

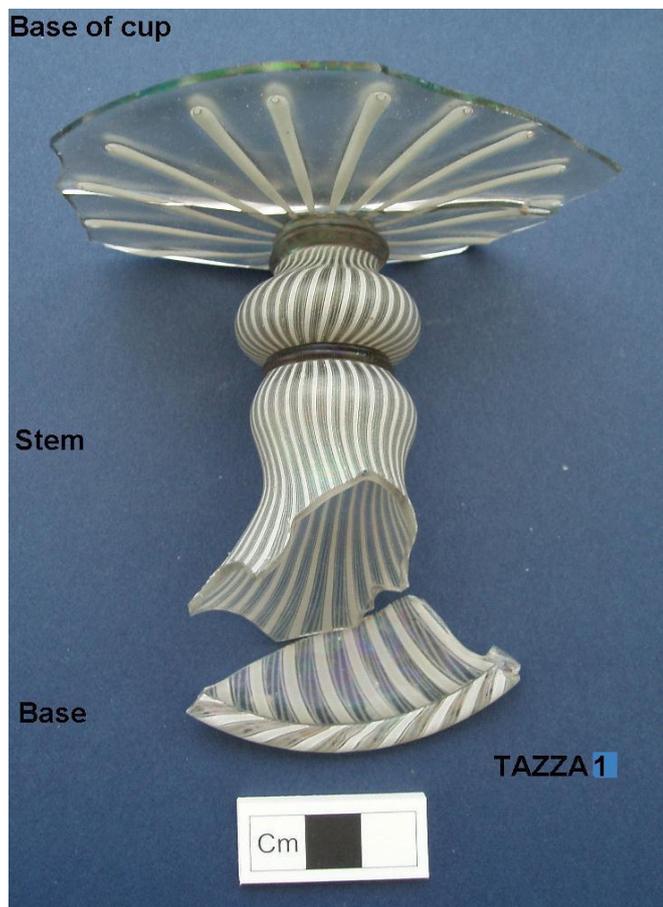
Glass News

Published by The Association for the History of Glass Ltd
www.historyofglass.org.uk

January 2014

Number 35

ISSN 1362-5195



New Discoveries: Part of a Venetian tazza excavated at East Lenham in Kent, displayed at A Miscellany of Glass in November. © Lesley Feakes, Lenham Archaeological Society

Welcome to Issue 35 of *Glass News*!

Our recent meeting *A Miscellany of Glass: New Discoveries and Hidden Treasures* was a very well-attended and successful day, and we thank Sally Cottam for organising such an interesting and enjoyable programme. See pages 4-5 for an account of the day.

The recent AGM saw some changes to the Board of Management. We say farewell to Aileen Dawson of the British Museum, whom we thank enormously for her ten-year contribution on the Board. Justine Bayley, Denise Allen, Angela Wardle, Colin Brain, Suzanne Higgott and

Rachel Tyson were all re-elected, and Caroline Jackson, a former President, returned to the Board.

We are delighted that *Neighbours and Successors of Rome*, resulting from the AHG's York meeting in 2011, will shortly be published; see page 13 for details. **Do not miss Oxbow Books pre-publication offer, valid until 1st May!**

For our Spring meeting we are planning a study day *Messages in Bottles*. See page 2 for details if you are interested in contributing or attending.

The editors would like to thank this issue's contributors for their material; please keep it coming for future issues! 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 are interested! We also need people to write reviews of the meeting 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.

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

REMINDER

Would 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 (in addition to your paper copy – we know you like something to read in the bath!). Please email one of the editors (see back page) if you would like a PDF copy.

FACEBOOK PAGE

The AHG is on Facebook!
To keep up-to-date on news and current research on the history of glass visit:
[facebook.com/TheAssociationForTheHistoryOfGlass](https://www.facebook.com/TheAssociationForTheHistoryOfGlass)
Click 'Like' and please share.

AHG SPRING STUDY DAY

Messages in Bottles

Friday 25th April 2014
LAARC, Mortimer Wheeler House, London

We are planning a study day in April on glass bottles of all periods. If you would like to present a paper or bring some examples to show, please email us at ahgstudydays@gmail.com.

If you would like to attend please send your full contact details and a cheque for £20 (members), £30 (non members), or £15 (students), which includes a sandwich lunch, payable to The Association for the History of Glass Ltd to Denise Allen, 8 St Catherine's Road, Southampton SO18 1LJ. If you would like a receipt please include an sae, provide an email address, or request to collect on the day.

Details to be confirmed; see the website for the latest information: www.historyofglass.org.uk

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.

An application form may be downloaded from the website, or can be obtained from the Honorary Secretary, Denise Allen. Email: denise_allen52@hotmail.com

THE ASSOCIATION FOR THE HISTORY OF GLASS

Registered charity 275236

Board of Management

President: Justine Bayley
Hon Secretary: Denise Allen
Hon Treasurer: Angela Wardle

Members of Board

Colin Brain	Suzanne Higgott	Martine Newby
John Clark	Caroline Jackson	Jennifer Price
Sally Cottam	David Martlew	John Shepherd
David Crossley	Andrew Meek	Rachel Tyson

CONFERENCES AND EXHIBITIONS

GLASSAC2014

Glass Science in Art and Conservation

Durham - 10th to 12th September 2014
York - Saturday 13th September 2014

The glass community worldwide embraces many diverse strands of glass expertise. This conference in September 2014 is designed to weave together those diverse strands to create a web of knowledge and experience which transcends barriers and divisions.

We are so different. Scientists and Art Historians, creative Artists and inspired Designers, Archaeologists and gritty Industrialists, Engineers and Conservators of historic glass artefacts - the list is seemingly endless. But we are united by our obsessive fascination with glass. Sadly our community is blighted by the legendary Curse of Babel. Each strand of glass expertise develops its own jargon, method of speaking, circle of knowledge. Unconsciously we form inward-facing groups. It's hard to cross over these artificial barriers and share our enthusiasms and perplexities with colleagues from other strands. All too often, we don't understand one another. Our creativity and our achievements are thereby diminished.

This conference, like previous conferences in the GLASSAC series, is dedicated to breaking down barriers, building bridges, and allowing us to share our glassy passions with experts from other strands. For once, let's meet one another in mutual respect and talk to one another in plain language, so that together we may learn.

So the scope of GLASSAC14 embraces all strands of glass knowledge, celebrating those occasions when one area of glass expertise has collaborated with and been of help to another different area. And we invite Authors to contribute papers, posters and exhibitions from the growing points of their particular strand of glass passion. Don't wait for your endeavours to become stale and old - bring work-in-progress as well as finished achievements, experiences which raise questions as well as those which provide answers.

The scope includes:

- Aesthetics of contemporary glass
- Bronze Age glass and glassmaking
- Hellenistic, Roman and Islamic glass
- Creativity in glass design - then and now

- Medieval stained glass window
- Glass in the 18th and 19th century
- Problems facing current studio glassmaking
- Venetian glass and *façon de Venise* glass
- Dating and provenance of glass
- Art history and iconography of architectural glass
- Archaeometry of glass
- Mould-blown glass
- Social impact of glass - the people dimension
- Restoration and conservation of glass
- Glass technology production
- Raising public awareness of glass, ancient and modern
- Glass decoration and enamel
- Raw materials
- Glass corrosion and weathering
- Making glass live in the minds of today's people

Your papers, exhibits and posters would be welcome. If you'd like to present a paper (within a 40-minute time slot), please download the Abstract Template from the website, and email to Christine Brown. The deadline for submission of abstracts is **27th January 2014**.

www.glassac14.sgt.org

White Light/White Heat: Contemporary Artists and Glass

27 November 2013 – 23 February 2014
The Wallace Collection, London

A unique collaboration between the Berengo Glass Studio, Venice, the London College of Fashion and the Wallace Collection, featuring the work of major contemporary artists and designers using glass as a new medium for expression.

The Wallace Collection, home to a beautiful and important collection of historic Venetian glass, will showcase pieces by artists and designers including Tracey Emin, Thomas Schütte and Meekyoung Shin. Other major international names in art and fashion will feature in the complementary exhibition at the London College of Fashion's Fashion Space Gallery.

These works were created for a project at the 55th Venice Biennale entitled *Glasstress: White Light/White Heat*, which grew out of the original *Glasstress* concept conceived in 2009 by Adriano Berengo, President of Berengo Glass Studio and Venice Projects.

Glass is a magical and less-exploited medium for artists to work with because unlike any other material it has such a vast range of possible appearances - it can be bright or dull, coloured, transparent, mirrored and metallic or take any number of surface treatments and textures. Hot glass can be incandescent and glow bright orange yet still be transparent when it's molten. Alchemy has played an important part in the history of glassmaking and glass colouring processes. Glass has been worked for many centuries producing a vast range of glasses with differing properties that offer artists fantastic possibilities to create work. *White Light/White Heat* fuses together the vision, creativity and freedom of a group of artists with diverse specialisms, ranging from sculpture, to fashion and filmmaking, with the expertise and artistry of the renowned Berengo Glass Studio in Venice.



Goblet, c.1500, Italian, Venice, Wallace Collection

The invited artists have responded to the theme of light and heat, the components of fire, the destructive/creative element linked to the formation of the universe and primal matter from chaos. The energy from the sun's rays provides the light and heat essential to all life forms and survival on this planet. Light and heat are fundamental to glassmaking - light is integral to our perception of glass, while heat is required to shape it.



Polly Apfelbaum, I Tip My Hat to You, 2013

We hope that visitors will take this chance to experience both the work of these established contemporary artists and the exquisite craftsmanship of the Wallace Collection's own pieces of historic Venetian glass in a new light, and, in turn, appreciate glass not merely as decorative and functional, but as a vibrant medium for contemporary art.

A Life in Archaeology and Glass: Honouring David Whitehouse (1941-2013)

March 13-15, 2014
Corning Museum of Glass, New York

This seminar will honour the life and work of the former executive director of the Corning Museum of Glass, David Whitehouse, and celebrates his scholarship in glass, ceramics, and archaeology.

The program begins with a free, public keynote lecture at 6pm on Thursday evening by Paul Roberts, senior curator, head of the Roman Collections, Greek and Roman Department at The British Museum. Roberts will speak on themes related to his 2013 British Museum exhibition *Life and Death in Pompeii and Herculaneum*.

The next two days will be filled with lectures, reminiscences, and time with many of David's colleagues and friends. Preliminary programme includes Simon Cottle, Ian Freestone, Yael Gorin-Rosen, William Gudenrath, Stephen Koob, Andrew Meek, Rosa Barovier Mentasti, Lisa Pilosi, Jenny Price, Susan Rossi-Wilcox, Amy Schwartz, St. John Simpson, Lino Tagliapietra, Dora Thornton, Astrid van Giffen, Rachel Ward, Karol Wight and Mark Wypyski.

The programme will begin on Thursday at 6pm and conclude with a dinner on Saturday evening. All activities will take place at The Corning Museum of Glass.

Cost to attend is \$150. Please contact events@cmog.org

Royal Geographical Society Self-guided walk: The Crystal Canal

**Discover glass and iron making along the
Stourbridge Canal**

Downloadable guide available at:
www.discoveringbritain.org/walks/region/west-midlands/stourbridge-canal.html#tabbox

During the Industrial Revolution the 'Black Country' was a manufacturing landscape where rows of factories and foundries lined a network of canals. Barges carried coal, sand and limestone to works that manufactured everything from heavy bridges to delicate jewellery.

Stourbridge became world-famous for making iron and glass. This 1¾ mile walk follows the Town Arm of the Stourbridge Canal, which was the spine of local iron and glassmaking sites. The walk was inspired by Graham Fisher MBE and his book *Jewels on the Cut* which tells the story of the industries that emerged here.

Discover why the Stourbridge Canal was created and enjoy the architecture of its bridges and locks. See the iron foundry that made the first steam locomotive that ran in the USA. Find out why Stourbridge was ideal for glassmaking and about the people who lived and worked here in Victorian times. Visit Britain's most complete working 'glass cone'. Choose between a written or audio guide to download. The printable guide of 28 pages includes maps and information about the glassmaking industry at 14 locations en route.

Glass in The Wilson: Cheltenham Art Gallery and Museum

The Wilson, Cheltenham's newly refurbished art gallery and museum has recently hosted a unique retrospective exhibition 'Casting Brilliance' showing the work of contemporary British glass sculptor Colin Reid. This has drawn a large audience into the museum, and to coincide with it the museum has devised a Glass Trail around its permanent galleries. This is in the form of a booklet that can be collected from reception, which gives further information about each glass, its technology, meaning and uses. The earliest piece on the trail is a Roman lidded cinerary urn; then it leaps in time to a 17th-century wine bottle, 18th-century ale glasses, and a variety of 19th-century vessels. An impressive gallery is given over to the Arts and Crafts movement, and includes glassware including Lygon glassware inspired by the 'wrythen' technique, Clutha glass by Christopher Dresser, and stained glass panel 'Taffy was a Welshman' by Paul Woodroffe c.1920. The Glass Trail runs until the end of February 2014; after that a selection will remain on display.

AHG MEETING REVIEW

A Miscellany of Glass: New Discoveries and Hidden Treasures

Dana Centre, London
15 November 2013

The AHG autumn meeting organised by Sally Cottam was attended by around 80 delegates, proving the popularity of multi-period topics. It began with a useful guide: *Assessing Excavated Glass Assemblages* by John Shepherd. He summarised the development of glassmaking, and considered the effect of recycling on what is left in the archaeological record. An outline was given of the different categories of glass finds, including the various examples of glassworking waste. The topical issue of the lack of museum storage was referred to, and researchers were urged to consider what should be stored or discarded at an early stage.

Caroline Jackson's presentation *Call the Scientist! The How, When and Why of Glass Analysis* pointed to the types of archaeological questions that a scientist might be able to answer through chemical and structural analysis. She stressed the crucial point that it needs to be an archaeologically informed scientist who will know what you want, rather than 'Brains'! She gave some examples of information about glassmaking gained from different types of analysis, the latest techniques, and a useful indication of the timescale and costs of having any analysis carried out.

Colin Brain's *Clues to Identifying 17th-Century Glass* showed it as a period of change reflected by new discoveries and surprises in glassmaking. He pointed out that the accepted view of a change to coal-fired furnaces around 1614 was not quite as simple as thought, as many reverted to wood-firing in the 1650s/60s. Early undocumented experiments with lead glass are coming to light, and exotic forms like serpent stems thought to have been made in Venice or the Netherlands are now also being revealed as London products. He showed an interesting example of an early forgery of a raven's head seal, attempting to pass a glass off as a Ravenscroft product. Another revelation was an example of dichroic glass – white with an orange shadow- stressing how glass finds are essential as so much is undocumented from the period and the literature is a long way behind.

Liz Stewart spoke about *The Early Modern Glass Industry in Merseyside*, from Haughton Green and Bickerstaffe in the early 1600s, to Liverpool itself. The building of the Old Dock in 1709 made a huge impact on local industry, and it would be interesting to know how much glass was exported to the American colonies from the north-west. Martine Newby Haspeslagh regaled us with an alarming number of glass *Fakes, Forgeries and Fantasies*, many of which were Roman copies acquired on the Grand Tour. While some were convincing, others were shockingly obvious fakes, often marriages of different vessels, particularly with an animal head at one end!

The afternoon began with sessions on glass from different sites. Ceri Lambdin and Rachel Tyson presented the latest developments from the excavations that have been taking place annually at St Algar's Farm in Somerset, a Roman villa site later used for a number of manufacturing processes. Plentiful evidence has been found for glassworking in the 4th century; the challenge is to distinguish cullet collected for recycling from the products that were being manufactured. Jo Moran described the medieval painted window glass excavated at St Saviour's priory, Limerick, an amazing discovery as it is so rare in Ireland. The fragments mainly consisted of borders, suggesting that the central panels had been removed separately, which also seems to have occurred at Kells priory.



Fifteenth-century glass from St Saviour's priory, with silver stain on the reverse side. ©Jo Moran

Mark Curteis brought the Tunstill Collection of Georgian glass in Chelmsford Museum to our attention, comprising a diverse collection of over 400 glasses (see pages 7-8). Chris Jarrett outlined the glass found from three wells in Greenwich, dating to the 1830s, 1840s and 1860s, and whether the character of the glass could be matched with those documented as living in the adjacent houses. Finally, Martina Bertini and Miranda Lowe outlined the on-going conservation of the stunning 19th-century Blashka glass marine models, originally made as an alternative to pickled creatures for teaching marine biology. They include other materials such as paper and resin, making conservation a challenge. Laser ablation analysis can reveal the condition below the surface, and large compositional differences have been found between different models and the different colours of glass and enamel used.

The remainder of the afternoon was spent examining the glass brought for viewing from a number of different sites, and there was plenty of animated discussion and 'ooh it's one of those!' moments. Roman glass was well represented, with glassworking waste, vessel and crucible fragments from St Algar's Farm, window glass from a villa in Bedford, and a range from a villa in Cambridgeshire. I was particularly excited by a fragment from a 13th-century deposit at Randall Manor in Kent that appears to come from an Islamic enamelled beaker. There was a stunning Venetian *vetro a retorti* tazza (see Figure, page 1) as well as other glass of that date from East Lenham moated manor, again in Kent. Martine entertained everyone with a 'spot the fake' game!

The day was hugely successful and many thanks are due to all the speakers and contributors, to Sally Cottam for organising it, the Science Museum's Dana Centre for the loan of the room, Ceri Lambdin for her IT skills, and Denise Allen and Angela Wardle for their sterling work on a very busy front desk.

Rachel Tyson

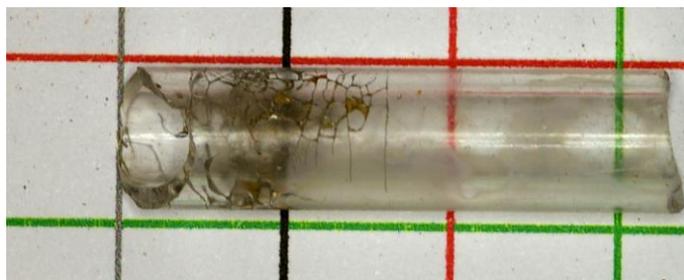
New discoveries....

One of the great things about the AHG Autumn 2013 study day *A Miscellany of Glass - New Discoveries and Hidden Treasures* was the wide mix of expertise there. This led to some fruitful discussions in the margins of the meeting, one of which may help solve a mystery about a recent glass discovery. The discovery was a couple of short lengths of glass tubing found last year during an archaeological evaluation in the Minories, just outside the old London city wall. These appear to be glassmaking residues from the near-by Goodmans Yard glasshouse and to date from around 1670. Both tubes have shallow longitudinal scours on the surface which look to me as though they have been extruded, or drawn through a die. One piece also has some unusual cellular cracking which only penetrates the outside part of the tube wall (see the photo on the right, the grid is in centimetres). How was this tube made and what caused it to crack? One suggestion was that the cracks were due to rapid cooling of the surface in an attempt to toughen it, but that seemed to raise even more questions.

A documented customer of Goodmans Yard in the 1660s and 1670s was the famous scientist Robert Hooke. His equally famous book "Micrographia", published in September 1665, contains many references to glass, including the one below on the subject of thermometers: "*The stems I use for them are very thick straight, and even Pipes of Glass, with a very small perforation, and both the head and the body I have made on purpose at the Glass-house, of the same metal whereof the Pipes are drawn: ...*"

These tubes clearly do not fit his description and are more likely to be for the barometers he also discusses, but what is of interest here is that Goodmans Yard is the most likely candidate in 1665 as 'the Glass-house' and that they were apparently able to draw pipes to meet Hooke's demanding requirements. The trouble is that glass tubes/pipes cannot just be 'drawn', because if the viscosity is low enough for the glass to flow through the die, it is too low to support the tensile forces needed to pull it through. However, discussing this at the study day, glass-technologist David Martlew suggested that it would theoretically be possible to modify the shape of a pre-formed tube, provided that the temperature distribution was carefully controlled so that the core remained cool-enough to give the required tensile stiffness, whilst the outer was hot-enough to flow in the die. This explanation appears to fit. It explains why the cooling cracks only penetrated the 'hot' outer part of the tube wall and it fits with the technique being a development of that for making decorative canes. All the canes found in Goodmans Yard glass-making residues appear to be multi-layer, with a clear-glass core, one or more coloured /opaque layers and a clear-glass outer (cf Query on Complex Canes, page 11). Some, or perhaps

all, of these also show similar longitudinal scours. So, if they were able to build up canes by multiple drawing, this process could also have produced: "thick straight and even pipes...".



Glass tubing with cellular cracking, c.1670
©Colin Brain

David's suggestion may not be the full answer, but it opens up new possibilities for experimentation and analysis to get closer to understanding how these early glassmakers were able to rise to the challenges of facilitating the birth of science in the 'age of reason'. As usual this analysis and experimentation will probably generate yet more interesting questions.

Thanks to all who participated in this excellent study day and to L-P: Archaeology for allowing me to study and photograph this new glass discovery.

Colin Brain

History and Heritage Day

Cambridge
13 September 2013

As usual the Society of Glass Technology included an history and heritage session in their annual meeting. The session featured an eclectic mix of speakers and topics; from artists to scientists; from glass myths to Mycenaean vitreous fragments. As usual the mix worked surprisingly well with many synergistic themes emerging.

Barry Clark and Sarah Cable started proceedings with *Lead Crystal, the beginning and the end?* suggesting that art glass' adoption of lead crystal was partly commercially driven. The lack of mainstream lead crystal producers has removed this economic incentive. Barry and Sarah argue that, to survive, art glass needs to return to the pre-lead crystal techniques alien to glassmakers trained in lead. My paper on this pre-lead crystal period echoed the theme of training glassmakers during transformational change, but highlighted the lack of reliable literature on this period for anyone wanting to study what was made and how. Jonathan Cooke's paper; *Time and temperature – techniques of multiple layering in glass painting* also stressed the inadequacies of both craft training and later secondary literature in preparing artists to try to emulate the achievements of past masters and the years of careful experimentation that it takes to

rediscover lost skills. Oksana Kondratyeva made many similar points in relation to a different stained-glass skill in her talk: *Acid Etching Technique and Stained Glass: Art versus Science*, stressing the need to understand the genesis of the craft if one hopes to take it in new directions. Jerome Harrington's talk on *Glass making and Myth making* brought out some lingering myths and misperceptions about glass and glassmaking and questioned how much people really understand about how common things are made and the avenues available to them to find out. Michael Cable spoke on *What the Siemens Brothers did for the Glass Industry*, outlining the achievements of this innovative family and particularly looking at the people themselves; observing that the brother generally regarded as being the most innovative was the one with the least formal education.

Francisca Pulido Valente, Inês Coutinho and Márcia Vilarigues spoke on *Eighteenth-Century Lead glass Goblets found in Portugal*, describing a large group of glasses found during renovation of a Lisbon house, from art-historical, scientific and conservation perspectives. They argued convincingly that these glasses were of English origin. Comparable glasses from English

excavations are surprisingly rare - this group may well outnumber those found in the whole of London – emphasising the need for English scholars to note 'export finds' and the reliance of foreign scholars on a sound foundation history of British glass. Their work on these glasses appeared considerably more thorough than any I recall on similar material from England. Doris Möncke, a senior glass researcher from the Otto-Schott-Institute at the University of Jena, summarised the results of an extensive experimental study of surface effects on Mycenaean vitreous relief fragments, showing that modern vibrational spectroscopic techniques are able to probe surface layers of only a few microns thick. However the point of the paper was not simply to present analysis results, but to use these to learn how and why these surface effects were achieved.

As usual it proved a fascinating day and as usual I am struggling to keep up with all the emails resulting from marginal discussions! The planning for next year's GlassAC 14 at Durham is well advanced and judging by this year's event it promises to be well worth attending.

Colin Brain

The Tunstill Collection at Chelmsford Museum

Mark Curteis

In 1958 Chelmsford Museum received a bequest of over four hundred 18th-century English stemmed drinking glasses from Frederick Walter Tunstill. Born in Broomfield near Chelmsford in 1875, Tunstill started working for the electrical engineering company Cromptons in 1887 and later became a travelling salesman for the firm. It was a colleague who got him started collecting and he also collected Hedingham ware, miniature china, furniture and paintings. He kept his collection of glasses in a seldom-used dining room from which many (including his wife) were excluded. He was described as a shy man, but he also gave lectures on collecting, and encouraged younger collectors. Travelling around the country greatly helped him build up his collection.

There are a variety of drinking glasses in the collection and different shaped glasses were used for different drinks. The majority of the glasses in the collection are wine glasses, but it also includes ale, which was drunk from narrow "flute" glasses, cordial glasses and a large toastmaster's glass.

The collection was arranged by stem types from the balusters of c.1695 onwards to the faceted stems of c.1800. Tunstill had an eye for unusual specimens within his means, and acquired a number of air and opaque twist stems, some with multiple knops; a few 'Newcastle' light balusters with Dutch engraving;



A bell-shaped wine glass with double series opaque white twist with outer white backed scarlet thread, c.1755-75; a round-collared wine glass engraved with Jacobite emblems of a rose and two buds, an oak leaf, and inscribed FIAT, c.1750.
©Chelmsford Museum

several with 'Jacobite' engraving; a few colour-twist stems; and two glasses with Beilby-style enamelling. The faceted stem group includes some unusual patterns.

The collection is augmented by another significant group of thirty-five 18th-century ale glasses on long-term loan known as the McKelvie collection; and a few examples of other types of 18th-century glassware

including jelly and sweetmeat glasses, and a tazza.

Most of the glasses are on public display, and all can be made available to researchers on request.

Late Bronze Age Glass Beads

Sarah Paynter

English Heritage, Fort Cumberland, Portsmouth

Between 2007 and 2010, Albion Archaeology undertook archaeological investigations in advance of a housing development near Stotfold, in Bedfordshire. The excavations revealed activity dating from the middle Bronze Age to the post-medieval periods, including settlement activity and several distinct burial areas (Keir forthcoming). Within one of these burial areas, an unurned cremation burial (G613) was found to include a small fragment of folded gold sheet, fragments of a copper alloy tubular annular ring and a collection of glass beads. Seventeen of the beads were wound, annular translucent blue glass, some of which were noticeably eroded by weathering, and one was a cylindrical glass bead in translucent blue and opaque white glass (Holly Duncan pers. comm.) (see below). The largest of the monochrome beads was 8.9mm long and 7.1mm wide. The decorated bead was 10.6mm long and 5.5mm at its widest point with a series of white trails applied in bands to create a chevron pattern (see below).

Radiocarbon dating of the cremated bone by SUERC provided a Radiocarbon Age of BP 2905±30 (1220-1000calBC at 95% probability). Glass is very rare at this date in the UK (Henderson 1988, Paynter and Dungworth 2011) and so a small sample of one of the beads was analysed using scanning electron microscopy with energy dispersive spectrometry (SEM-EDS) to identify the glass type.

Analysis confirmed the early date of the beads because they were made from potassium-rich glass with low levels of magnesium, which is sometimes referred to as low-magnesium, high-potassium glass (abbreviated to LMHK glass) or mixed-alkali glass because it also contains soda (Brill 1999, Henderson 1988); this glass is known from other Late Bronze Age sites. The glass was coloured blue by adding several weight percent of copper oxide. The opaque white glass used for the stripes on the decorated bead appears to have been made by adding quartz particles to otherwise uncoloured glass. The full analyses will appear in the site publication (Keir forthcoming).

Of the other beads known from Britain, only one has a similar LMHK composition; a single bead from All Canning's Cross, thought to date to around 900 BC



The decorated bead <568> (rear left), and two of the annular beads <575> (right) and the weathered bead <584> (front left). Bead <584> was sampled for analysis. ©Sarah Paynter

(Henderson 1988). Similar glass has been identified in Ireland at Rathgall (8th and 9th centuries BC) and at a growing number of sites in Europe of the 10th and 11th centuries BC, including in Switzerland, France, Italy and Germany (Artioli and Angelini 2013, Hartmann *et al.* 1997, Henderson 1988, Towle *et al.* 2001). This glass is thought to be a European product due to the probable evidence of production at Frattesina in Italy combined with a concentration of this material in Europe. The rarity of this glass in England, together with the absence so far of any evidence for glass production at this date, strongly suggests that the Stotfold beads were imported from Europe and that they would have been objects of great rarity and value.

Acknowledgements

With thanks to Albion Archaeology, in particular Holly Duncan, the landowners Persimmon Homes Ltd and George Wimpey UK Ltd and to CGMS Consulting Ltd.

References

Artioli, G and Angelini, I, 2013 Evolution of Vitreous Materials in Bronze Age Italy, in K Janssens (Ed.), *Modern Methods for Analysing Archaeological and Historical Glass, Volume I*, Wiley, 355-68

Brill, RH, 1999 *Chemical Analyses of Early Glasses, Volume 2: Tables of Analyses*, New York, The Corning Museum of Glass

Hartmann, G, Kappel, I, Grote, K and Arndt, B, 1997 Chemistry and Technology of Prehistoric glass from Lower Saxony and Hesse, *Journal of Archaeological Sciences* **24**, 547-59

Henderson, J, 1988 Glass production and Bronze Age Europe, *Antiquity* **62**, 435-51

Keir, W, forthcoming Prehistoric settlement and the late Saxon origins of Stotfold – excavation on land to the

south of Stotfold, Bedfordshire 2007-2010, *East Anglian Archaeology*, Oxford, Oxbow

Paynter, S and Dungworth, D, 2011 *Archaeological Evidence for Glassworking*, Swindon, English Heritage

Towle, A, Henderson, J, Bellintani, P and Gambacurta, G, 2001 Frattesina and Adria: Report of scientific analyses of early glass from the Veneto, *Padusa* **37**, 7-66

AHG GRANT REPORT

Glass Beads in Early Iron Age Taiwan (the 1st millennium AD)

Kuan-Wen Wang

University of Sheffield

kw.wang@sheffield.ac.uk

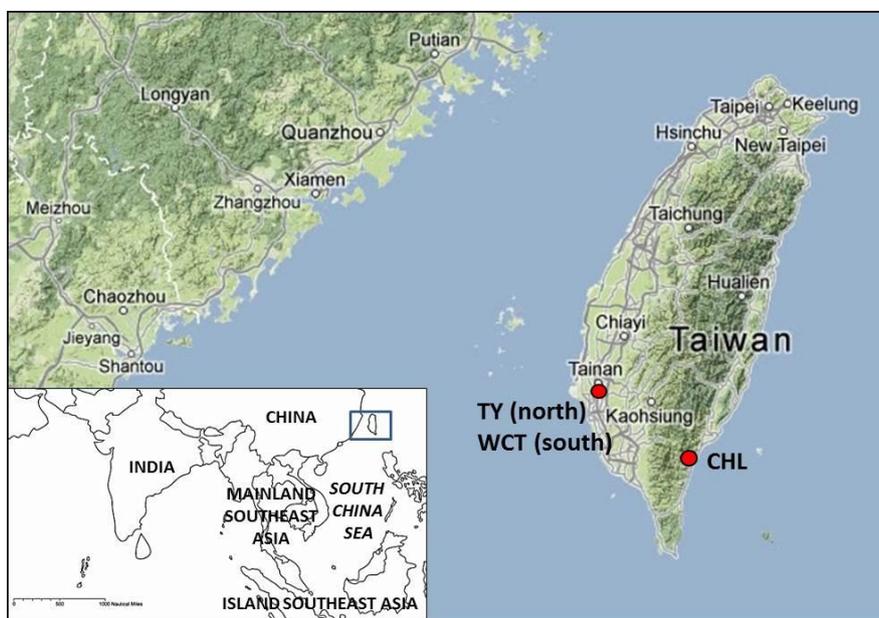


Figure 1: map showing the location of Taiwan and the site studied. (TY: Taoyeh site. WCT: Wuchientso site. CHL: Chiuhsianglan site.) Map data ©2013 Auto Navi, Google, Kingway, ZENRIN (with additions)

Taiwan is a small island located off the southeast coast of mainland China. In the Iron Age of Taiwan (c.1st century AD onwards) glass beads were luxury items found in funerary and settlement contexts. It is assumed they replaced indigenous nephrite which was used for the manufacture of decorative and prestige items throughout the earlier Neolithic. This replacement has led archaeologists to suggest that the same eastern trade routes used to export nephrite from Taiwan to other areas in South East Asia in the late Neolithic were used to import glass beads in the early Iron Age. Preliminary observations suggest the potential sequence of emergence and subsequent distribution of glass beads is earlier in eastern sites than in south-western sites. The

fieldwork undertaken with the generous funding from AHG allowed a preliminary study of the glass beads from two sites in southern Taiwan (Taoyeh site and Wuchientso site) and one site in eastern Taiwan (Chiuhsianglan site) (Figure 1).

Around 50-60 glass beads were excavated from the TY and WCT sites respectively. These two sites show different cultural phases of the Niasung culture of the Iron Age in southern Taiwan. Glass beads from the TY site (the 2nd-6th century AD) are usually 1-3mm in length and 3-5mm in diameter, and green and blue beads dominate. Most of the glass beads are cylindrical, while a small proportion are oblate. Microscopic observation

suggests that it is probable that most of these beads were made by the drawn method, as distinct fabric lines parallel to the perforation axis can be easily identified (especially the inhomogeneous yellowish lines on the surface of green bead, Figure 2). At this site, glass beads were found in either funerary context or middens. The burial tradition at the TY site, with the fragmented pottery under the body and an intact pottery vessel placed in front of the head, is quite unique compared to other contemporary sites in this region. Glass beads are not common among mortuary items, and all the glass beads found in burials are close to the mandible.



Figure 2: Glass bead from Taoyeh site (left) and Wuchientso site (right), showing the paralleled fabric line, which may suggest the use of drawn method, on the surface. The different degree of end roundness between beads in two sites can also be observed. ©Kuan-Wen Wang

At the WCT site (the 6th-10th century AD), most of the glass beads are blue and cylindrical in shape, with the average size of 1-5mm in length and 2-5mm in diameter. The cylindrical glass beads from WCT seem to be different in shape to those from TY, tapering at the end rather than having rounded ends. Whether or not this difference suggests different workshop origins or different manufacturing processes is yet to be determined. Microscopic observation of the WCT beads also suggests the potential use of a drawn method for bead production. Most of the glass beads at the WCT site were found in the midden/settlement area, with only a small amount from mortuary contexts.

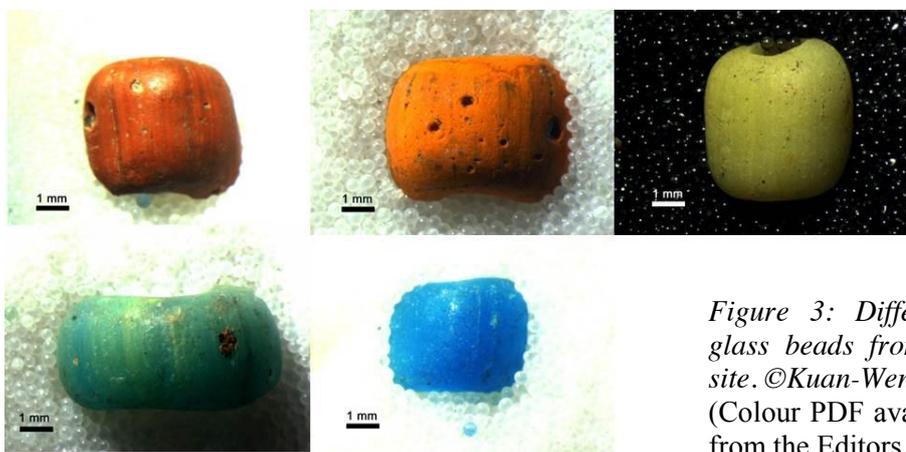


Figure 3: Different colours of glass beads from Chiuhsianglan site. ©Kuan-Wen Wang (Colour PDF available on request from the Editors, see back page)

The CHL site (the 2nd century BC – the 7th century AD), is the only prehistoric site showing potential evidence for glass bead making in Taiwan; thousands of glass beads and some debris were found. Glass beads from this site cover a range of colours including red, blue, yellow, green, orange and black (Figure 3), with red and blue being in the majority. Most of the glass beads were found close to the potential area of a multi-functional workshop, which shows evidence of both metal working and glass bead making at the CHL site. Fifty of them, including finished beads and related debris, were collected for further examination and chemical analysis as part of my PhD research. These samples are generally 2-5mm in length and 3-6mm in diameter. Oblate and cylinder beads are the most common shapes, with paralleled lines on the bead surface suggesting they were produced using the drawn method. During this field work, very basic semi quantitative compositional analysis was conducted on CHL beads through SEM-EDS analysis to determine the basic compositions of the beads from the site and to suggest which raw materials might have been used to produce the beads, if indeed they are locally produced. The results of the analysis and further more quantitative analysis will be undertaken and reported as part of the broader PhD project.

In summary, glass beads from the three sites do not reveal great differences in terms of the size and shape, although slightly differentiations can be observed on the degree of end roundness between TY and WCT site, and the range and dominance of colours observed at each of the three sites. It is also obvious that drawn beads are dominant, which is consistent with the method of glass bead making in contemporary South and South East Asia. As yet no definitive statements can be made relating to the movement of beads from the east, but it is hoped the results of the chemical analysis will shed some light on this. Further investigation will thus be carried out in order to understand the picture of trade/exchange of glass beads within Taiwan and between Taiwan and South East Asia in this transitional period.

Acknowledgements

The author would like to thank Professor Kuang-ti Li (Academia Sinica, Taiwan), Professor Cheng-hwa Tsang (Academia Sinica, Taiwan) and the staff in the Nanke Archaeological Work Station and the National Museum of Prehistory in Tainan for allowing the study of glass beads from TY and WCT sites. Special thanks are also given to Dr Yoshiyuki Iizuka and Mr Yu-shiang Wang for helping with the compositional analysis on CHL

beads, to Dr Scarlett Chiu for providing office space for research in Taiwan and to Dr Caroline Jackson for supervision of the PhD and for providing suggestions on the report and the on-going research. The author is grateful to Mr Kun-Hsiu Lee (National Museum of Prehistory in Taitung) for providing CHL beads for analysis. She would also like to thank the AHG for providing some of the funding to enable this research visit to take place.

QUERIES

Query on Complex Canes

Since the early core-formed glasses, glassmakers have used white or coloured glass canes to decorate their products. These canes may be marvered into the glass or trailed on the surface. However, I am finding out that these are not as simple as they might seem and wondered if anyone can shed any light on why, when and where the cane became more complex.

The specific context for this question is 17th-century glass vessels and glass-making waste found in London (see page 6). The canes used for these are made up of a clear glass core, a concentric opaque white layer, possibly a coloured layer and then a clear glass coating. Typically the resulting cane is around 1-2mm in diameter. The picture below shows the cross section through a broken piece decorated with white and blue canes.

Looking at a number of different examples of vessels which appear to be of 17th-century date, some have solid canes and others have the complex canes described above. I have come across both types in the past, but had never stopped to think why there are at least two types and what differentiates their use. I can come up with a number of theories, for example: the complex cane would probably help manage differences between the coefficients of expansion of the different glasses involved, or the complex cane might be cheaper on raw materials since it uses less of the expensive materials. Looking through published information I cannot find anything very useful on the topic, so I wondered if AHG members might be able to help with information on where solid or complex canes have been found and to any published analyses of the types of glass involved.

Colin Brain, cbrain@interalpha.co.uk



Cross section through broken glass fragment decorated with white and blue canes ©Colin Brain

NEW PUBLICATIONS

Resulting from the AHG conference in York in May 2011, Oxbow Books is offering a pre-publication discount on:

Neighbours and Successors of Rome: Traditions of glass production and use in Europe and the Middle East in the later 1st millennium AD

Edited by Daniel Keller, Jennifer Price and Caroline Jackson

Pre-Publication Offer until 1st May 2014

Regular Price: £48.00

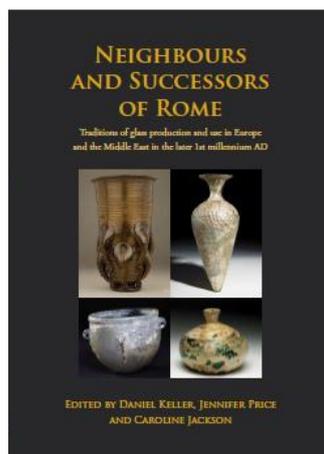
Special Price: £36.00

Published by Oxbow Books Due April 2014

ISBN: 978-1782973973

Hardback: 231pp, 216x280mm, 92 b/w figs, 79 col illus

Available from www.oxbowbooks.com



Presented through 20 case studies covering Europe and the Near East, Neighbours and Successors of Rome investigates development in the production of glass and the mechanisms of the wider glass economy as part of a wider material culture in Europe and the Near East around the later first millennium AD. Through highlighting and solidifying chronology, patterns of distribution, and typology, the primary aim of the collection is to present a new methodology that emphasises regional workshops, scientific data, and the wider trade culture.

This methodology embraces a shift in conceptual approach to the study of glass by explaining typological change through the existence of a thriving supra-national commercial network that responded to market demands and applies the results of a range of new scientific techniques to an archaeological framework that stresses

co-dependence and similarities between the various sites considered. Such an approach, particularly within Byzantine and early Islamic glass production, is a pioneering concept that contextualises individual sites within the wider region.

By twinning a critique of archaeometric methods with the latest archaeological results, the contributors present a foundation for glass research, seen through the lens of consumption demands and geographical necessity, that analyses production centres and traditional typological knowledge. In so doing they bridge an important divide by demonstrating the co-habitability of diverse approaches and disciplines, linking, for example, the production of Campanulate bowls from Gallaecia with the burgeoning international late antique style. Equally, the particular details of those pieces allow us to identify a regional style as well as local production. As such this compilation provides a highly valuable resource for archaeologists, anthropologists, and art historians.

Medieval to early post-medieval tenements and Middle Eastern imports: excavations at Plantation Place, City of London, 1997–2003

Ken Pitt, with Lyn Blackmore, Tony Dyson, Rachel Tyson

MOLA Monograph Series 66

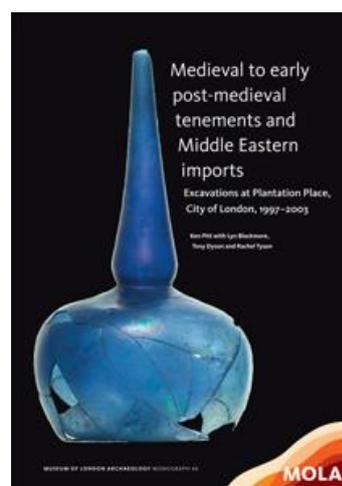
Museum of London Archaeology 2013

Hardback: 138 pp, 71 b/w and col illus

ISBN: 978-1907586163

£22

Available from: booksales@museumoflondon.org.uk



Excavations at Plantation Place provided evidence for medieval and early post-medieval occupation of an entire block in the eastern part of the City of London near the Thames waterfront. Contemporary ground surfaces and

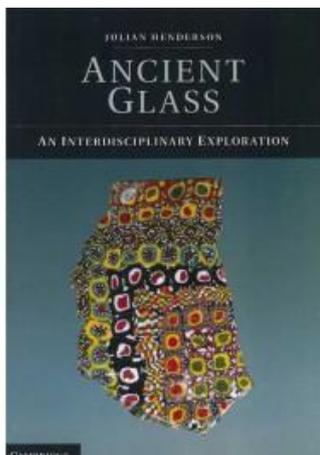
buildings did not survive, but associated pits and wells have been related by documentary and cartographic research to identified tenements in this thriving area of shops, warehouses and merchants' residences. Important assemblages from pits and wells include vessels used in refining gold, crucibles and moulds from bronze casting, and the largest assemblage of late medieval Islamic-style glass yet found in Britain, alongside Middle Eastern ceramics.

The glass, by Rachel Tyson, includes a full discussion of the many unusual Islamic-style vessels from the site. These include sprinklers and flasks with bulges in the neck, and other Islamic glass found in Britain is reviewed. A number of impressive imported vessels from various parts of Europe were excavated, including an exceptional late medieval gold-painted blue goblet and cover with eastern Mediterranean influences; analysis showed it to contain boron, which could indicate an Ottoman origin. The large glass assemblage ranges from the 12th to the 17th century; c.184 selected fragments are catalogued, and some illustrated, in an appendix.

Ancient Glass: An Interdisciplinary Exploration

Julian Henderson

Cambridge University Press 2013
Hardback: 450pp, b/w illus
ISBN: 978-1107006737
£70



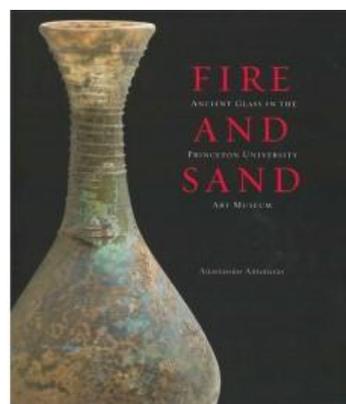
This book is an interdisciplinary exploration of archaeological glass in which technological, historical, geological, chemical, and cultural aspects of the study of ancient glass are combined. The book examines why and how this unique material was invented some 4,500 years ago and considers the ritual, social, economic, and political contexts of its development. The book also provides an in-depth consideration of glass as a material, the raw materials used to make it, and its wide range of

chemical compositions in both the East and the West from its invention to the 17th century AD. Julian Henderson focuses on three contrasting archaeological and scientific case studies: Late Bronze Age glass, late Hellenistic-early Roman glass, and Islamic glass in the Middle East. He considers in detail the provenances of ancient glass using scientific techniques and discusses a range of vessels and their uses in ancient societies.

Fire and Sand: Ancient Glass in the Collection of the Princeton Art Museum

Anastassios Antonaras

Yale University Press 2013
Hardback: 408pp, col illus throughout
ISBN: 978-0300179811
£45



For the first time, this important volume features nearly all of the ancient glass objects in the collection of the Princeton University Art Museum. Collected over the course of more than a century, the objects originate from locations across the eastern Mediterranean region. Taken together, the 509 ancient glass vessels and plaques provide a timeline of archaeological and cultural history from the middle of the second millennium BC to the rise of Islam in the 7th century.

An introductory essay by award-winning scholar Anastassios Antonaras summarizes the history of Greek, Roman, and Byzantine glass, with a special emphasis on people – workers, artisans, owners, and vendors – and on the processes they used to create and decorate these artefacts. Conveniently arranged according to production technique, each entry in *Fire and Sand* features a colour photograph, ink drawing, and detailed description.

The Medieval Stained Glass of Merton College, Oxford

Tim Ayers

Oxford University Press 2013

Hardback: 762pp, 2 vols, b/w illus throughout, 40 col plates

ISBN: 978-0197265444

£165

This is the first full study of the important medieval stained glass of Merton College, Oxford. The scheme in the chapel is exceptionally well preserved; with the nave of York Minster, it represents the largest surviving set of early 14th-century windows in Britain. Research for this volume in the rich college archives has provided a new date for them, and identified the glazier, whose business is considered locally. Outstanding early 15th-century panels from the transepts are attributed to the workshop of Thomas Glazier, who had worked for William of Wykeham, Chancellor of England. Seven windows in the Old Library contain the earliest glazing to survive from any English library. The glass will therefore be of interest to many students of English medieval art and architecture.

A general introduction also explores the potential of the monument for study within a university context. Merton was a model for the self-governing graduate college of the later middle ages in England. The glass invites consideration of the relationship between art and ideas, in a lost astrological window, for example; and the self-presentation of the scholar and college communities, both to themselves and to the society that supported them. As a result of the central place of the universities in national life, the Merton glass was an inspiration during the Gothic revival to artists and glazing businesses such as the Pre-Raphaelite John Everett Millais, and Morris, Marshall, Faulkner and Co.

Things from the Town: Artefacts and Inhabitants in Viking-Age Kaupang

Dagfinn Skre (Ed.)

Aarhus University Press and the Kaupang Excavation Project, University of Oslo 2011

Hardback: 483pp, b/w and many col illus

ISBN: 978-8779343092

£46

In this third volume deriving from the excavations of the Viking town of Kaupang of 2000-2003, a range of artefacts is presented along with a discussion of the town's inhabitants: their origins, activities and trading connections. The main categories of artefact are metal

jewellery and ornaments, gemstones, vessel glass, pottery, finds of soapstone, whetstones, and textile-production equipment. The artefacts are described and dated, and their areas of origin discussed. An exceptional wealth and diversity of artefacts distinguishes sites such as Kaupang from all other types of site in the Viking World. Above all, they reflect the fact that a large population of some 400-600 people lived closely together in the town, engaged in a comprehensive range of production and trade.

The chapter on vessel glass and glassworking by Bjarne Gaut (pages 169-279) presents and discusses the glass finds from Skre's excavations in the settlement area of Kaupang 1998-2003. These comprise 322 vessel fragments, nearly 700 pieces of raw material and waste from glassworking, and more than 30 other miscellaneous glass objects: window fragments, inlays and linen-smoothers. The work has three main aims. It explores what information the vessel sherds may provide about the presence of glass vessels on the site. It reviews the evidence for local glassworking and attempts to determine the raw materials used by beadmakers. Finally the assemblage is placed in the context of other Scandinavian and North European finds of glass, and some conclusions are drawn concerning the use and distribution of glass.

In addition to a typological study, spatial and compositional analyses are combined here to explore the archaeological potential of the material from the main research excavation (MRE). It is argued that the sherd assemblage predominantly represents complete vessels used within the buildings excavated. The glass was discarded in primary refuse areas to the side of the plots and in ditches when broken. It is established that the vessels are of types regularly found in western Europe in the 8th-10th centuries, and that the most frequently used vessel forms were tall palm cups/funnel beakers and small jars. An estimated minimum number of 32-34 vessels were broken and deposited in the five excavated plots in the MRE area in the early 9th-century Site Periods (SP) I-III. The many unidentified sherds indicate however that the real number was somewhat higher – possibly around fifty. The analysis also revealed distinct differences in the frequency of vessel consumption and glassworking between the plots.

Small-scale glassworking also took place in this area during the first decade(s) of the 8th century (SP I and II:1). No *in situ* workshop floors or furnaces have been preserved, but the waste material indicates that glass beads were made from imported soda glass, blocks of raw glass, tesserae and semi-manufactured rods. A limited number of window-fragments, archaic vessel material and some untypical working waste suggest that imported scrap glass could also have been utilised, although this remains unproven. The products consisted mainly of translucent

blue, green and opaque white annular beads, made in a winding technique similar to that seen on other (nearly) contemporary Scandinavian sites. It seems likely that the manufacture was carried out by itinerant artisans who brought their own raw materials. Although the preserved deposits in the MRE area represent a short time-span, the general scatter of production waste across the site suggests that beadworking may have continued in other areas or returned to the excavated riots in a later settlement phase.

With regard to vessel glass, Kaupang was primarily a consumption site. While the North Sea trade network provided direct access to a supply of glassware, there is no positive evidence for the re-exportation of material from Kaupang to its rural hinterland. It is argued that most of the glass was probably related to the consumption of wine. The use of glass and ceramic tableware was part of a material culture that distinguished traders and artisans in coastal market towns from the surrounding rural population.

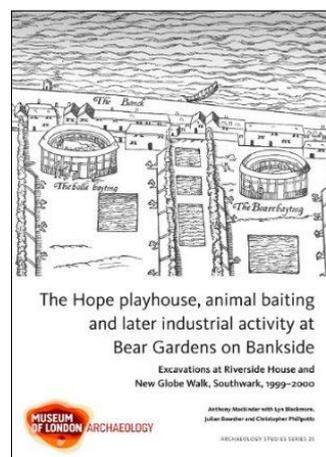
Appendix 9.1 includes full analytical data for 112 of the glass finds, carried out by Julian Henderson (EPMA) and David Dungworth (EDX). In addition a few lead, neodymium and strontium isotope analyses have been made. A preliminary discussion of this data is given.

The Hope Playhouse, Animal Baiting and Later Industrial Activity at Bear Gardens on Bankside: Excavations at Riverside House and New Globe Walk, Southwark, 1999–2000

Anthony Mackinder (with Lyn Blackmore, Julian Bosher and Christopher Phillpotts)

Museum of London Archaeology 2013. Archaeology Studies Series **25**
Paperback 94pp
ISBN: 978-1907586200
£12

This volume reports recent developer-led archaeological excavation and recording just to the west of the south end of Southwark Bridge Road on two sites: Riverside House and New Globe Walk. The volume also makes extensive use of historical evidence to interpret and contextualise some of the archaeological evidence. The layout, format and conventions of the volume will be familiar to anyone who has made use of Museum of London Archaeology reports. These are invariably well structured and provide excellent summaries – in French and German as well as English.



The earliest buildings provided rather fragmentary remains but are dated to the 14th or 15th centuries by associated pottery. These buildings are assumed to be related to historically-known stowhouses which were taverns and brothels. These had originally been established (by royal ordinance in the 12th century) and were let by the bishops of Winchester free or at a token rent to favoured retainers. The stowhouses were officially closed in 1546 and the area began to provide ‘entertainment’ in the form of animal baiting. Several animal baiting rings were built, including one for bulls and one bears, and the excavation recovered remains of one of the dog kennels – as well as numerous horse and dog bones (the former being the staple diet of the latter) and some bear bones. The discovery of two angled and parallel sections of brick wall indicated the presence of a polygonal building (possibly with ten sides) with an overall diameter of 20m. The walls were encountered in the south-east corner of the Riverside House excavation and are tentatively linked to the Hope, which was built in 1614 as a combined bear garden and playhouse (possibly built as a replacement to the Globe, which had burnt down the year before).

The Southwark playhouses were closed in 1642 and the Hope playhouse/bear garden was demolished shortly after and the area given over to the manufacture of glass and pottery. A glasshouse is known to have been in place on the site in 1671 but the date of construction is unknown. John Bowles is recorded as the owner of the Bear Garden glasshouse in 1684 where bottles and some window glass were produced until 1691. Glassworking seems to have come to an end on this site in 1748. Unfortunately any contemporary maps of London are not sufficiently detailed to allow a precise location of the glasshouses.

The report links a range of features and structures to the historically-attested glass industry but this linkage relies on the historical evidence and the presence of dumps of glassworking waste. The illustrated structures include one that is labelled as a glass furnace but this does not closely

resemble other excavated glass-melting furnaces of this period. Contemporary furnaces at Vauxhall (Tyler and Willmott 2005, figs 30-35) and Haughton Green (Vose 1994) all comprised a central fire trench 0.4-1.0m wide and 2.5-4.0m long.

The putative glass furnace (Riverside House, Building 8) is a brick-built structure comprising a low vault with two vertical vents through which hot air passed (figures 26-28). The faces of these vents were partially vitrified while the remaining parts of the structure were oxidised when fired to an orange-buff colour (figure 27). The vents are rather small: approximately 0.6m long and 0.1m wide. The vault underneath is almost 2m wide but at its highest appears to be little more than 0.2m high (figure 28). This is reconstructed as a glass-melting furnace with four crucibles above the two vents (figure 26) and the fuel burnt in a fire box 5m from the crucible. It is the opinion of this reviewer that such a furnace would not be capable of transferring sufficient heat such a distance. The limited vitrification of this structure is not consistent with melting glass (c.1300°C) using coal as a fuel. It is possible that this structure was used as a furnace/oven for fritting, annealing or pot setting (and may have used waste gas from an adjacent coal-fired glass-melting furnace).

Parts of two buildings (6 and 7) were recorded which included rooms with distinctive diagonal brick walls which may have supported floors and allowed the passage of hot air beneath. The central room in Building 7 incorporated a large flat stone which is interpreted as a marvering stone. Unfortunately only the northernmost part of Building 7 was accessible for archaeological investigation. One structure (Building 3/5) had a floor surface which included large quantities of glass-melting crucible. The walls of the disused Hope theatre were vaulted to form a possible flue and stairs added, however, the area available for examination did not include any associated furnace.

The archaeological excavation recovered 190kg of crucible and 14.6kg of glassworking waste, the latter mostly green but with some colourless and some blue glass. Relatively few examples of vessels survived which could be used to suggest the range of forms that were produced. The report includes some line drawings and photographs of glassworking waste including moils, offcuts and trails of glass bearing pincer impressions. Although the report mentions the likely lead content of some of the waste, it is regrettable that no systematic attempt was made to determine the chemical nature of the glass or related waste.

This report displays some of the strengths and weaknesses of archaeology in contemporary Britain. Current legislation and supporting guidance ensures that

building works are routinely preceded by archaeological recording. The report reviewed here is a fruit of this system; without which it is conceivable that the site would be redeveloped, the archaeology destroyed and no record made of what was there. Nevertheless, the requirement to record archaeology extends only to the threatened development. This can lead to a rather disjointed investigation, especially in urban contexts. The Bear Garden is not the only London glasshouse to suffer from piecemeal and ultimately less than satisfactory excavation and analysis.

Mackinder, A and Blatherwick, S, 2000 *Bankside: Excavations at Benbow House, Southwark, London SE1*, London, Museum of London Archaeology Service, Studies Series **3**

Tyler, K and Willmott, H, 2005 *John Baker's late 17th-century glasshouse at Vauxhall*, London, Museum of London Archaeology Service, Monograph Series **28**

Vose, RH, 1994 Excavations at the 17th-century glasshouse at Haughton Green, Denton, near Manchester, *Post-Medieval Archaeology* **28**, 1-71

David Dungworth

Please send your contributions:
Finds • Research • Ideas • Enquiries
Publications • Conferences • News
for *Glass News* **36**
by
2nd June 2014

to either of the editors:

Andrew Meek
Department of Conservation and Scientific
Research
The British Museum
Great Russell Street
London
WC1B 3DG
Ameek@thebritishmuseum.ac.uk

or

Rachel Tyson
rachel@glass-vessels.co.uk