

# Glass News

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*Frontispiece: 1st-century cup with enamel decoration from Muralto, shown in exhibition at Avenches, AIHV post-Congress tour. © Jennifer Price*

Welcome to *Glass News* 39! The Autumn of 2015 saw the 20th AIHV Congress take place in Switzerland, from which the papers will be published in due course. We also had a very successful AHG study day *A Second Miscellany of Glass* in London. Many thanks to Caroline Jackson and Sally Cottam for organising it. Some of the speakers have agreed to write reports for future issues of *Glass News*. Both meetings are reported on inside.

The AHG has provided grants for research or to present research in glass history, and three of those diverse projects are reported upon in this issue: a study tour of historic glass in the USA, experimental bead making, and research on medieval window glass found in Scotland.

Future events include a joint study day with the Society for Glass Technology 'To make much better glass...' in April (see page 2). There are further meetings to look forward to listed, in Sheffield, Germany and France.

Useful websites are listed on pages 13–14, and thank you to those who sent details of their favourite Roman glass websites. Please send us your favourite multi-period glass websites for the next issue. A number of new books are listed, with a book review of excavations in London where interesting Roman and medieval glass was found.

The editors would like to thank this issue's contributors for their material; please continue to send anything you think would be of interest. We are always happy to receive long or short pieces about glass research or discoveries. We particularly urge students to keep us up to date with what they are researching. We also need people to write reviews of the meetings they have attended, AHG or otherwise; please contact one of the editors if you would be interested in doing this. See back page for contact details.

If you like to see the photos in this issue in colour, we can send a colour PDF version of this issue of *Glass News* on request TO MEMBERS AND SUBSCRIBERS. Please email one of the editors (see back page).

Subscriptions and memberships for 2014–2015 are due in **April**, and a form is enclosed to send with cheques to John Clark.

## FACEBOOK AND TWITTER

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## AHG SPRING STUDY DAY

**“To make much better glass ...”**

18th April 2016, 10.15–17.00

The Wallace Collection, London W1U 3BN

2016 is the centenary of the founding of the Society for Glass Technology. To mark this event this study day aims to consider how people at different times have handled the need to make much better glass. Glass has always been a complex material and making much better glass has demanded, amongst other things: investment; organisational change; improved raw materials; glassmaker training and education; new processes; and new furnace technologies. The presentations will examine some transformational changes that occurred in glassmaking prior to 1930 that each generated the capability to make much better glass, identifying the critical changes and the key people and organisations that made these happen.

The cost of the day will be £12 for students, £24 for members (AHG, Society for Glass Technology, or Friends of the Wallace Collection), or £34 for non-members. Lunch is not provided.

Please see [www.historyofglass.org.uk](http://www.historyofglass.org.uk) for the latest information. To book, email [ahgstudydays@gmail.com](mailto:ahgstudydays@gmail.com), or write to: Colin Brain, 10, College Street, Salisbury, SP1 3AL enclosing an SAE.

## AHG GRANTS

Grants are available from the Association for the History of Glass, for educational or research activities consistent with the Association's charitable aims. These could include, for example, attendance at a conference to present a lecture or poster, a study visit, fieldwork, or publication of scholarly works. There are no restrictions on who may apply or on the topics of applications, which will be judged on merit. Multiple applications in different years will be considered with individual awards up to £500. A list of grants that have previously been awarded can be found on the AHG website.

An application form may be downloaded from the website, or can be obtained from the Honorary Secretary, Denise Allen at 12 Birchy Barton Hill, Exeter EX1 3ET. Email: [denise\\_allen52@hotmail.com](mailto:denise_allen52@hotmail.com)

## AHG PRESIDENT'S PIECE

### Truth in Historical Glass Research

Recently I have been reminded of the difficulties of trying to establish the truth about how glass has been made and used throughout history. At the recent study day “Fragmentary Tales; a second miscellany of glass”, the papers presented many ideas that were new, or different; challenging commonly accepted views. If glass history is to remain a live subject it is important that such new ideas should become more widely known. I hope that there will be the opportunity to read more about them in the next issue of *Glass News*.

In *Glass News* 36, Professor Ian Freestone shared his critical views on Rosemarie Lierke's contribution to “New Light on Old Glass: Recent Research on Byzantine Mosaics and Glass”. Rosemarie has responded and asked the AHG to point readers to her past publications, including that in *AIHV Annales* 19, and her website ([www.rosemarie-lierke.de](http://www.rosemarie-lierke.de)) which provide more detail of her ideas and the evidence on which they are based. She would also like to point out that the review was incorrect to associate her with the suggestion of the use of clay pipes to blow glass. I invite interested readers to draw their own conclusions on these matters. Here I am more interested in the processes involved and the AHG's role in them.

So, is it more important to maintain a diversity of ideas that easily accommodates new approaches, or to build a common consensus that might act as a barrier to change? The answer has to be that both these facets are equally important. For example, through their effect on collection and conservation policies, century-old myths about English and Irish crystal glass may have permanently degraded the material record that we will pass on to future generations. Here, the lack of challenge to the consensus has been detrimental. Equally Ian's call for evolution, not revolution, in consensus building is very important. When interpreting the sparse archaeological record one has inevitably to make assumptions about the context in which things were developed and used. If there is no shared view of this context it becomes difficult to integrate disparate contributions and to move the subject forward – too little consensus is also bad.

We are not the first people to encounter this dilemma and I commend readers to Steven Shapin's book “A Social History of Truth”, which explores how such issues were handled at the dawn of the ‘Age of Reason’. Shapin draws attention to the role of independent arbiters, such as Robert Boyle, in helping to build consensus on ‘the truth’. But who should exercise such a role in glass history today? Looking back at the list of the worthies who started the AHG in 1977, few of their equivalents are now left, due to cuts and organisational changes.

Thus I think that AHG must have roles in both promoting and communicating new ideas and in helping to build consensus on ‘the truth’ in order to maintain a dynamic common context for further research. What do you think?

Colin Brain

## ERRATUM

The glass from Madinat al-Zahra on the cover of *Glass News* 38 was described in the caption as mould-blown, but – as kindly pointed out by Jennifer Price – the image shown was of a cut-glass beaker. Both mould-blown and cut-glass beakers have been found at the site. For comparison, I include below an example of each.

Chloë N. Duckworth



(a) Mould-blown glass, pale green. Madinat al-Zahra, Spain, second half of the 10th century AD. Madinat al-Zahra Museum. © Chloë Duckworth



(b) Relief-cut glass, colourless. Madinat al-Zahra, Spain, second half of the 10th century AD. Madinat al-Zahra Museum. © Chloë Duckworth

## CONFERENCES

### The 8th International Congress of the Association Française pour l'Archéologie du Verre (AFAV)

#### Glass in Western Europe AD 700–1600

5–7 December 2016

Besançon (France)



Archaeologists, historians, archaeometrists, restorers, glass professionals and enthusiasts will be gathering around a common topic: “Glass from the 8th to the 16th century in Western Europe”. The Middle Ages have been highlighted since the very beginning of the Association especially through the exhibition catalogue *À travers le verre, du Moyen Âge à la Renaissance* in 1989 and the conference proceedings *Le verre de l'Antiquité tardive et du haut Moyen Âge* in 1995. One must recognize that since then, no significant state-of-the-art overview has been published, an issue also noticeable at European level since the last relevant document is the exhibition catalogue *Phönix aus Sand und Asche. Glas des Mittelalters* published in 1988.

One must acknowledge that the increasing number of rescue and systematic excavations on medieval sites, and the democratization of new conservation methods have allowed a considerable improvement and renewal of this theme. However, as already stated above, the lack of comprehensive overviews is still greatly hindering local studies. Therefore, this congress intends to provide the opportunity to think about the significance of glass products in medieval societies.

The 8th century is an especially significant period for Western Europe, where new political, economic and

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cultural systems were flourishing. In this respect, for example, we have to ask ourselves what was the influence of the Islamic world on glass consumption in the Iberian Peninsula and beyond? Furthermore, in the northern part of the continent, the remains of the Viking trade emporia allow us to consider long-distance trades of glass manufactured goods. Whence did these luxurious objects, found in settlements and tombs of the Scandinavian elite, come from? And what about the Antique legacy in the Frankish kingdom? Finally, a major transformation of glass manufacturing occurs at the end of the 8th century in Western Europe, a manufacturing process which was previously largely dependent on Near Eastern raw material imports. The use of plant ash for glass making had necessarily an impact on the location of workshops, but also on the way they were functioning and the management of raw materials resources. Should we speak of a breaking point in the glass manufacturing process, or should we consider a gradual evolution from one process to another? Is there one prominent model in the overall area, or is it possible to identify local disparities?

From the High Middle Ages, glass has become increasingly important in various fields such as tableware, jewellery, architecture, lighting, optics and medicine. Is the only common denominator for the success of these objects their shared plastic properties: malleability, transparency and colorability? Or should we also take into consideration its symbolic value, especially in liturgical and funerary contexts? The use, meaning and value of such uncovered artefacts are not always well defined. Those social and economic markers have necessarily changed over time or can be subject to regional dissimilarities. In this regard it seems relevant to raise the possibility that glass is indeed a social marker. And, as such, glass artefacts need to be brought back in their historical context, connected back to territorial entities and populations, in order to question the socio-economic status of consumers and production sites.

If entirety is out of reach, this congress intends, however, to achieve an updated state of research. For this purpose, original works and thematic overviews, whether chronological or geographical, are expected on the subject of production, distribution and uses of medieval glass in Western Europe. Overcoming academic and national boundaries is also one of the primary objectives, in qualitative rather than quantitative terms, especially for the earlier periods which are more dependent on discoveries and their state of conservation. The 8th International AFAV Congress therefore wishes to highlight the progress in glass history but also to draw attention to the shortcomings of this theme, in order to give guidelines for future research on a material which has already proved its relevance for a better understanding of medieval societies. Submitted papers will be reviewed by a scientific committee.

Interdisciplinary approaches based on exploitation of archaeological, historic and archaeometric sources, and collaborations between researchers, will be favoured.

Call for papers: Proposals for oral and poster presentations in English or French to be sent by 1 March 2016 to [afav2016@mshe.univ-fcomte.fr](mailto:afav2016@mshe.univ-fcomte.fr).

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## **Society of Glass Technology Centenary Conference**

### **Glass – Back to the Future!**

Sheffield, 4th–8th September 2016

The Society of Glass Technology Centenary Conference (SGT100) in Sheffield will be a significant opportunity to review the state of glass in its widest manifestations - from the theoretical challenges of understanding the glassy state and the glass transition to the latest developments in the application of glasses in windows and containers, information technology, medical applications and waste vitrification, as well as the history and artistic applications of glass.

We are proud that the SGT100 meeting is also the 2016 European Society of Glass (ESG 2016) meeting - a meeting that traditionally has a strong industrial focus and thus we therefore look forward to a conference that brings people from all parts of the glass community together.

Plenary and keynote talks, invited talks, contributed papers and poster sessions will cover all aspects of glass science, technology, manufacture, engineering, art, archaeometry and heritage. Topics will be addressed within five key themes: Fundamental Glass Science; Applied Glass Science and Technology; Glass Industry, Manufacture and Applications; History, Heritage and Archaeometry of Glass; Glass Art and Craft

Please visit the Conference website, <http://www.esg2016.eu/> for detailed information on each theme and session topics; and the list of Keynote and Invited speakers.

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## **Glass Meetings in Germany 2016**

In Germany, Archeoglas will be visiting the Roman Villa Borg from May 20th–22nd 2016 to continue their experimental archaeology ‘Borg Furnace Project’: [www.archeoglas.de](http://www.archeoglas.de)

The German glass history group GlasTag will be holding their annual meeting at Augusta Raurica, Augst in October 2016. See website for updates and details: [www.glastag.de](http://www.glastag.de)

## MEETING REVIEWS

### AIHV20: The 20th Congress of the Association Internationale pour l'Histoire du Verre

The 20th triennial Congress of the Association Internationale pour l'Histoire du Verre (AIHV) took place in Fribourg, Switzerland, from Monday 7 – Friday 11 September, with optional post-Congress tours on 12 and 13 September. The organizing committee, comprising Anne de Pury-Gysel, Erwin Baumgartner, Sylvia Fünfschilling, Stefan Triümler and Sophie Wolf, presented 253 participants from 33 countries (Fig. 2) with a rich and varied programme of papers, exhibitions and hospitality. The Congress was held at the University of Fribourg Miséricorde. Built between 1937 and 1941, the attractive campus was designed by Denis Honegger and Fernand Dumas (Fig. 1). During refreshment breaks, the sunny weather enhanced participants' enjoyment of the delightful landscaped setting.



Figure 1: University of Fribourg campus. © Suzanne Higgott

The lecture programme, comprising approximately 100 papers, was arranged for the most part into two parallel sessions (A and B), with the addition of a third session (C) on the Thursday. Papers on glass from the second millennium BC to the early Islamic world were given in Session A, while Session B covered glass from the medieval period to the 20th century. Session C concentrated on papers on technological and scientific studies of glass of all periods. Four keynote speakers provided overviews of the state of work in their respective areas of expertise: Marie-Dominique Nenna on 'L'étude du verre antique. État de la recherche'; Ian Freestone on 'The scientific analysis of early glass: achievements and prospects'; Anastassios Antonaras on 'Glass in Byzantium. Finds, facts and some thoughts' and Danielle Foy on 'Entre Orient et Occident, le verre

islamique (VIII<sup>e</sup>–XIII<sup>e</sup> siècles: apports récents et réflexions sur les échanges et les influences'.

20th Congress AIHV : 253 Participants  
33 Countries

1	Algeria	26	Germany	5	Russia
2	Australia	3	Greece	1	Serbia
3	Austria	1	Hungary	3	Slovenia
1	Belarus	8	Israel	1	Slovakia
13	Belgium	21	Italy	1	South Korea
6	Croatia	8	Japan	2	Spain
9	Czech Republic	1	Luxembourg	51	Switzerland
1	Denmark	1	Poland	5	The Netherlands
1	Egypt	6	Portugal	4	Turkey
1	Finland	1	Qatar	24	United Kingdom
26	France	2	Romania	13	USA

Figure 2: Diversity of participants at 20th AIHV Congress. © Jennifer Price

The range of contributions in the early glass sessions was very wide and some excellent material was presented. As always, there was a marked concentration of research on Hellenistic, Roman and Byzantine glass, some dealing with large and complex projects and others with the study of a single vessel. A personal favourite was a detailed and well-illustrated lecture about the conservation, reconstruction, careful examination and scientific investigation of an old find of a cage-cup from Tarranes (Macedonia), but there were very many others with equally splendid new information. Overall, the contributions in Session A highlighted the strength of new research in France, Israel and Italy and the development or re-emergence of interest in glass studies in countries such as Turkey, Germany and Egypt.

The organizing committee had been keen to increase the number of art historical papers on glass of the early modern period and later, to give these areas stronger representation than they have had in recent years. They achieved this. In some cases, aspects of a subject were reflected in two consecutive papers. This was the case for Project Cristallo, a research project on Venetian Renaissance enamelled glass (Fig. 3). A paper by Françoise Barbe and Fernando Filipponi on the provenances of some of the glasses being studied was followed by a paper on analysis results by Isabelle Biron, Marco Verità, Françoise Barbe and Rosa Barovier Mentasti. While it is difficult to select individual papers for special mention, Kitty Laméris's cutting edge analysis of the evolution of *vetro a filigrana* resulted in a fascinating contribution on 'Dating *filigrana* glass' and Tara Desjardins, a PhD candidate at SOAS who is studying Mughal glass (and who spoke at the AHG study day on 15 June 2015), presented a paper on an unusual subject, 'A collection of 18th-century Indian glass case bottles'.



Figure 3: Some of the participants in Project Cristallo enjoying drinks at the castle in Romont, home of the Vitromusée. Left to right: Aurélie Gerbier, Isabelle Biron, Fernando Filippini, Marco Verità, Françoise Barbe and, kneeling, Dora Thornton. © Suzanne Higgott

Approximately 80 posters also provided additional opportunities to find out about recent research on a wide range of topics.



Figure 4: Display about reverse painting on glass from Romont. © Suzanne Higgott

The scientific programme was complemented by visits. On Monday evening participants enjoyed a private view of an exhibition of Roman and other locally excavated glass at the Archaeological Service of the Canton of Fribourg (SAEF), picturesquely located near the river.

The Wednesday excursion to the Vitromusée in the historic walled town of Romont, dramatically situated in a green valley almost silent but for the jingling of cow bells, was a highlight of the Congress. The Vitromusée

occupies the former castle site, but there is also interesting glass beyond the castle walls, in the form of important stained glass in nearby churches. At the Vitromusée, Erwin Baumgartner had curated a magnificent exhibition on Venetian Renaissance glass from Swiss public and private collections. This provided an invaluable opportunity to see examples of Swiss *façon de Venise* glass production, including fascinating archaeological material. In the un-commentated film accompanying the show, William Gudenrath demonstrated some Venetian glassmaking techniques. Erwin Baumgartner's excellent catalogue, *Reflets de Venise: Verres des XVI<sup>e</sup> et XVII<sup>e</sup> siècles de collections suisses*, Bern 2015, is an enduring legacy of this landmark exhibition. It would be wonderful if the film could also be made more widely available. The Vitromusée Romont is also home to an exceptional collection of reverse painting on glass (Fig. 4) as well as workshop spaces. Participants were fortunate to be able to watch demonstrations by William Gudenrath and a stained glass maker. The hospitality included musical entertainment in the courtyard and a delicious buffet supper.

The ICOM glass group held their GLASS General Assembly, chaired by Reino Liefkes, during the Congress, on 8 September, and the ICOM glass group had a visit to see glass collections in Zurich on 14 September.



Figure 5: 4th-century cameo bowl with hunting scene from Stein an Rhein, Avenches exhibition. © Sue Hardman

The two days of post-Congress tours enabled participants to explore Swiss collections more extensively. The excursion on 12 September went to the Latenium in Neuchâtel, the largest Swiss archaeological museum, and Avenches, the capital (Aventicum) of the Helvetii, for a tour of the Roman town and museum, with a very good special exhibition "Fragile. Verres Romains" which showed the finds from the early glass workshop and other glass from Aventicum as well as some special pieces

from other museums in Switzerland (Figs 5–6 and Frontispiece). On 13 September participants went to Geneva for a tour of the Ariana Museum, with special exhibitions on Saint-Prex glass and recent work by Anna Dickinson, followed by a visit to the Museum of Contemporary Design and Applied Arts (Mudac) in Lausanne. From first to last this was a hugely enjoyable Congress.



Figure 6: Opaque blue globular jug with trefoil mouth (1st century) from Muralto, Avenches exhibition. © Jennifer Price

The publication of the *Annales* of the 20th Congress is scheduled for late 2016/early 2017. It will include submissions from both the oral and poster presentations. The 21st Congress is planned to take place in Istanbul in Turkey in 2018.

Suzanne Higgott  
Jennifer Price

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## AHG Autumn Study Day 20th November 2015

### Fragmentary Tales: A Second Miscellany of Glass

This study day held at the London Archaeological Archive and Research Centre encompassed all periods of glass history, proving very popular, as was the original ‘miscellany of glass’ study day two years previously. It opened with Sally Cottam (UCL) describing some stunning glass from a rich 2nd-century burial at Kelshall, Hertfordshire. This was a preliminary report on the extensive range of glass tableware, including some mosaic glass, and bottles from a cremation burial found by metal detectorists in 2014.

This was followed by Jennifer Price (University of Durham) considering the late Roman hemispherical bowl

with a wheel-cut Bacchic frieze from Colliton Park in Dorchester. Intriguingly, this and a number of other Roman glass vessels appear to have been deliberately divided into two halves by cutting down the middle, and the reasons for this phenomenon were discussed.

Another Roman site was presented by Stephen Cockings and Elizabeth Sayer, in Manton Lane, Bedford. Despite Roman villa sites apparently being very sparse in Bedfordshire, this site was remarkably discovered to be very high status, including having the only known example of free-style low relief stucco work in Britain. The majority of the glass was window glass, which has been chemically analysed, suggesting a late date.

Justine Bayley (UCL) presented some preliminary research on medieval glassworking waste from Kirkstall Abbey on the edge of Leeds, including crucible sherds and glassy waste, with a useful overview of the problems associated with analysing glassy layers from crucibles, and the contamination of window glass with lead during on-site recycling. The window glass was thought to have been made on site no later than the 14th century, and recycled in the 16th century. Jacqui Pearce (MoLA) gave an exciting presentation on 16th- and 17th-century glass from the Embroiderers’ Hall in the City of London and Tanner Street in the lower status area of Southwark, both of which had plenty of stunning drinking vessels of Venetian/*façon de Venise*, Low Countries and English origin. The large number of urinals found at the Embroiderers’ Hall was also intriguing.

Some ‘glass beads in the north’ from sites along the A1 road-widening excavations were shown by Elizabeth Foulds (Northern Archaeological Associates), with particularly interesting Roman glass finds from *Cataractonium* fort, Catterick, and the associated cemetery at Bainesse, including an unusual large disc-shaped polychrome decorated bead.

A much later site, Hungate in York, was discussed by Karen Weston (York Archaeological Trust), where 19th-century wine bottles were found in pits in this very poor area, but other glass finds, as well as those of other materials, were notable by their absence. This raised the issue of how later post-medieval glass should be viewed not only from the perspective of the vessels themselves, but in the context of who used it, and how it was used or recycled in the community.

The first presentation of excavations of a 17th-century glasshouse at Stourbridge by Kate Churchill (Nexus Heritage) and Vanessa Castagnino (University of York) was notable. The glasshouse was built in the 1690s and collapsed in 1785, providing a superb opportunity for archaeological evidence of one of these cones. The arrangement of the furnaces inside was interesting, and finds from the site were brought for examination by participants at the end of the day.

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A fascinating study of coloured glass inlays in 5th- to 7th-century jewellery from Kent was given by Walter Jo Ahmet (UCL), and the potential of portable XRF and digital microscopy to distinguish between red glass and garnet inlays, which appear similar to the human eye. The reason for the mixture of glass and garnets was debated, whether the glass replaced lost garnets, or whether the two materials were chosen to give more variety in the brightness of the jewellery.

Participants were invited to bring along glass finds for general viewing, and as well as the Stourbridge glass, there was some fascinating glass from Dublin brought by Antoine Giacometti, and huddles of people discussing their mystery glass objects around the room. It was a very informative and enjoyable day. Many thanks to Caroline Jackson and Sally Cottam for their excellent organisation, and Dan Nesbitt and all those at MoLA who made it successful.

Rachel Tyson

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## AHG GRANT REPORTS

### The Glass Circle Study Tour U.S.A. May 2015

Rebecca Wallis

Curator, Ceramics and Glass, Victoria and Albert Museum

An enthusiastic group of twenty Glass Circle members gathered in Dearborn, Detroit, on Tuesday 12th May to begin the U.S.A. study trip organised by Chairman John P. Smith.

Our study of American culture started promptly the next morning at the nearby Henry Ford Museum. Named after its founder, the noted automobile industrialist Henry Ford (1863–1947), the museum and associated Greenfield Village fulfils Ford's desire to preserve items of national and international significance and in particular represents the industrial and technological innovations from the 17th century onwards. Of specific interest were glass ribbon manufacturing machines (for making machine-blown glass ornaments), collections of American glass and the Liberty Craftworks Glass Studio. We were privileged to be given a tour of the studio by Josh Wojick, who, with his team, creates glass based on historical American designs. That evening we had a private view of Habatat Gallery's 43rd International Glass Invitational Award Exhibition in Detroit. Gallery owners Ferdinand and Corey Hampson were wonderful hosts and it was a fantastic opportunity for us to see the largest contemporary glass exhibition in America including work by artists such as Dale Chihuly, Peter Bremers and Judy Chicago.

On the Thursday we were welcomed by Jutta Page, Curator of Glass and Decorative Arts, to the Glass Pavilion at Toledo Museum of Art. From the founding of the museum in 1901, Toledo was already known as the Glass City due to the concentration and innovative glass industry based in and around the area. Jutta also explained that contemporary glass has a strong connection with Toledo as the Studio Glass Movement began in the grounds of the museum. The museum

continues to acquire outstanding glass for the displays, both in the glass pavilion, opened in 2006, and alongside fine arts in the main museum building. One recent acquisition that Jutta showed the group was a stunning spiral form chandelier made in 1810–11 for Brunswig Castle, the summer palace of Napoleon's brother, Jérôme Bonaparte (1784–1860). The makers Werner & Mieth, Berlin, considered it to be the most beautiful chandelier they created. Its design may be attributed to the archaeologist and theoretician Hans Christian Genelli (1763–1823), as it relates to a drawing in which he 'dissects' the volute shapes of a classical Ionic column.

Our visit to Toledo included a chance to see the Tiffany & Co. stained glass windows in the First Congregational Church. Taken from an earlier church, the pews and eight Tiffany & Co. stained glass windows of the 1880s, in a high Arts and Crafts style, were incorporated into the 1913 building along with new commissions. Tiffany's windows are known for their jewel-like layered construction and re-enforced copper leading, allowing for greater depths of colour and scale. Louis Comfort Tiffany was so proud of these windows he was said to bring prospective clients all the way from N.Y.C. to view them *in situ*.

A short flight took us to Corning, New York State for the next 3 days - no study tour would be complete without taking in this important centre of glass making. Much of the visit centred on the world-renowned Corning Museum of Glass (CMOG) starting with the private view of *Ennion and His Legacy: Mold-Blown Glass from Ancient Rome*. We were given an informative tour of this stunning show (on until 4 Jan 2016) by Karol Wight, President and Director of



CMOG. The museum cares for and displays the world's best collection of art and historical glass so our schedule was extremely full and definitely rewarding. Rebecca Hopman and Beth Hylan took us behind the scenes at the Rakow Research Library and Archive to see treasures such as glass designs, documents and rare books. It was a wonderful to see items rescued from the Corning floods of 1972 including a copy of the *Mappae Clavicula*, a 12th-century Latin manuscript that presents more than 200 recipes for making various substances used in the decorative arts. This was followed by a tour of the exquisite European glass collections in the museum with Curatorial Assistant Alexandra Ruggiaro. Key recent acquisitions include Venetian glass, showstopper English candelabra and French furniture.

In March CMOG opened its new Contemporary Art + Design wing and Kris Wetterlund, Director of Education and Interpretation, took us around what is now the world's largest space dedicated to the display of contemporary art and design in glass. The new wing features more than 70 works from the Museum's permanent collection, including recent acquisitions and large-scale works that have never before been on view. Thematically curated galleries, located around a central structure shaped in the form of Alvar Alto's iconic 1930s bowls, highlight objects that refer to nature, the body, history and material. Artists represented by large-scale works include Tony Cragg, Katherine Gray, Stanislav Libenský and Beth Lipman to name but a few.



*William Gudenrath demonstrating glass working techniques. © Rebecca Wallis*

We were also treated to a glass making demonstration by CMOG's expert glassblower, scholar, lecturer, and teacher William Gudenrath. An authority on historical hot glassworking techniques from ancient Egypt through to the Renaissance, William has presented lectures and demonstrations throughout the world and contributed to numerous academic publications. On Sunday Jane Spillman, former Curator at CMOG, also showed us the important American glass collections including the development of mechanical press-moulding, Corning's cut-crystal and the Carder Collection of glass designed by Frederick Carder (1863–1963) - a gifted English designer who started his career at Stevens & Williams before managing the Steuben Glass Works from its founding in 1903 until 1932.

A coach journey through upstate New York took us to the Brooklyn Museum. The group was given special access to the galleries and collections with Edward Bleiberg, Curator, Egyptian, Classical, and Ancient Near Eastern Art and Barry R. Harwood, Curator, Decorative Arts. We were able to examine glass in the stores much of which is in the process of being catalogued and made available for research on their website.

The final study visit was to the Metropolitan Museum (Met). Curator Elizabeth Cleland took us behind the scenes to see up close a selection of glass from the fifty thousand objects in the Museum's comprehensive and historically important collection of European sculpture and decorative art. Of particular note was a glass monteith of 1700. This is the Met's earliest example of flint glass and is engraved with the arms commemorating the marriage of William Gibbs of Horsley Park, Essex, and the heiress Mary Nelthorpe. It is inscribed with the name of the groom and moralizing inscriptions in Italian, Hebrew, Slavonic, Dutch, French, and Greek (such as "Fear God and honor the King" in the main panel). A tour of the galleries followed with time spent in the Wrightsman Galleries for French decorative arts, the Lehman Collection and the American Wing with stunning daylight exhibits of 17th through to 20th-century American glass. The Met also has an extensive reserve collection part of which can be seen in their open stores within the museum.

I would like to thank the Association for the History of Glass for contributing funds to allow my participation in this study trip. It was enormously rewarding and has given me opportunities for introductions and discussions with eminent scholars and professionals, and promises to increase my specialist knowledge of and engagement with the glass collections under my care.

*A full account of this trip has been published in the newsletter of the Glass Circle.*

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## The making of, and demonstrating with, an ancient glass bead furnace

Julie Anne Denton

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The following practice-led research undertaken was made possible by a small grant from the AHG and involved building and using an ancient bead furnace at the Luxembourg Glass Symposium. In 2007 I created the replica of a 52-bead Viking necklace in glass, amber, jet and faience. It was found in the 1980's when an archaeological dig was conducted at Peel Castle in the Isle of Man. The archaeologists also unearthed the remains of a female buried with a number of grave goods. This woman, who is now referred to as the Pagan Lady, is deemed important due to her burial position, and the quality of the goods interred with her. The necklace is conjectured to have been hers.

As Manx National Heritage were creating their new Viking gallery in the Manx Museum, they had all the articles of significance remade. This included swords, jewellery and clothing. My role in the project took three months of careful measuring, colour matching every bead and creating the replicas whilst developing a new technique to age the beads using modern equipment. Later the project progressed further in the form of disseminating these newly acquired techniques through teaching to archaeologists and glass enthusiasts.

An opaque yellow annular bead with brown symmetrically formed lines was excavated by Per Lundström between 1968–1973 at Paviken, Gotland, Sweden. Paviken was a Viking seasonal trade settlement which has had further excavations between 2013–2015 (Callmer 1977). Its characteristics are so similar to one of the Pagan Lady necklace beads, that this suggests that the two beads were made in the same region. To date, no formal research has been made concerning the origins of the Pagan Lady beads, and this is where my interest lies.

I travelled to Denizli in Turkey to meet Dr Önder Küçükerman, who wrote the definitive text on ancient techniques of Mediterranean glass beadmakers (Küçükerman 1988). Previously, I met and observed Torben Sode as he was creating an ancient Viking bead furnace at the International Festival of Glass in Stourbridge in 2008. When I met Dr Küçükerman he revealed that he and Torben had worked closely together for a number of years.

Since then I have reached the final stages of my PhD researching the combination of sandcasting with flameworked glass inclusions. As part of my research I was invited to attend the International Glass Symposium in Luxembourg 17–21 August 2015, to help build and fire an ancient furnace created by Ed van Dijk. I wanted



*Figure 1: Viking bead furnace manufactured and tested by Torben Sode, a historic glass specialist from Denmark. © Julie Anne Denton*

to undertake this opportunity to give me a fuller understanding of the old furnace and glass making processes. I felt this would increase my knowledge of lampworking in accordance with the initial research of my PhD studies, providing information I could later disseminate and build upon through academic papers and classes. I would like to thank AHG for their assistance in the form of a travel grant towards this practical research.



*Figure 2: Diagram of historic bead furnace. © O. Küçükerman*

I arrived in Asselborn, Luxembourg a number of days before the symposium began, in order to create a furnace made of clay and straw, ready for demonstration to the wider glass community and interested public during the symposium. The structure consisted of an inner chamber which housed two separate areas. The upper component of the chamber was designed to house three small ceramic crucibles which were packed with soft glass cullet. The lower area formed a combustible chamber to heat the glass above. Wood was fed through an outlet from the main structure resembling a tunnel. Generating

a high enough temperature using only wood and air to melt the glass (between 1000°C and 1100°C) was a time-consuming process. It took 48 hours of adding fuel, day and night, to generate the necessary heat.

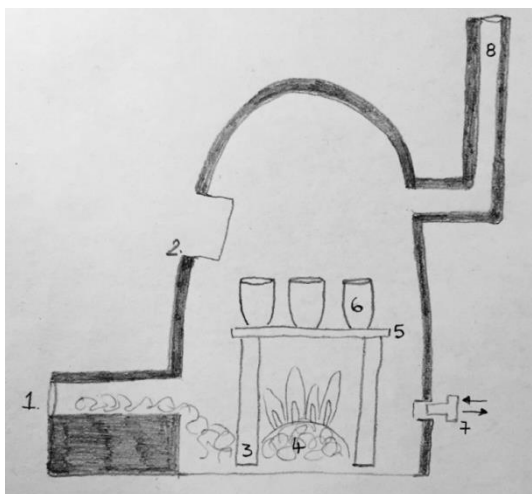


Figure 3: Diagram of ancient furnace.

**Key:** 1. Inlet for wood; 2. Door entrance for working glass; 3. High fire shelf stand; 4. Combustion chamber - wood embers; 5. High fire shelf; 6. x3 crucibles - x2 colour and x1 transparent glass batch; 7. x3 air (oxygen) inlets; 8. Outlet - chimney.

© Julie Anne Denton

There were a series of openings towards the bottom of the inner chamber. These openings were bunged and alternately opened and closed from the outside to increase or decrease the oxygen flow to the fire pit at the bottom of the internal chamber. There was also a large flue leading from the main chamber which acted as chimney.



Figure 4: Making a bead in an ancient furnace. © Venzo Danev

After two days of close observation the furnace had reached the desired temperature of 1050°C and Ed van Dijk created a core vessel. Ed van Dijk's furnace was not specifically based on the Viking furnace, therefore he deemed it appropriate to make ancient Egyptian core vessels. The three crucibles consisted of two separate glass colours and a clear batch. Afterwards I was able to create some beads. Earlier I made my own bead release

from bentonite, graphite and kaolin clay and transferred this paste onto the end of the 800mm x 6mm steel tapered rod. Creating a bead consisted of using one 'mandrel' to gather a small amount of glass and then use this gather to transfer molten glass onto the other mandrel coated in bead release using a coiling technique. Once the bead was made and centred, a third rod was used to gather molten glass from the colour crucible which was transferred to the bead as a twist design. I had the chance to make a series of different types of bead using ancient techniques and my understanding of the process has been enhanced greatly on a practical level.



Figure 5: The bead after annealing. © Julie Anne Denton

Whilst at the festival I delivered a paper detailing the technical concerns relating to the hot combination of lampworking and sandcasting, and demonstrated these new discoveries with Lachezar Dochev (BU) and Torsten Röttsch (DE). The artists and researchers (Sode 1997) involved in this symposium came from 17 different countries with a concentration on the eastern European glass scene. Once again this successful and enjoyable research would not have been possible without the help of the AHG and I would like to give my thanks for this opportunity.

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# Scottish Medieval and Post-Medieval Window Glass

Helen Spencer  
Heriot Watt University

I was very grateful to receive funding from the Association for the History of Glass, to help me attend the recent AIHV 2015 conference in Fribourg, Switzerland. At the conference I presented an introduction to work that is taking place at Heriot Watt University under the supervision of Dr Craig Kennedy, in collaboration with Historic Environment Scotland (HES), to research Scottish window glass.

In comparison to other parts of Britain and Europe, there has been relatively little recent research on Scottish medieval and post-medieval window glass. In part, this is due to the scarcity of window glass found both in existing medieval buildings and excavated from archaeological sites, but also due to lack of comprehensive cataloguing and integrated study of the glass that has been found.

Window glass was not common in Scotland during the medieval period; even as late as the early 18th century, some Scottish palaces were not fully glazed. It is known that many Scottish cathedrals and monastic sites were glazed and although virtually all window glass was lost from these buildings, either before or during the Reformation, a large number of excavated ecclesiastical sites have yielded hundreds of sherds of plain, coloured and painted glass (Graves 1985).



Figure 1: A selection of grisaille painted window glass sherds from Elgin Cathedral. ©Robin Murdoch

There is also a lack of archaeological and documentary evidence to show that glass was either manufactured or worked, in medieval Scotland, before the establishment of the first documented post-medieval glasshouse in East Lothian in 1610 (Turnbull 2001). This leads to the assumption that glass was imported in to Scotland prior to the indigenous manufacturing base becoming established. There is limited documentary evidence that suggests glass for use in church buildings was imported

to Scotland and decorated locally before the final installation. However, this has not been corroborated scientifically.



Figure 2: Elgin Cathedral. ©Helen Spencer

I am one of two PhD researchers studying Scottish Window Glass at Heriot Watt University. I am concentrating on archaeologically excavated samples – from high medieval Cathedral and monastic window glass to post-medieval window glass found in domestic contexts. Elemental analysis using a Scanning Electron Microscope and Energy Dispersive X-ray Fluorescence and portable-XRF (p-XRF) has been carried out on window glass fragments from Elgin Cathedral and St Andrew's Cathedral. In conjunction with detailed typological analysis of the collections which is being undertaken by HES, it is hoped that the analysis will provide new information as to where the glass may have been made and how it came to be used in Scotland. Collections at the National Museums Scotland of smaller assemblages of glass from Glenluce Abbey, Dunfermline Cathedral, Iona Abbey and Coldingham Abbey, have also been sampled ready for analysis. Further assemblages from Perth and Aberdeen will also be investigated.

The second strand of work is to analyse late and post-medieval domestic window glass that has been discovered in recent years in Scotland. Working in collaboration with Robin Murdoch at Harlaw Heritage, glass from a range of recently excavated sites - from small farmsteads and crofts to large mansion and tower houses - which range in date from the late 15th C to the early 18th C, has been analysed. It is hoped to add information about the development of the types of window glass being used in Scotland over this period.

The earliest glass making furnace that has been excavated in Scotland – that at Morison's Haven is also being

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reassessed (Cressey *et al.* 2012). Scientific analysis of the glass making residues discovered at the site is being carried out. This is the first analysis of post-medieval glass making residues in Scotland and it will be interesting to compare the composition of the glass being made at this site, with those of a similar date in England and Ireland that have been studied in more detail.

My colleague Caitlyn Phipps is studying glass windows that are still *in situ*. She is building on work started by Kennedy *et al.* (2013) to analyse glass windows *in situ* using p-XRF. The conservation philosophy behind the replacement of window glass in historic building is also being studied. When undertaking conservation works on historic buildings, architects and works managers adhere to conservation philosophy and principles. However, for glass there is little effort made to retain historic sections and pieces when compared to other materials such as stone and timber. This is possibly due to a number of factors, including the inability to judge the age and historic value of flat, clear window glass by eye. This study will attempt to develop a method of dating window glass in Scottish historic buildings scientifically.

In addition, the conservation, restoration and repair of window glass in Scotland's built heritage is being investigated with the aim of improving the retention of historic panes for future generations.

Over the next few years it is hoped that our team will be able to add to the knowledge of Scottish window glass and we look forward to reporting on the results of our work in due course.

### Acknowledgements

With thanks to Historic Environment Scotland, Elgin Museums and National Museums Scotland for access to their collections and to Robin Murdoch for his invaluable knowledge and assistance with the project.

Special thanks to the AHG for their generous bursary to allow me to attend the AIHV 2015 conference.

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## WEBSITES

### Historic England (formerly English Heritage) Research Reports available online

Historic England (formerly English Heritage) Research Reports, including specialist glass analysis reports, are available to download from the website. A search using 'glass' as the keyword currently produces 145 reports. Visit: [www.historicengland.org.uk/research/research-results/research-reports/](http://www.historicengland.org.uk/research/research-results/research-reports/)

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### Favourite Glass Websites: Roman

We asked you to send us your current favourite websites for 1st and 2nd-century Roman glass. Thank you to those who sent details for those listed below. These are specifically Roman. Please send us your favourite websites with a multi-period range of glass for the next issue.

<http://www.archeoglas.de/index-en.html>

Frank Wiesenbergs' ARCHEOglas website which is dedicated to experimental glass research. There are downloadable presentations (e.g. on making Roman ribbed bowls), links to other sites (many in German, but not all), lots of images, news, publications and links. The site can be accessed in either German or English (this link is to the English version).

<http://www.oapen.org/search?identifier=513796>

Free open access link to Patrick Degryse (ed.), 2014, *Studies in Archaeological Sciences. Glass Making in the Greco-Roman World*. Results of the ARCHGLASS project. Leuven University Press. This book presents a reconstruction of the Hellenistic-Roman glass industry from the point of view of raw material procurement. Within the ERC funded ARCHGLASS project, the authors of this work developed new geochemical techniques to provenance primary glass making.

<http://www.le.ac.uk/ar/menander/index.html>

Insula of the Menander at Pompeii Vol. iii: The Finds in Context: An On-line Companion. This site, hosted by the University of Leicester, holds a database of Roman finds

with good contexts from one insula block in Pompeii, excavated in the 1920s and 30s. It is an online companion to Penelope M. Allison's book of 2006 (Oxford University Press). 'Glass' can be searched in the database, and the location is given as well as a description of the glass – some are more detailed than others with photographs and line drawings.

<http://bloggingpompeii.blogspot.co.uk/>

A blog for all those who work on Pompeii and the other archaeological sites of the Bay of Naples. A site of general interest, but glass is sometimes mentioned!

## NEW PUBLICATIONS

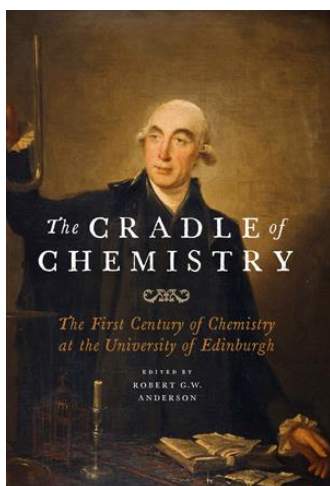
### **The Cradle of Chemistry. The Early Years of Chemistry at the University of Edinburgh**

Edited by Robert G. W. Anderson

Birlinn Ltd, Edinburgh, 2015

ISBN 978-1906566869

£25 [customerservice@booksource.net](mailto:customerservice@booksource.net)



Excavations in Edinburgh by Addyman Archaeology have uncovered what appears to be the 18th-century chemistry stores associated with Joseph Black, professor of chemistry and medicine at Edinburgh from 1766–99. Finds excavated included glass, ceramic and metal laboratory equipment, as well as chemical compounds, *in situ*. The glass included tubing of various diameters and colours, some with residues within, rods, thermometer sections, stoppers, a jar, bowls and bottles again containing residues. Some vessels are similar to those in the National Museum of Scotland's Playfair Collection, which date back to Joseph Black's time.

The preliminary report is published as a paper in this book, by Tom Addyman, *Materia Chemica: Excavation of the Early Chemistry Stores at Old College, University*

*of Edinburgh*, pp. 115–30). This includes colour photographs of the glass. The painting on the book cover (above) by David Martin, 1787, shows Joseph Black holding some of his glass equipment while teaching.

Another paper in this book that discusses glass equipment is by A. D. Morrison-Low, *Surviving Eighteenth-Century Chemical Apparatus in the National Museums of Scotland*, pp. 131–8, and I also recommend the National Museums of Scotland's website for these collections.

### **Glass Beads from Early Medieval Ireland: Classification, dating, social performance**

Mags Mannion

Publisher: Archaeopress 2015

Printed ISBN 978-1784911966. Epublication ISBN 978-1784911973

Printed book £30; E book £19 [www.archaeopress.com](http://www.archaeopress.com)

This is the first dedicated and comprehensive study of glass beads from Early Medieval Ireland, presenting the first national classification, typology, dating, symbology and social performance of glass beads.

Glass beads are one of the most visually stunning archaeological objects and they remain as popular a part of body ornament today as in the past. This continuing fascination is explained somewhat by the versatility of glass which can be rendered opaque or transparent and produced in a variety of colours. Glass has an almost mesmerising effect in its ability to reflect light, presenting not just a surface but also dimensional depths of shade and light. In this respect the crafting of glass beads as representations of the human eye may go some way towards explaining their enduring and universal popularity.

Glass beads however are much more than this and their enduring appeal is also a reflection of their aesthetic and symbolic qualities. This book explores not only the importance of beads as a tool of archaeological research but also the relevance of beads in the social arena and their significance as markers of cultural and religious identity and symbols of status and age both in Ireland and further afield.

### **I vetri del Museo archeologico di Tripoli**

Sofia Cingolani

Publisher: Archaeopress 2015, *Archaeopress Roman Archaeology* 7

Printed ISBN 978-1784910945. Epublication ISBN 978-1784910952

Italian text.

Printed book £33; E book £19 [www.archaeopress.com](http://www.archaeopress.com)

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This volume is focused on the cataloguing of glass conserved in the Archaeological Museum of Tripoli. This is so far an unpublished corpus of objects identified from investigations into the necropolis and other burials in Tripoli and its suburbs, in conjunction with the activities of the Italian Government in Libya during the first twenty years of the last century. The main objective of the work is filling the gaps in the state of knowledge concerning the production of glass of the North-African area by providing as complete as possible a documentation on the findings from Oea and its territory.

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### **Study Days on Venetian Glass (2nd–4th April 2014): Approximately 1700s**

Eds R.B. Mentasti and C. Tonini

Atti dell'Istituto Veneto di Scienze, Lettere ed Arti, Tomo CLXXIII (2014–15), Venezia 2015

English text

ISSN 0392-6680

€15 [www.istitutoveneto.it](http://www.istitutoveneto.it)

Papers include Suzanne Higgott, *Survey of Venetian and Façon de Venise Enamelled and Gilded Glass Made c. 1500-1550 and Excavated from Reliably Dated Contexts in Great Britain*, 69–90

This paper describes the author's participation in Project Cristallo, a research project initiated the Musée du Louvre with the C2RMF and LAMA, to establish through chemical analysis of the glass and enamels to distinguish Venetian Renaissance enamelled glass from *façon de Venise* production. This paper includes the survey of relevant glass finds from reliably dated contexts in Britain. The sites reflect the luxury nature of the glass: the City of London, ports including most notably Southampton, a royal palace, castles and manor houses.

Other papers in the volume include 17th-century glass from Moravia, the restoration of two glass furnaces at the glass museum of Altare, the Venini covered cup, an inventory of 1714, Murano glass at the National Place of Ajuda, Glassworks Hall in Tirol, early and Rosenborg Castle-type filigrana glass, using inventories, paintings and graphic works, conservation and archaeometric analysis of wall mosaic fragments.

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### **Il vetro in Italia Centrale dall'antichità al contemporaneo,**

Eds Luciana Mandruzzato, Teresa Medici, Marina Uboldi  
Atti delle XVII Giornate Nazionali di Studio (Massa Martana e Perugia, 11–12 maggio 2013)

Published Cremona, 2015

ISBN 978-8890729744

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Contributions in Italian; abstracts in English

€30 [www.storiadelvetro.it](http://www.storiadelvetro.it)

## **BOOK REVIEW**

### **Romano-British round houses to medieval parish: excavations at 10 Gresham Street, City of London, 1999–2002**

Lindy Casson, James Drummond-Murray and Antony Francis

MOLA Monograph Series 67, MOLA, 2014

ISBN 978-1-907586-22-4

£25 [www.mola.org.uk/publications](http://www.mola.org.uk/publications)

This book presents the results of the excavations at 10 Gresham Street, London. The report is clearly laid out with the reader in mind and it contains clear discussion sections that not only examine the features and artefacts, but also consider the social significance of the site. Clear maps with relevant nearby sites and mock reconstructions of the site features help the reader to understand the spatial relationships at the site and within the wider area.

The finds catalogues at the end are especially useful to the casual reader and specialist, as both traditional illustrations and colour photographs of artefacts are used. The importance of the site lies in the glass artefacts that were recovered from contexts dating to the medieval and Roman period. For the medieval period, there was a small group of rare high status domestic glassware: fragments of two bright yellow and bright green goblets, fragments of a blue vessel, and a pale green lid, which were likely manufactured on the continent. The fragments were found together in a later 13th-century refuse pit. The author claims there are no other known parallels for such a multi-coloured group of medieval glassware.

In addition to the medieval glass, a number of fragments of glass were found in Roman contexts, as was evidence for glass working at the site. Both the artefact and feature evidence found at 10 Gresham Street are of significant importance for the study of craft and social complexity during the early Roman period. Prior to this period, glass vessels were not in use and nearly all glass objects were beads, although a very limited number of pre-Roman glass bangle fragments have been found. It has been suggested that some glass beads were manufactured in Britain during the Iron Age, but this evidence was heavily reliant on areas with a high frequency of beads, types without close continental parallels, compositional analysis of glass, and chunks of 'raw' un-worked glass (Guido 1978, Henderson 1989). What has been lacking is the presence of clear archaeological features, such as hearths or kilns, and material evidence for glass craft,

including tools, waste/scrap, fragments of glass rod and thread, and malformed beads found in a context with reliable dating evidence.

This site is located within the northwest area of Roman London and would have been on the fringes of the early settlement. Excavations revealed two roughly parallel boundary ditches, both of which were aligned northwest–southeast and presumably formed an enclosure. In between the ditches were a series of fifteen circular structures (i.e. roundhouses), some of which have been interpreted as storage or animal pens. The evidence for these structures is remarkable in its own right: they were well preserved, were present in a large number within a small area, and were tightly dated to an approximately 10-year period between about AD 60 and AD 70. What makes these structures even more interesting is that they were found clustered around a roughly contemporary three-roomed rectangular building. This structure has given us the first glimpse at evidence for glass working in Britain, as two hearths, as well as fragments of glass vessels, waste, and beads, were found.

As the site is Roman period in date, based on the pottery evidence, it is tempting to see a strict separation of ‘native’ and ‘Roman’ culture, with melon beads for the Roman consumer and ‘eye’ beads for the native consumer. The authors place considerable emphasis on the fact that the bead manufacturers were tailoring their work to native tastes. However, there were many more examples of plain annular beads, which are not clearly associated with native or Roman culture, and blue melon beads (generally considered Roman) than the single eye bead. Although the structural evidence suggests natives were living alongside Romans, or at least those who had adopted Roman customs, the glass evidence does not strongly support that the craftspeople were producing beads for a native market. Interestingly, however, several of the ‘annular’ beads look more like failed attempts, or possibly initial attempts at working with the glass, than wearable beads. It may be that they are the work of a novice bead maker, but why they were not recycled is not clear. This suggests that the process of glass recycling was governed by some selection rules.

The Roman material from 10 Gresham Street, London is some of the most important archaeological evidence for glass craft during the transitional period between the Iron Age and Roman period. It is my hope that this nationally important assemblage continues to play an important role in our understanding of the relationship between natives and Romans, glass working, and material culture during this pivotal period.

Elizabeth Foulds

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