Coordinator. Having gone through the process of walking through a burning building myself, I now understand the hardships that fire-fighters go

A wind tunnel used to dry wet books



Inside the wet recovery area

through during a mission and as a result I felt greater respect and compassion for them.

I have gained enormously from this course and have since started to review our own EP here at NMS. I have also disseminated relevant information to my colleagues in both the Conservation Department and the Collections Management Department which have prompted discussions. What really struck me is how easily something can go wrong. Fire develops extremely quickly and flooding can be sudden; I am now much more aware of my surrounding environment and take every precaution to prevent both fire and flooding from happening (i.e.: switching off plugs, closing fire doors, asking about building maintenance and when the rainwater goods and drains were last checked).

The course has made me feel a lot more prepared and as a result I feel more confident knowing that I can 'do it'. I now have a greater understanding of what happens during an emergency and what roles people play (Incident Coordinator, Security Officer, Documentation Officer, Communication and Welfare Officer, Salvage Team Coordinator, Quartermaster, Recovery Team Coordinator, and the Press and Media Officer) without forgetting, of course, the importance of working with the Emergency Services. What I take from the course is how well we worked together as a team, how everyone gave 100%, and the sense of unity and common purpose that comes from taking part in an operation that everyone feels passionate about: in this case, the saving of our cultural heritage.

I would like to thank Icon and the Clothworkers' Foundation for covering the full cost of attending this course.

Wet recovery assistants at work



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