BM Romano-British Cataloguing p.10 | Export Bar for Perrot Table Top p.25 | Southwark Glass p.29

Glass News

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The Association for the History of Glass Ltd is a charity which exists to advance the education of the public in the historical, archaeological, aesthetic and technological study of glass for all periods of history and all parts of the world together with the problems of conservation and presentation in museums and universities. To these ends its activities include the organisation of conferences and meetings, provision of grants to support scholarly work, and it publishes Glass News and occasional volumes on ancient and historical glass.

Membership of the AHG is currently £15.00 per annum and is open to all interested individuals. It is available through our website www.historyofglass.org.uk. It includes Glass News, reduced costs to attend events, and access to the resources of the members only area of the AHG website. In addition, we are currently trialling The Glass Intelligence, an email bulletin which goes out to members several times per year providing information about current exhibitions, forthcoming conferences, and other events.

IAN FREESTONE

Welcome to the latest edition of Glass News, the magazine of the Association for the History of Glass. Under its new Editor-in-Chief, Tom Derrick, and with a streamlined production system, we aim to continue to publish two issues per annum, disseminating recent research, discoveries and developments in the fields of ancient and historical glass. We look beyond activities in our UK base to developments internationally and are always happy to receive reports of activities elsewhere. We are interested in what you have done recently and in what you are doing now, as well as your new grants and projects. Glass News will publish reviews of conferences, exhibitions and publications. Short research articles are welcome, as well as summaries of research findings published in specialist journals, but which deserve the attention of a wider audience. Following the conversation with Mark Taylor and David Hill about their experimental work on Roman mould-blown glass in GN52, we continue trialling this new format in the form of a conversation with Colin Brain on English Crystal in the current issue – do let us know what you think about this approach.

Recognising that notices of forthcoming events often come too late to be usefully publicised in Glass News, this year we have launched The Glass Intelligence, an email newsletter for AHG members which appears more frequently and covers more immediate issues such as temporary exhibitions and notices of forthcoming conferences (hopefully before the registration deadlines!). As of July, we have issued three of these, so if you are a member and haven't received it, please check your Junk email folder. If you are not a member and would like to receive it, please join!

In this issue, you will find the announcement of our forthcoming Autumn research meeting, to be held on-line in October. Online meetings have proved hugely successful and can reach a wider audience than in-person events. The downside is that the opportunities for networking, informal interaction between specialists and the wider public, and between early-stage and experienced researchers are greatly reduced. We intend to continue to hold meetings in both formats. However, the challenge for a small independent organization such as the AHG is to find venues which are centrally located, allowing easy access, but which are reasonably priced. We hope to announce shortly plans for our Spring 2025 in-person meeting on Glass in Architecture and are currently scoping potential locations with a view to keeping the costs down. Watch this space.

We hope that you enjoy the current issue which contains a wealth of interesting material on glass from a wide range of periods and places. In our increasingly connected but strangely fragmented world, it is important that we look beyond our specific interests to see the bigger picture. Hopefully Glass News helps to achieve this aim.

TABLE OF CONTENTS

AGM 2024

The Association for the History of Glass hereby gives notice that the Annual General Meeting will be held as an online meeting on Saturday the 26th of October 2024 at 2pm. Further details and a link to join the meeting will be sent to all members nearer the time.

23RD CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR THE HISTORY OF GLASS (AIHV) UPDATE

We have received the following communication from the AIHV board regarding the planned conference in Israel in September 2024. Further updates will be posted on the AIHV website: www.aihv.org/congress

The Board of the International Association for the History of Glass, in consultation with the Organizing Committee of the 23rd Conference, regrets to inform you that the conference, originally scheduled to take place in Israel in September 2024, has been postponed for one year due to the ongoing conflict in the region.

We will provide further updates as the situation develops.

Sincerely,

The Board of AIHV

CALL FOR PAPERS

AUTUMN MEETING 'A FRESH BATCH: CURRENT RESEARCH IN ANCIENT AND HISTORICAL GLASS'

SATURDAY 26 OCTOBER 2024

The Association for the History of Glass will be hosting this online meeting, which is open to all interested in ancient and historical glass. We invite proposals for presentations featuring current research on glass from any period. We would particularly like to encourage those new to glass studies to present their research in a welcoming and supportive environment.

For more information or to submit a proposal for a presentation of 15 to 20 minutes, please contact the organisers, Sally Cottam and Ana Franjić.

Proposals (title and short abstract) can be sent to us by 15 September at: events@historyofglass.org.uk

AHG GRANT REPORT: ISLAMIC BANGLES

CHARLOTTE NASH-PYE

DISSEMINATION OF ISLAMIC GLASS BANGLES ACROSS THE WESTERN INDIAN OCEAN TRADE NETWORK (14TH-18TH CENTURIES)

AHG GRANT FUNDING REPORT

As a current CDA (Collaborative Doctoral Award) PhD student at the University of Kent and the British Museum, studying the 'Dissemination of Islamic glass bangles across the western Indian Ocean trade network (14th-18th centuries)', I have been lucky enough to receive much interest in my research and many opportunities to share my findings with the international historic glass community.

Following the lifting of covid restrictions in early 2023, I finally had opportunities to review international collections in person in Oman and Bahrain, as well as to analyse those from Saudi Arabia at the University of Oregon in the USA. I was also simultaneously invited to share some of my recent findings at the Society of American Archaeologists (SAA) conference in Portland, Oregon, by the chair of the session 'Current Research on Ancient Glass around the Indian Ocean', Dr Laure Dussubieux. The University of Oregon was thus able to cover my travel costs to review their collection and give a talk on Middle Eastern vs Indian glass bangles at the University.

However, for the portion of the conference held in Portland, I was extremely grateful to have my grant for accommodation costs awarded by the Association for the History of Glass. This grant enabled me to take full advantage of the fantastic opportunity to present my findings to esteemed international historic glass experts, whom I would not otherwise have had an opportunity to meet.

Fig. 1 Charlotte Nash-Pye answering questions from the audience following her presentation on her current research.

The research presented at the conference focused on the most recent identification of a previously unknown high-alumina plant-ash glass (v-Na-Al) from the known glass bangle production site of Kawd am-Saila in Yemen (c. 14th-16th centuries). This was from recent analysis of a collection at the British Museum, as part of my ongoing PhD research.

Although a v-Na-Al category of glass, further research indicates it differs geochemically from v-Na-Al glasses that are usually associated with Central Asia. I have recently submitted a joint paper (in peer review) on this subject of v-Na-Al glass from the Central Asian region, as an attempt to better define the groups that are characteristic of this region. This is in preparation for contextualising a future publication on this newly discovered Yemeni category of v-Na-Al glass and how it differs from other known plant ash glass groups with this high alumina characteristic. Glass from Kawd am-Saila has also been identified on a small scale amongst contemporary collections from the Persian Gulf region, which have also undergone laser ablation mass spectrometry (LA-ICP-MS analysis) as part of this PhD research. Most recently, it has been confirmed amongst a collection from Somalia (also at the British Museum).

Fig. 2 Image of the Kawd am-Saila collection, courtesy of the Trustees of the British Museum.

This latest analysis was undertaken in collaboration with UCL Institute of Archaeology (IoA) with the assistance of fellow PhD glass researcher Liam Richards, and the permission of Dr Mike Charlton. The hypothesis is that, as the major trading partner with Yemen during this period, it is likely that (now identified) this composition of glass will be found in higher proportions amongst other collections from the Horn of Africa in the future.

My contribution to the SAA conference was well received and has led to additional interest and further opportunities for this project. It resulted in my being invited by colleagues at the Corning Museum of Glass to participate in another session on 'Glass around the Indian Ocean' as part of an 'Arts of the Indian Ocean' symposium at the Royal Ontario Museum in Toronto, Canada, in early May. Additionally, a collaborative paper with Dr Alison Carter on the collection from al Hasa that I reviewed at the University of Oregon is being prepared and should be available shortly, following my final submission. I also intend to publish the data for the Yemini collection following my forthcoming thesis submission. For further updates on talks and publications that have resulted from this highly successful research trip, please follow my Academia page. I am extremely grateful for the grant from AHG that enabled this dual-purpose trip to go ahead and very pleased with further opportunities that have resulted from it.

I am now in my final write up year and I hope to submit my thesis by the end of this year. My current and future research papers and conference presentations on Islamic glass bangles will be found at:

www.britishmuseum.academia.edu/CharlotteNash

AHG GRANT REPORT: RECYCLING IN THE FORUM OF CAESAR

CRISTINA BOSCHETTI

PATTERNS OF GLASS RECYCLING AND SUPPLY IN ROME: NEW RESULTS FROM THE FORUM OF CAESAR (FIRST-SIXTEENTH CENTURY CE)

AHG GRANT FUNDING REPORT

Thanks to receiving an AHG travel grant I was able to join the AHG Spring Study Day 'Everything old is new again', dedicated to the subject of glass recycling and held in Oxford from March 31st to April 1st 2023. My presentation, entitled 'Patterns of glass recycling and supply in Rome: new results from the Forum of Caesar (first-sixteenth century CE)' presented a synthesis of the interdisciplinary results obtained on the glass finds excavated between 2020 and 2022 by the team operating in Rome at the Forum of Caesar, as part of the Danish-Italian Caesar's Forum project −directors: Prof. Rubina Raja (UrbNet), Dr. Jan Kindberg Jacobsen (DIR) and Dr. Claudio Parisi Presicce (Sovrintendenza Capitolina ai Beni Culturali, Direzione Musei archeologici e storico-artistici); sponsors: Carlsberg Foundation and Aarhus University Research Foundation.

The stratigraphic investigations in the Forum of Caesar unearthed over 3000 glass finds from well-dated contexts. This rich glass corpus is associated with three main chronological phases: the first century CE, Late Antiquity, and the Renaissance. The first-century and Renaissance materials are particularly important, because the documentation for glass available in Rome during these two periods is fragmentary and published chemical analyses are completely lacking. The chemical composition of two-hundred and fifty samples, including vessels, indicators of production, window panes, mosaic tesserae, and game counters, was determined by laser ablation mass spectrometry (LA-ICP-MS) at the Institut de Recherche sur les Archéomatériaux-Centre Ernest Babylon (IRAMAT-CEB) Laboratory in Orléans, France, under the direction of Dr. Nadine Schibille. This state-of-the-art facility, funded by the French national research council (CNRS), allows the measurement of around 60 chemical elements in ancient glass by removing a tiny amount of material with a laser beam.

The practice of glass recycling during the three chronological periods considered by this study is clearly visible and was discussed from the perspective of the circular dimension of ancient economy and in relation to the economy of ancient urban societies. One of the main achievements is the identification of recycled compositions in 80% of the first-century colourless glasses. These include glass working indicators (chunks, moils, and failed vessels) which prove that glass-recycling workshops operated in the urban area of Rome, during a period when fresh glass was easily available on the market. The Latin sources mention the collection of cullet in Rome during the first century CE and our results support evidence of the existence of an efficient system of collection and recycling of broken glass. Rather than being a necessity due to the lack of raw material, recycling was surely connected to the management of waste disposal in Rome during a period of constant demographic expansion.

Not surprisingly, recycled compositions were dominant during Late Antiquity. The base glasses produced between the first and the third centuries continued to circulate until the seventh century, when they were flanked by the new compositions, which appeared on the market from the fourth century onwards. The few Medieval vessel fragments date between the ninth and the eleventh centuries and confirm that older glass continued to be recycled. Plant-ash glass was not identified (Boschetti et al. 2022a). During the twelfth century the area was abandoned, due to frequent floodings. A reoccupation started only in 1566, with the start of the works for the construction of the new Alessandrino Quarter.

Fig. 3 Flasks for urine tests excavated in the Renaissance dump of the Forum of Caesar (photo from Boschetti et al. 2023).

Over 1200 fragments of glass vessels (including medicine flasks, flasks for urine tests, beakers and bottles) were found in a dump, formed in connection with the nearby hospital *dei Fornari* (fig. 3) (Boschetti et al. 2022b; Boschetti et al. 2023). Most of these vessels were made in Tuscany, where several workshops specialised in the production of common tableware and medicinal vessels for hospitals and pharmacies. The recycled compositions are ubiquitous and reflect the instructions of Renaissance recipe books, which mention the addition of cullet to the batch, to facilitate glassmaking. The collection and sale of cullet was regulated by specific legislation and stocks of cullet are mentioned in the inventories of the Tuscan glass workshops. Taking into consideration that glass recycling was a common practice during the sixteenth century, the quantity of glass vessels deposited in the dump might look surprising. The study of the context revealed that the vessels were dumped under exceptional circumstances, when Rome was facing the spread of an epidemic.

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AHG GRANT REPORT: BM ROMANO-BRITISH GLASS CATALOGUING

SALLY COTTAM

CATALOGUE OF ROMANO-BRITISH GLASS IN THE BRITISH MUSEUM

AHG GRANT FUNDING REPORT

In 2022, the publications department of the British Museum received £500 towards the costs of photographing a selection of glass vessels in the museum's collection. These images will illustrate a forthcoming catalogue of the Romano-British glass vessels in the British Museum and this note serves as an update on how the project is progressing.

The British Museum has a large and diverse collection of Roman glass from British sites. Many of the vessels were recovered from burials and are well preserved and often intact, whilst others are only preserved as fragments. Some of the best-known glass vessels from Roman Britain are held in the collection, including the mould-blown cup from Colchester with scenes of chariot racing, a vessel which encapsulates the cultural shift in Britain as it transferred to Roman control in the mid-first century CE (fig. 4).

Many of the vessels had not previously been professionally photographed, but a few had existing images. These had been taken on film and in a mixture of styles, relating to previous commissions for exhibitions such as 'Masterpieces of Glass' in 1968 and 'Glass of the Caesars' in 1987. The purpose of the new campaign of photography was to produce high quality digital images of 82 of the vessels for the new catalogue, in a standardised style. Many of these new pictures have already been uploaded to the British Museum's online collection database, and all will be included in the final catalogue.

Fig. 4 Mould-blown chariot cup from Colchester © The Trustees of the British Museum

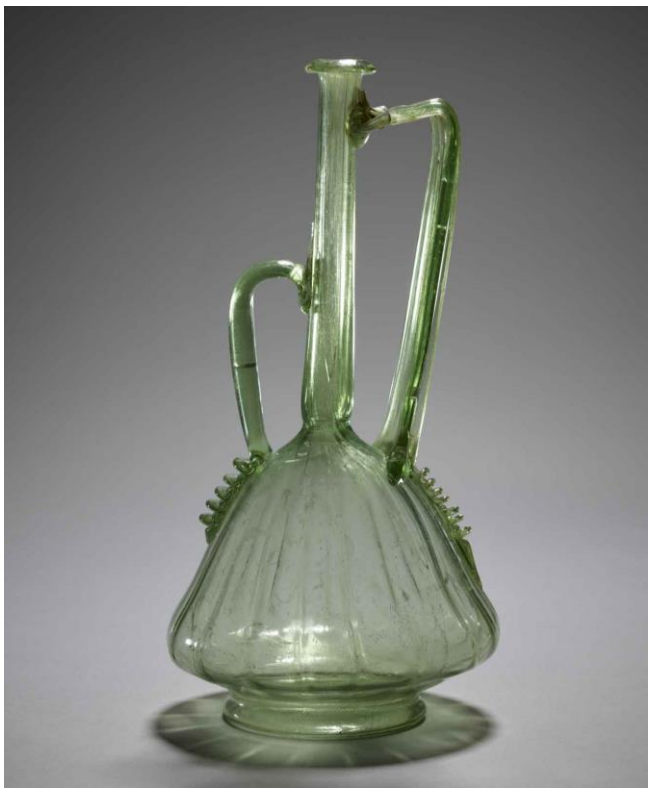

Fig. 5 Conical two-handled jug from Sittingbourne, Kent © The Trustees of the British Museum

The idea for a catalogue of the Romano-British vessels was originally proposed in the 1980s. The late Professor Jennifer Price, former president of the AHG, organised the structure of the book, selected the items for inclusion and drafted descriptions for each of the pieces. The publication was unfinished when Professor Price died in 2019, but she had completed most of the draft catalogue (about 60,000 words), with eight chapters divided according to manufacturing technique and vessel form. Line drawings had also been prepared for 245 of the vessels, and a programme of scientific analysis of some of the fragments in the collection had also been completed. The catalogue still lacked introductory chapters outlining the history of the collection and its significance to the study of Romano-British glass. As a former colleague and collaborator with Jennifer Price I offered to supply these sections and in 2021 the British Museum approved this revised publication proposal.

The regular acquisition of Roman glass by the museum began in the nineteenth century and the collection has grown steadily since. The expansion of industrial towns and cities and the spread of the road and rail network across Britain unearthed dozens of previously unknown Roman cemeteries during the nineteenth and early twentieth centuries. Over 30 vessels in the collection come from north Kent where the

excavation of brick-clay, particularly around the towns of Faversham and Sittingbourne, uncovered many richly furnished burials. Five long-necked jugs from later first and early second century burials from this area are amongst the most striking vessels in the collection (fig. 5).

The second half of the nineteenth century saw a particularly active period of expansion for the museum's glass collection, under the guidance of curator A W Franks. This was a period of intense antiquarian activity in Britain and the collection flourished with donations and acquisitions from private collectors and local archaeology enthusiasts. Franks managed the purchase for the museum of Charles Roach Smith's collection of antiquities, which included fragments from 68 glass vessels found in London, and in 1870 he used funds from the Felix Slade bequest to acquire the Pollexfen Collection of glass from Colchester.

One of the largest single acquisitions was the purchase at Christie's of the collection of Roman objects brought together during the 1920s and 30s by Douglas Matthews, later rector at Southover in Lewes, East Sussex. His collection included fragments of 79 glass vessels, all of which came from London. The Matthews collection, together with the items acquired from Charles Roach Smith (also nearly all from London), account for nearly 40% of the vessels in the catalogue. Unlike many of the Charles Roach Smith fragments, the Matthews collection has the benefit of the inclusion of a findspot and year for all but one of the fragments.

Throughout the twentieth century the museum was the recipient of finds from an increasing number of professional excavation projects. The largest number of glass vessels discovered together as a single find comes from excavations in the 1950s at the fort of Burgh Castle in Norfolk. These 11 vessels, five beakers, two cups, two bowls and two small jugs, are described with some certainty as a 'hoard' and illustrate many of the most common forms from the very last years of Roman Britain. The museum's collection continues to grow, and in recent years has seen an increase in the arrival of vessels found as a consequence of metal detecting.

The inclusion of these detailed, high-quality photographs will greatly enhance the publication, which is in the process of completion. The British Museum is aiming to publish the catalogue in 2025, both in print and online. The book is expected to appeal to all those interested in Roman glass and the material culture of Roman Britain.

SOCIETY OF GLASS TECHNOLOGY AWARD FOR LAURA ADLINGTON

IAN FREESTONE

RESEARCHER ON HISTORIC GLASS RECEIVES PRESTIGIOUS SCIENCE AWARD

The winner of the Society of Glass Technology's Sir Alastair Pilkington award for 2022 is Laura Adlington, the sixth person to be awarded this prestigious prize. Laura has received the award in recognition of the originality and impact of her work in furthering the understanding of archaeological and historical glass monuments such as stained-glass windows and mosaics (https://sgt.org/page/PilkingtonAward). Laura was presented with the award at the jointly held 15th European Society of Glass Conference and the 15th International Conference on the Structure of Non-Crystalline Materials which was held from the 15th-19th July 2024 at Churchill College, Cambridge, UK. This is the first time that the award has been given to a researcher in historic and archaeological glass.

Laura undertook her MSc and PhD research at the UCL Institute of Archaeology, focusing on the Great East Window of York Minster, then went on to study the composition of glass mosaics with Nadine Schibille at IRAMAT, Orleans, France. She refined and extended an approach to the analysis of glass using hand-held portable x-ray fluorescence (pXRF) pioneered by David Dungworth, which involves concentrating on particularly well-determined components such as rubidium and strontium. These trace elements serve as proxies for difficult-to-measure major elements such as potassium and calcium. By 3D printing a specially designed polymer nose for the XRF she termed the *WindoLyser*, she was able to significantly improve the potential of analysis in the investigation of stained glass and glass tesserae in wall mosaics.

Laura's work has resulted in a number of articles, and her thesis, published as a British Archaeological Report (BAR). A popular article about her work on the stained glass of Canterbury Cathedral can be read at: Summer 2023 Archives | Wake Forest Magazine (wfu.edu)

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Fig. 6 Laura Adlington undertaking pXRF analysis of a glass panel from the Great East Window, York Minster.

ANA FRANJIĆ

REPORT ON GLASSWEAR: A STUDY OF GLASS JEWELLERY THROUGH THE AGES

This year's Association for the History of Glass Spring Study Day was held on 17 May 2024, at St James the Less in Pimlico, London. The event focused on exploring various practices and attitudes towards glass in dress elaboration over the past five millennia. The broader theme of bodily adornment, both past and present, is a complex and ever-evolving subject, influenced by societal, spiritual, economic, and technological factors and traditions. Our goal was to connect the material study of glass to this broader context, by considering the evidence which reveals the relationship of people with the worn glass items, which shaped the stylistic and symbolic choices in bodily adornment and glassmaking craft.

Recognizing the abundance of material evidence and the diverse methods, perspectives, and approaches available, the Study Day brought together a varied group of speakers with wide expertise. Ten papers included archaeological, historical, and contemporary perspectives on wearing glass, incorporating archaeological, material-based, art-historical, anthropological, and ethnographic evidence. We also had the opportunity to handle some of the materials discussed in the talks, which is always a welcome experience.

A pattern emerging from many presented talks was the use of glass as a medium for shaping identity, as a galvanizer of cultural exchange, and a marker of social dynamics across different historical periods and regions. Many of the speakers identified and examined symbolic meanings, regional variations, and the socio-cultural significance of glass ornaments. For example, **Charlotte Nash**'s in-depth study delved into Islamic glass bangles, exploring their role in female identity and cultural exchange from the Christian Byzantine Empire to the early Islamic Middle East and South Asia. Her research highlights the symbolic meanings and regional variations of these ornaments, using ethnographic evidence and chemical analysis to trace their significance and evolution, as well as the development of trade and local manufacture. **Joëlle Rolland** investigated the role of glass jewellery in reflecting La Tène identities and societies, focusing on the rapid adoption and local production of glass bracelets to express distinct stylistic and symbolic codes within protohistoric European cultures.

Drawing insights from neuroscience, ethnography, and sensorial archaeology, **Eleonora Montanari** took us on an investigative journey through the world of materiality and sensoriality of pre-Roman glass beads. By examining visual and sensory attributes of glass bead assemblages from Abruzzo, Italy, Eleonora considered their role in signalling identity and social affiliation.

Anastasia Cholakova examined a diverse assemblage of medieval glass beads from Tuhovishte cemetery, Bulgaria. Her work focused on factors that influenced the variations in shape, production techniques, and chemical composition, and the patterns of glass production, economic connectivity, self-identity, and aesthetic preferences. Similarly, **Cristina Boschetti** addressed the underexplored topic of Italian Migration Period glass beads, challenging the ethnic classifications and highlighting beads' broader social and economic significance.

Fig. 7 The Study Day brought together a varied group of speakers with wide expertise.

Some of the talks, examining the techniques, aesthetics and uses of glass items, warned us of the bias often encountered in modern assumptions about these parameters, and how these can sometimes lead us to erroneous interpretations. **Anna Hodgkinson** reviewed the contemporary perception of personal glass ornaments from New Kingdom Egypt, commonly known as 'ear plugs' or 'ear studs', reclassifying them as beads based on their typological parameters. **Jo Ahmet** discussed early medieval inlaid metalwork, including niello, filigree, garnet, and glass, exploring contemporary and historical perceptions of these materials and their cultural significance in early medieval times. **Justine Bayley** explored the application of enamel on Roman objects, particularly brooches, highlighting the correlation between colours and enamelling styles as expressions of Roman polychromatic aesthetics.

We also had the opportunity to hear about the contemporary approaches to glass' use in jewellery and artistry, which highlighted glass' continuing relevance and its persisting ability to be a medium for the transfer of meaning in the present-day. Glassmaker **Effie Burns** talked about the process of creation with glass and showcased her

contemporary glass jewellery made using historic techniques. Her work, developed as part of a project investigating the relationship between glass and body adornment across Caithness, Sunderland, and Ruthin, Wales, incorporates casting, gilding, and engraving techniques inspired by the landscapes and materials of these regions. Furthermore, **Prof Sven Dupré**'s presentation traced the history of glass in fashion, from 19th-century glass dresses by the Libbey Glass Company to contemporary designs by Iris van Herpen. Prof Dupré discussed the scientific and artistic innovation behind these creations, and emphasised the continuity of using glass to imitate nature in wearable art.

The presentations and lively discussions during the sessions underscored the ongoing relevance of glass as a material that bridges the past and present, luxury and accessibility, innovation and tradition. By examining the diverse ways in which glass jewellery has been used, from symbolizing status and identity to reflecting cultural and religious practices, the talks managed to delve closer to a comprehensive understanding of glass as an essential component of human expression and identity throughout history across different eras and societies. Without a doubt, the role of glass in bodily adornment will continue to evolve in the *augmented* realities of the future.

Overall, the in-person event fostered a dynamic environment for networking and in-depth conversations and allowed us to exchange ideas more freely, build connections, and make plans for collaborations on future research endeavours. I am very much looking forward to our next meeting, which is penned down for this Autumn! Until then, you can peruse the 'GlassWEAR' abstract book, which is available online on our website in case you are interested to learn more about each presentation.

Fig. 8 Lively debate continued after the Study Day in a more informal setting.

DEVELOPMENTS IN ENGLISH CRYSTAL GLASS

IAN FREESTONE

IN CONVERSATION WITH COLIN BRAIN ABOUT ENGLISH CRYSTAL GLASS

The development of English crystal glass in the late seventeenth century is considered to have been a major technical innovation which led to the rise of the English glass industry. The technology of English crystal has been traditionally attributed to George Ravenscroft who was granted a patent for its production. However, the discovery and introduction of the process was complex and more nuanced than traditionally understood. Here, Ian Freestone talks to Colin Brain, a past President of the AHG, who has been investigating the early history of English crystal for several decades and has enhanced and clarified much of our understanding.

IF: *Colin, I think you and I first met around 25 years ago in London. You were thinking about lead crystal and its origins and were already sceptical about the conventional model which attributed everything to Ravenscroft. Since then, you have written a number of important publications on the topic and co-organised the recent meeting on the subject at the V&A. I wonder how and when you became interested in the history of glass?*

CB: I first became interested in antique glass at college in 1967 when I met a girl called Sue – she was already interested in the topic - and this became a shared interest that matured and developed throughout our married life together. We very soon focussed on glass history, triggered by a number of events. As scientist and engineer we had become increasingly disenchanted with the conventional published histories and had resolved to try and find out for ourselves – particularly concentrating on seventeenth-century British drinking glass because that seemed to be when all the action happened. The 1970 London Museum exhibition 'Glass in London' held at Kensington Palace provided an entrée to research on archaeological glass; as did our visits to the Guildhall Museum where we were hosted by a youthful John Clark. Everyone was very helpful and encouraged us young amateurs, particularly Robert Charleston at the V&A. Sadly, Sue died of cancer in 2015 and I am grateful for the continuing encouragement I have received to carry on with the research.

IF: *We talk about "lead crystal" and "English crystal" and the terminology can be a bit confusing for the uninitiated. What is your understanding of the meaning of these terms? Are they inter-changeable?*

CB: This is a difficult question. Confusion over this terminology is not restricted to the uninitiated! When we first met I thought I knew what these terms meant, but now I am not sure. Let's start with 'crystal'. I used to think that this was short for 'glass resembling rock crystal', as mentioned in Ravenscroft's patent. As such it seemed to refer to the appearance of the finished glass - an Anglicisation perhaps of the

Venetian '*cristallo*'. Then I came across the 1694 glass excise act that talks about: "*glasses and glasse works of flint or that shall bee flint mixed with christall or other ingredients".* Here 'christall' clearly refers to the ingredients of the glass and not its appearance. 'Flint' was then the effective brand name for fine glass. I think then 'a flint glass' meant: an expensive, fashionably-designed, state-of-the-art glass. By the end of the seventeenth century the state-of-the-art was that glasses were made with lead oxide, potash, sand and a 'pinch of salt' as ingredients. If this was the meaning of 'flint' in the above quotation, it implies that 'christall' did not then refer to a lead glass. Thus I see the term 'lead-crystal' as effectively the modern replacement of 'flint glass' but clarifying that it refers to the sub-set made using lead glass. The term 'English crystal', however, has another problem. To what does 'English' refer? To my mind there are three main viewpoints when considering an historic (crystal) glass: design; manufacture; and use; – beautifully captured here in Kate's cartoon. With the term 'English crystal' we have no idea to which of these three viewpoints the adjective 'English' refers, so it is not a very satisfactory term.

IF: *So, we should be careful when using this term. Perhaps 'English lead crystal' is less ambiguous when referring to the manufacture?*

CB: Yes, that would indicate an English, rather than an Irish, or a Dutch manufacture.

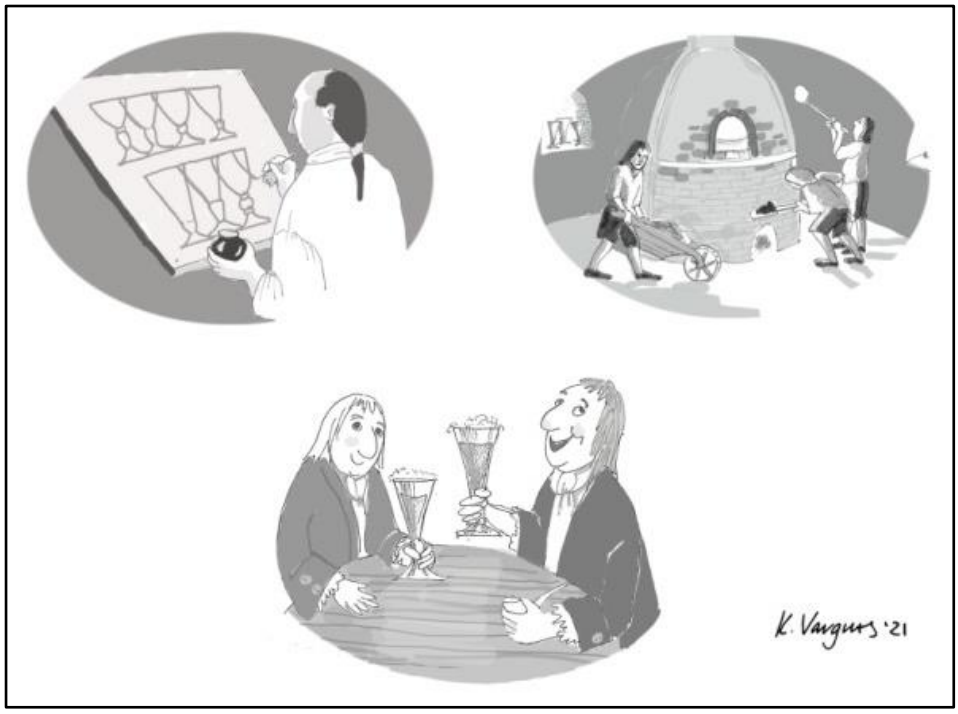

Fig. 9 Three viewpoints when considering a historic glass © Kate Vargues 2021.

IF: *When lead crystal was developed, in the run-up to Ravenscroft's patent in 1674, what were they looking for: a glass made with lead, a colourless glass, an import substitute to compete with Venetian cristallo? How do you think those involved envisaged the outcome of their experiments?*

CB: I don't think a fully commercial lead crystal was developed prior to Ravenscroft's patent. The closest I can get is that his patent was for a flint, saltpetre, tartar, borax glass. The lead came along to deal with the high cost and lack of stability of this recipe, probably due to variability in the quality of the tartar supplies. What Ravenscroft was looking for in his new venture was a marketable glass on which he could make money! In turn the Glass-sellers were looking for a strong, thick, clear glass that was affordable and would make them largely independent of supplies from Venice. This comes out in John Greene's letters that accompanied his orders from Venice.

IF: *We don't have much analytical evidence for the use of borax in English crystal, indeed is there any? I suppose this might be (a) because it was very expensive and therefore not used in large quantities, (b) because the glass will have crizzled not survived and (c) because until recently it has been difficult to analyse for boron. Boron* should *have been quite a good glass stabiliser so do you think that the lead essentially replaced the borax?*

CB: I am not aware of any sound analytical evidence for the use of borax in English glass of this period. It was certainly expensive at the time, apparently being brought across the Himalayas in sheep trains before being transferred to more usual camel trains for the next part of its overland journey. However, there is some documentary evidence for its use. Perhaps the most interesting is a comment from one of Robert Boyle's work-books, thought to date from the late 1660s: '*A convenient proportion of Borax melted with the Ingredients of glasse, will much serve to toughen It, as <to omit other Arguments* [Boyle's words]> *I am informd by an Experiencd master of a Glasse house*.' The prevailing theory at that time appears to have been that glass crizzling was due to an excess of salts in the batch, rather than being due to a shortage of 'RO' (i.e. calcium and magnesium oxide) stabilising oxides. Thus, it's possible that lead was seen as a replacement for borax, although the quantities added were very different. Hopefully the analysis of the recent Southwark glass-waste finds will shed more light on this point.

IF: *And what challenges had to be overcome? It seems fairly obvious to use lead oxide as a flux and it was widely used in pottery glazes so one might wonder why it had been done on such a limited scale previously.*

CB: Some of the technical challenges are documented, e.g. : 1. Reduction of lead oxide in the melt to metallic lead, which then ruined the pots in short order. 2. Inadequate level of stabilisation with the initial lead-glass recipes, leading to crizzling and in some cases solarisation. 3. Difficulty managing the temperature of the melt, probably coupled with excessive evaporation of the saltpetre in the batch, and inability to fine the glass to eliminate cords. However possibly the major challenge was making money because of low productivity coupled with the high costs of the exotic raw materials. As a result, the initial price of English flint glass was around six times higher than the equivalent imported Italian *cristallo*.

IF: *Traditionally the invention of lead crystal has been attributed to George Ravenscroft himself but as I understand it, it now seems unlikely that he was responsible for the developmental work, but was the entrepreneur and proprietor of the glasshouse in Henley which first successfully marketed the glass?*

CB: Ravenscroft managed the setting up of a glass house in the grounds of the Savoy in London. To run this he hired Jon Odacio, an Altarese glass maker who had been working in Nijmegen. He then obtained agreement from his customers, the Glass-sellers of London, to establish a second furnace at Henley on Thames to be managed by Jon Da Costa who, like Odacio, was an Altarese who had been working in Nijmegen. Odacio was then persuaded to leave Ravenscroft to move to Dublin. This appears to have been after the lead glass recipe had been introduced, but it meant that the Savoy glasshouse almost certainly closed until a replacement master glass maker could be obtained from Venice. This put initial lead glass production in Henley, but it seems likely that this furnace was not then owned by George Ravenscroft, but probably by Lord Stonor, a local landowner who was a leading supplier of firewood from his estates. The lead-glass ‘product’ was then launched after the Savoy in London reopened and glasses with ‘ravenhead’ seals seem only to have come from there. It is likely that similar Henley products were sealed with the ‘S’ seals that have been variously attributed to other factories.

IF: *So did the idea to use lead ultimately come from the Nijmegen glass house?*

CB: Evidence for the use of lead in glass goes back at least to an eighth-century Arabic text, there’s archaeological evidence for its use in Germany in the 13th century, and it’s mentioned in different versions of Neri’s ‘Art of Glass’ from 1612 onwards, so it is difficult to pin down any single origin.

IF: *Presumably the use of lead entailed changes to other workshop practices and equipment, such as furnaces?*

CB: Surprisingly there do not appear to have been any changes in workshop practices, at least initially. Then, all flint and crystal glass production used wood-fired furnaces, and it was not until Henry Holden patented the closed pot in 1681 that there appears to have been a massive shift to coal firing, with the attendant geographical broadening of production. This led to over-capacity in the industry and probably to the imposition of the Glass Tax in the 1690s.

IF: *Yet despite this the production of lead crystal spread quite quickly to the Continent?*

CB: As we discussed, it's possible that some lead glass was made on the Continent just before or at the same time as it was introduced here. We also spoke about the challenges and the costs of making lead glasses and I think it was probably the cost and difficulty of getting saltpetre and of getting and retaining skilled lead-glass makers that limited Continental firms' ability to compete in that market place The English glass makers also seem to have competed fairly aggressively in international markets. The price of English lead glasses dropped by two thirds in the first twenty years after they were introduced.

IF: *But most of the glasses with lead preceding Ravenscroft's patent seem to have been coloured or opaque. Am I right in thinking that there is no evidence for commercial production of colourless lead crystal on the Continent until the end of the seventeenth century?*

CB: There is limited documentary and/or archaeological evidence for lead 'crystal' glass production in France and the Low Countries at intervals during the last quarter of the seventeenth century. One problem in interpreting this data is the difficulty of dating the archaeological material accurately. In archaeological terms 25 years in a short time, particularly when individual glasses appear to have continued in use for up to 30 years. One factor that helps is that most, if not all, of the analysed lead 'crystal' glasses attributed to Holland on stylistic grounds are made of lead-soda metal. This compares with the lead-potash metal that is the norm for similar glasses attributed to England or Ireland.

IF: *What would you like to see done next to further our understanding of English lead crystal?*

CB: I think the top priority is publishing an updated integrated narrative about the development of 'glass resembling rock crystal' in the seventeenth century to allow critical peer review and hopefully the framing of a new consensus. This should provide a platform for future

research. The current widely held simplistic view that 'George Ravenscroft INVENTED lead crystal glass' stems mainly from the work of Francis Buckley and W.A. Thorpe and is now a century old. If one accepts this view, then there is no point in searching for antecedents. With the notable exception of recent work by Mike Noble and some other recent analytical studies, little critical reassessment of this view has happened in my lifetime. I have been working on what I hope will be a suitable volume over the last four years, so I hope it will not be too long before this sees the light of day.

Based on this, the second priority is a systematic search for the lead and non-lead antecedents for 'English Crystal Glass', to safeguard this material for future generations and help illuminate understanding of topics like the interface between fledgling scientists and the 'new' glass makers at this important time. Limited work has already been done on this, but it needs systematic analysis to take the topic forward. As we have discussed before, such analysis may have its challenges because of the likely surface degradation on these marginally stable glasses.

IF: *Colin, many thanks for talking to 'Glass News' and generously sharing your thoughts with us.*

Find out more

Publications authored or co-authored by Colin Brain, many available on his Academia page, arranged by date:

Brain, C., & Brain, S., (2003) John Greene's glass designs 1667 - 167? AIHV Annales 16, 263-266.

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Brain, C., Meek, A., & Pearce, J., (2020) 17th-century glass-working waste from Broadgate, London EC2, London and Middlesex Archaeological Society Transactions, 71, 243-265.

Coutinho, I., Alves, L.C., Giacometti, A., Brain, C., (2023) Made in Ireland? Provenance Studies on the Lead Glass Discovered at Rathfarnham Castle, Dublin, Corning, Journal of Glass Studies 65, 219-240.

Brain, C., (2024) How glassmakers and scientists learnt about 'new' glasses 350 years ago, accepted for publication in European Journal of Glass Science and Technology Part A.

"Celebrating the Birth of English and Irish Crystal Drinking Glass, 1640-1702". This joint meeting convened by the AHG and the V&A comprised nine talks related to the introduction of lead crystal. All nine talks are available for viewing by AHG members here:

Past Meetings – Members - AHG: The Association for the History of Glass

SUZANNE HIGGOTT

EXPORT BAR FOR BERNARD PERROT'S MAGNIFICENT GLASS TABLE TOP (C. 1668-80)

A temporary export bar has been placed on an extraordinary glass table top made by the entrepreneurial French glass-maker of Italian origin, Bernard Perrot (1640-1709). The table top is documented as having been in Louis XIV's ownership before 1681. Valued at £7,500,000 (plus VAT of £300,000), the table top is at risk of leaving the UK unless a domestic buyer can be found to save it for the nation.

The table top is an unprecedented technical and aesthetic *tour de force*. It is of exceptional significance to the study of Perrot's innovative glass production and, more widely, to the development of glass in France in the later seventeenth century.

The Reviewing Committee on the Export of Works of Art and Objects of Cultural Interest (RCEWA) concluded that the table top met two of the Waverley criteria, which are used to measure whether an object for which a permanent export application has been made should be considered a national treasure. Consequently, the Reviewing Committee recommended to the Secretary of State for Culture, Media and Sport that the table top be the subject of a temporary export bar on the basis that it met the second and third Waverley criteria for its outstanding aesthetic importance, and its outstanding significance to the study of the work of Bernard Perrot and other émigré glassmakers working in France in the seventeenth century.

Like the French ceramicist Bernard Palissy before him, Bernard Perrot stands out as a visionary pioneer in his field. His experimental

Fig. 10 Glass table top by Bernard Perrot, c. 1668-80. © Sotheby's Image Archive

approach to glassmaking resulted in a range of distinctive new products, but this remarkable table top is his crowning achievement.

Bernard Perrot was born Bernardo Perrotto in Altare, a prominent glassmaking village in Liguria, Italy, and learnt glassmaking there. Moving to France, he worked in Paris and then went to Nevers, where he joined a glasshouse under Altarese management. While there, he came to the attention of Louis XIV's brother, Philippe, duc d'Orléans, who sponsored him to set up a royal glassworks in Orléans in 1668. He was granted a thirty-year monopoly and became naturalised, modifying his name to the more French-sounding Bernard Perrot.

Perrot received several special privileges and patents between the 1660s and 1680s. The table top aligns with the privilege granted to him in 1668 to 'faire un très riche émail sur des carreaux & des colomnes de cuivre' (to make a very rich enamel on tiles and columns of copper). In fact, it may have been made around 1668, the year in which Perrot moved from Nevers to Orléans; it was certainly produced before 1681.

The visual impact of the table top's brightly coloured, vibrant surface is astonishing. Measuring 117 x 81 cm, it is populated by a patchwork of figurative and floral motifs interlaced with gilt brass bands decorated with floral ornament in relief. The overall effect is that of a fantastic visual feast.

To create the table top, 111 panels of *millefiori*, lampworked, *filigrana* and cast glass were set onto a copper base with repoussé gilt-brass surrounds, set on a support composed of wooden boards. The surface evokes the patterns of the contemporary marquetry furniture and garden designs that were greatly appreciated at the court of Louis XIV. To do so, it combines technical innovation with features taken from the Venetian glassmaking tradition. The table top is the only evidence in glass of Perrot's documented use of the lampwork technique. Conceived as an expansive glass surface, it anticipates Perrot's ambitious cast glass portrait medallions, among them those depicting Louis XIV.

The principal iconographic programme on the table top, and the manner in which it is depicted, are intriguing. At the centre, the five key protagonists from the story of the Judgement of Paris in classical mythology occupy five independent spaces, each contained within a relief gilt-brass border. Traditionally, the figures would have been depicted in one tableau, so this way of illustrating the scene is notably innovative. At the centre, against a dark background, the dispossessed Trojan prince Paris sits with his dog and flock, observed, amusingly, by a curious snail. Symmetrically arranged around this scene, the four other main figures - Mars, Juno, Venus (with Cupid) and Minerva - are each depicted in an oval panel distinguished by an intense turquoise

background. Hunting scenes are represented on a smaller scale. A diminutive, repeated *fleur de lis* motif pays tribute to the King.

Now lacking its original legs, the table was complete when it was listed in the *Inventaire general des meubles de la couronne et des maisons royales*, which itemised the *Mobilier faisant partie du mobilier de la couronne avant 1681* (furniture forming part of the furniture of the crown before 1681). Number 276 on the list, it was described as 'Une table couverte de divers morceaux de Verre fondu et meslé, du plusieurs couleurs, ornée d'un compartiment de cuivre doré cizelé, fort léger, avec son pieds aussy couvert de verre, longue de 3 pieds 1⁄2, large de 2 pieds 1⁄2, sur 2 pieds 5 pouces de hault' (A table covered in various pieces of melted and mixed glass, of several colours, decorated with compartments of carved gilded copper, very light, with its legs also covered in glass, 3 1⁄2 feet long by 2 1⁄2 feet wide, about 2 feet 5 inches high). It is possible that several columns now in public collections in the UK and USA, comprising *millefiori* glass formed around a copper tube, are legs or leg parts from this table top.

The table left the French royal collection in 1752, during a sale of items from the Garde Meuble de la Couronne (the repository of royal furniture). It was bought by a 'Sr. Boucher', who may have been the renowned French painter François Boucher (1703–1770). By or before 1975, it was in England, in the collection of Sir Adrian Beecham, Bt., who sold it at Christie's that year.

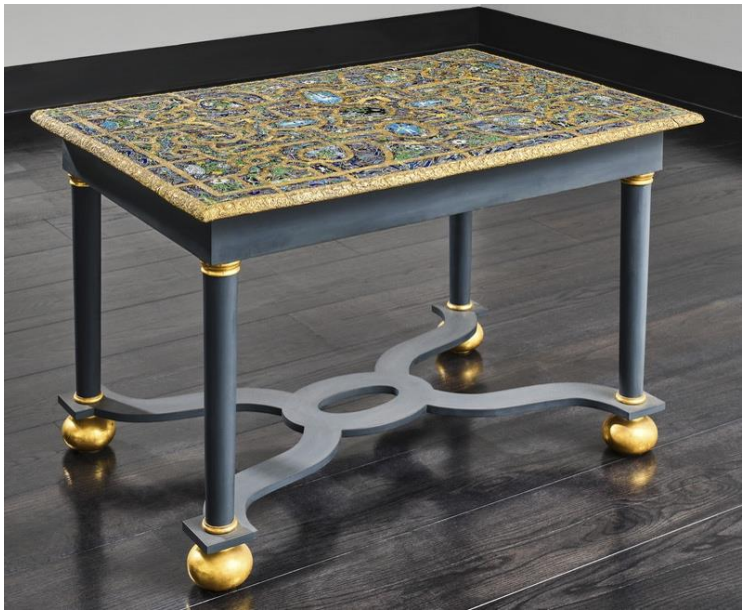

Fig. 11 a) Table incorporating the glass table top. b) Selection of details from the table top.
© Sotheby's Image Archive

In their assessment of the table top, the Reviewing Committee on the Export of Works of Art and Objects of Cultural Interest noted that the table top had the potential to open up many fascinating research angles, including its iconographical interpretation, the use of design sources (such as for gardens, decorative art print sources and embroidery), the study of French seventeenth-century interiors, Perrot's own career trajectory and technical developments in glassmaking. The table top was also deemed to be of outstanding significance to the study of interiors in France, decorative art design, and the history of British industrialist collecting.

The Secretary of State deferred the export licence application for the table top for a period ending on 18 October 2024 inclusive to enable an Appropriate Purchaser to consider whether they wish to make a serious expression of interest to enter into an Option Agreement to purchase the table top and keep it in the UK. At the end of the first deferral period owners will have a consideration period of 15 Business Days to consider any offer(s) to purchase the table top at the recommended price of £7,500,000 (plus VAT of £300,000 which can be reclaimed by an eligible institution). The second deferral period will commence following the signing of an Option Agreement and will last for six months. This is for fundraising to take place and is the period at the end of which the sale must be completed.

As Helen Jacobsen, a member of the Reviewing Committee, wrote in the press release about the temporary export bar, published on 19 June, 'in its sophistication and artistic ambition the table is unsurpassed'.

Organisations or individuals interested in purchasing the table top should contact the RCEWA at +44(0)2072680534 or rcewa@artscouncil.org.uk

Literature

Tim Clarke and Jonathan Bourne, 'Louis XIV's Glass Table', Apollo, (November 1988), 333-339 & 379.

Jacques Bénard and Bernard Dragesco, Bernard Perrot, et les Verriers Royales du Duché d'Orléans 1662-1754, (Orléans, 1989), 73-76.

Paul Hollister, 'Louis XIV's glass table, a triumph of imagination and technology', Annales du 12e congrès de l'Association internationale pour l'histoire du verre (Vienna, 1991), (Amsterdam: 1993), 441-456.

Erwin Baumgartner and Jeannine Geyssant, 'La table de Louis XIV' in Bernard Perrot 1640-1709: Secrets et chefs-d'oeuvre des verrieres royales d'Orléans, exh. cat., (Orléans, 2010), 55-66.

COLIN BRAIN

SURPRISE ARCHAEOLOGICAL GLASS FINDS FROM WESTON STREET SOUTHWARK

Introduction

These glass finds from Museum of London Archaeology (MOLA) excavation WEO19 at Weston Street, Southwark, came as a surprise to everyone. The material includes about eighty unusual glass fragments, mostly glass-making residues, including a couple of related crucible fragments. Glass historians hadn't even suspected that these kinds of glass were being made in England! This short article discusses some initial findings about where and when (1670-80s?) this glass may have been made. As this material is judged to be of national and international importance MOLA is currently arranging for its post-excavation analysis (MOLA 2023). The rationale for this includes:

- Glass-making developments in London (and Southwark) in the 1670s were a key component in the development of modern international glass industries. When Swedish glass-maker Gustav Jung made a state-sponsored visit in 1667/8 to research 'modern' fine glass-making he chose London and Southwark as his destinations.

- In the 1660s-80s glass-making was a topic of particular interest to the newly-formed Royal Society. One of the first books published under their auspices, in 1662, was on the art of glass-making. Thus study of this material may illuminate relationships between science/alchemy and industry at this important time.

- Previous studies on fine English and Irish glass of this period have concentrated on the development of lead-crystal glass, with no significant work being done on the English decorated coloured glasses which make up the bulk of these finds. Thus, glasses of this general type and age are typically classified as *façon-de-Venise* due to a lack of evidence on which to base a national attribution. No surviving glasses of this type have so far been attributed to an English manufacturer.

The Finds and their Dating

Most of the archaeological finds came from two specific land-fill contexts. The presence of parts of unfinished glasses; moils (waste glass from the ends of blowing irons); glass fragments with manufacturing defects; and portions of glass-making crucibles together demonstrate that much of this material is waste residue from glass production. The bulk comprises complex, coloured glasses, i.e. made of glass of more than one colour. There are also known to be at least three apparently related 'Mudlark' fragments found nearby on the banks of the Thames. At least three different decorative techniques have been identified from initial visual inspection of all the material:

- Chalcedony-type glass where multiple-colours are made in a single glass-making crucible (see fig. 12);
- Aventurine-type glass that has been treated to deposit metallic particles in the body of the glass (see fig.13);
- Filigree glass assembled from coloured glass canes (see fig.14).

Fig. 14 ‘Mudlark’ chalcedony-type glass fragment. Photo Colin Brain.

Fig. 12 ‘Mudlark’ aventurine-type glass fragment. Photo Colin Brain.

Fig. 13 Excavated filigree-type glass fragment. Photo MOLA copyright with permission.

The green potash glaze on the outside of the crucible fragments implies that the melting furnace used was wood fired and this suggests a deposition date between 1642 and 1690 (before and after this period coal-firing would have been much more likely). Relevant mentions in period English documents are thought to relate to similar 'novel' coloured glass technologies, dating from 1668-1676.

It is assumed that the glass waste would not have travelled very far, which implies that it originated from a Southwark glasshouse (then the nearest known glasshouses were one or two adjacent to St Mary Overie church – St Saviour's / Southwark Cathedral –approximately 600 metres from the site). This suggestion is supported by the 'Mudlark' glass finds, said to be from the Thames shore up- river from the southern end of nearby London Bridge.

There were actually three Southwark 'white' glasshouses that could have been possible sources: one near the Bear Garden; one, as mentioned, near St Mary Overie; and the other in adjacent Stoney Street. It is possible that the last two names in fact refer to the same location at different times. Here 'white' was used to distinguish them from nearby coal-fired 'green' glasshouses producing bottles. All three were operated by varying partnerships which included at least one of three entrepreneurs: William Lillingston, Thomas Morris, and John Bowles (Buckley 2003 175) (Noble 2016). It is likely that there was considerable commonality between the sites, probably aided by the transfer of master workmen between them. The glasshouse at the Bear Garden was much the furthest away from the excavation site and appears to have been the earliest. It was working before 1668 and apparently finished making white glass by 1679 when it changed to window glass. The white glass house near St Mary Overie church is known to have been active from at least 1671 to 1676 and that at Stoney Street was apparently first mentioned in 1678 and continued working into the eighteenth century. The fragments in figs 12 and 13 appear to be made of a lead/soda glass. Lead/potash glasses with similar concentrations of lead (group 2) are currently thought (Coutinho et al. 2023) to date from after 1678 and before 1685. A Glass-sellers' agreement of 1678 (Young 1913 70) names Bowles and Lillingston as partners in works to produce white and green glass in Southwark and in 1684 John Bowles was described as master of several glasshouses near St Mary Overie. If the lead/soda glass is assumed to be contemporary with the equivalent lead/potash glass then the manufacturing date of these particular finds is likely to have been between 1678 and 1685.

Southwark 'White' Glasshouses

In late 1667 or early 1668 the Swedish glass-maker Gustav Jung

visited the Bear Garden glasshouse. He was on a state-sponsored visit to London and recorded information about each glasshouse he visited in his workbook (Jung 1667-). He also visited the glasshouse run by Charles Racket in the Minories and one owned by the Duke of Buckingham. For the Bear Garden he recorded the names of the three partners, including that of William Lillingston, and four (‘*Bastian Miato, Jakines San, Johanes Baptist, Robert Salsberg’*) of the eight glass masters working there (maybe the other four were ‘off shift’ when he visited). In particular, he attributed a number of recipes he was given to John Baptist and/or Bastian Miato. Jung noted a recipe for a ‘Glass stone’ given him by John Baptist which appears to have been used for imitating a semi-precious stone such as jasper or agate. Compared with his notes from the Minories, his entries give the impression that the partners were ‘hands off’ and that masters specialized in different kinds of products. These almost certainly included chalcedony glass since Jung’s workbook includes a table (see fig. 15) of the materials used in the Southwark glass ovens (the Bear Garden was the only Southwark glasshouse he recorded visiting).

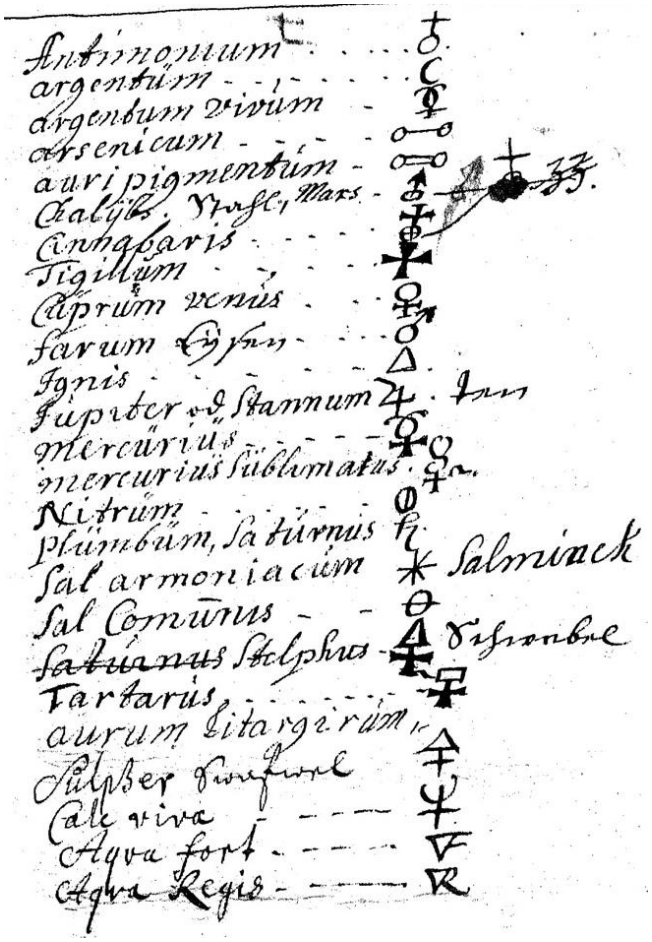

Fig. 15 The Latin alchemical materials table from Gustav Jung’s workbook. Uppsala Universitetsbibliotek.

This table uses the Latin names for all the materials and these match period chalcedony recipes (e.g. Watts & Moretti 2001 p34 and Merrett 1662). The table includes things like soot, which would not normally be considered a glass-making raw material but is apparently employed as a reducing agent in making chalcedony glass. The fact that the list is in Latin with alchemical symbols strongly suggests an alchemical input into its creation.

Next there was a white glasshouse by St Mary Overie/St Saviour's at least from 1671 – 1676. This was the subject of quite a lot of litigation, so there are several documents (Noble 2016) that give us an insight into operations there. A green glasshouse was here by 1663, leased by Thomas & Robert Morris. The white glasshouse was run as a co-partnership of four (including Thomas Morris). By 1676 it was at least part coal fired judging by the coal stocks recorded in an inventory. The initial management arrangements appear to have been similar to those at the Bear Garden since the co-partners did not then realize that one of them needed to be 'hands-on' as a manager.

Not much is documented about the last of the three candidates, Stoney Street, during the seventeenth century. It must have been close to the previous candidate, if not occupying the same site. At one point John Bowles owned the Bear Garden glasshouse with Lillington and they may have taken over the Stoney Street glasshouse around the time when the former changed production.

Glass-makers

All the glass-makers named by Jung as working at the Bear Garden in 1667/8 were probably immigrants and have relatively uncommon names, sufficiently uncommon to allow two of them to be identified in parish records with a degree of confidence. The following information is from Ancestry:

- John Baptisto married Sarah Bird Apr 1667 at St Mary Newington, Southwark [This might imply that was Sarah's home or he was then working for the Duke of Buckingham at, or near, Vauxhall].
- John Baptista, son of John and Sarah, was christened in St Olave, Bermondsey, Southwark [nearest church to the Bear Garden] on 14 Dec 1669. [*Editor's note: regarding Baptisto/Baptista; surnames do not appear to have 'correct' spellings in seventeenth-century records and a judgement needs to be made about whether different records are referring to the same or different people*].
- Robt Salisbury, son of Robert Salisbury, was buried at St Mary Overie/St Saviour's, Southwark, on 4 Mar 1672/3.

- Robert Robinson ‘Spurius’ (illegitimate) Robert Salisbury ct? Hanna Robinson nat 19th died? St Martin-in-the Fields on 20th April 1676.
- Robert Salisbury ‘Puer’ (boy) was buried at St Martin-in-the-Fields on 28th Dec 1676.
- Isabel, daughter of John Baptist and Margaret Philibre, was christened in St Martin-in-the Fields on 24th Nov 1678.

Thus by 1678 both John Baptist and Robert Salisbury had left Southwark and were probably working at the glasshouse near Piccadilly which would have been in St Martin-in-the-Fields parish.

Glass Vessels

The majority of the fragments are too small or insufficiently formed to identify the type of vessels involved. The one notable exception is a small ‘Mudlark’ tapered stem with partial white-cane filigree decoration. This type of stem first appeared around 1673. This example does not appear to be lead glass, although many are, suggesting that it might be an early example. Some of the fragments appear to be partially crizzled (i.e they have developed a network of fine cracks due to the recipe having inadequate stabilisers in the mix). Whilst crizzling can occur at any period the most likely date for these fragments is between about 1672 and 1685.

Conclusion

This short article has explored some of the background to the surprising find of coloured glass-making residues from MOLA site WEO19. It argues that the glass probably originated from the ‘white’ glasshouse near St Mary Overie church (now Southwark Cathedral) or from the nearby Stoney Street glasshouse. Both were probably under the management of Bowles and Lillingston at some stage, the latter having been involved in managing the Bear Garden glasshouse when Swedish glass-maker Gustav Jung visited. It is likely that the excavated glass-making residues were deposited over a short period of time, but the Mudlark glasses that were probably related could be a little earlier or later. Dates have been suggested for various aspects of the glass which appear to point to them being the product of the decade 1672-1682. For comparison, the famous patent for ‘glass resembling rock crystal’ was granted to George Ravenscroft in 1674.

This find of glass-making residues provides a rare opportunity to analyse how these sophisticated glasses were made and the context for their production, design and use.

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SUZANNE HIGGOTT

NEW BOOK SERIES ANNOUNCED: ARTS DU VERRE / GLASS ART / GLASKUNST

The Vitrocentre Romont in Friburg, which hosted the 20th Congress of the AIHV in 2015, is the editor of a new series of books that will be freely downloadable online: 'Arts du verre / Glass Art / Glaskunst'. The series publisher is De Gruyter, a German company specialising in academic publications and a leader in the open access field. The series has already been launched, with the first three volumes downloadable, and more publications to follow later this year. See Arts du verre / Glass Art / Glaskunst (degruyter.com).

A groundbreaking multi-author book about Chinese reverse glass painting was published last year and is already available to download:

Ambrosio, Elisa, Giese, Francine, Martimyanova, Alina and Thomsen, Hans Bjarne, 'China and the West: Reconsidering Chinese Reverse Glass Painting', Berlin, Boston: De Gruyter, 2023. https://doi.org/10.1515/9783110711776

With contributions from outstanding specialists in glass art and East Asian art history, this edited volume opens a cross-cultural dialogue on the hitherto little-studied medium of Chinese reverse glass painting. The first major survey of this form of East Asian art, the volume traces its long history, its local and global diffusion, and its artistic and technical characteristics. Manufactured for export to Europe and for local consumption within China, the fragile artworks studied in this volume constitute a paramount part of Chinese visual culture and attest to the intensive cultural and artistic exchange between China and the West.

The exciting and versatile role played by glass in architecture is explored in the most recent book in the series, which was published in May:

Wolf, Sophie, Hindelang, Laura, Giese, Francine and Krauter, Anne, 'Glass in Architecture from the Pre- to the Post-industrial Era: Production, Use and Conservation', De Gruyter, 2024. https://library.oapen.org/handle/20.500.12657/92141

Glass is one of the most fascinating and versatile building materials in architectural history. The new insights into glass in architecture are the result of research at the intersection of glass production, construction technology and building culture. Coming from a variety of disciplines, the contributions bridge the divide between natural sciences, humanities and the preservation and restoration of cultural heritage. They explore the crucial role of flat glass in shaping architecture, particularly since the eighteenth century, and discuss the in-situ restoration of historic windows and glass façades and the importance of preserving this fragile heritage. The topics range from the manufacture of sheet glass in

pre-industrial times to the possibilities of repair and reusability of insulating glazing.

Two further books in the series are scheduled for publication during 2024. They are:

Tomaschett, Michael, Dubs-Huwyler, Anne-Christine, Dubs-Huwyler, Paul and Vitrocentre Romont, 'Preziosen der Glasmalkunst: Die Glasgemäldesammlung Dubs-Huwyler in Steinen, Schwyz', De Gruyter, 2024. [scheduled for publication on 2 September 2024]

One important part of the Dubs-Huwyler art collection, which has grown over time, comprises around 100 works of stained glass. These are kept in a magnificent building in Steinen in the canton of Schwyz, and undoubtedly form one of the most important as well as extensive private collections of stained glass in Switzerland. The focus is on glass from central Switzerland, Zurich, and eastern and north-eastern Switzerland from the early sixteenth to the first half of the eighteenth century. Other artistic highlights include a group of early modern Dutch paintings on glass, depicting birds and insects in particular. The collection's most recent focus is on Swiss copies and new designs from the second half of the nineteenth to the twentieth century.

Noverraz, Camille and Vitrocentre Romont, 'Réinventer l'art sacré: Le Groupe de Saint-Luc (1919-1945)', De Gruyter, 2024. [scheduled for publication on 21 October 2024]

The artistic society known as 'Groupe de Saint-Luc' left its mark on the artistic and cultural heritage of Switzerland, in particular French-speaking Switzerland, throughout the inter-war period. Based on in-depth research into the abundant archival sources produced by the Society and its members, this publication proposes a re-reading of this major artistic phenomenon of the first half of the twentieth century, from a plural perspective that combines history, sociology and history of forms in art and architecture. It aims to take the 'Groupe de Saint-Luc' out of isolation and set it within a broad European field of action, in which the issues of architecture and modern art, the opening of religious circles to modernity, and the relationship between the Church and artists are intertwined.

The launch of this new series is an exciting development in glass studies. The wide range of subjects covered by the publications described above, and the fact that the series will be freely available to download online, is very good news for 'Glass News' subscribers. These first publications auger well for the future development of this very promising series.

BOOK REVIEW: HILARY COOL ON ROMANO-BRITISH BOTTLES

DAVID MARSH

REVIEW: BLUE/GREEN GLASS BOTTLES FROM ROMAN BRITAIN. BY H.E.M. COOL. 275MM. PP XI + 253, ILLS. (SOME COLOUR) 106, 67 TABLES. ARCHAEOPRESS ARCHAEOLOGY, OXFORD 2024. ISBN 978-1-80327-743-1. PAPERBACK £50, E-BOOK £16.

Glass bottles have long been seen as less interesting than drinking vessels and tableware, but this book will change that view. Cool has collated a large data base of glass bottle assemblages of the bottle base design patterns of square, hexagonal, rectangular and octagonal bottle forms to form a large corpus of over 600 records.

These are presented in the book as bottle base designs categorised as families based on whether the patterns are concentric circles, geometric patterns or the depiction of figures. Cool has developed a framework for describing the detailed designs in each family as groups represented by patterns. The detail of the corpus, the square, hexagonal, rectangular and octagonal bottles, are presented in Chapters 2–9 (19–154) for the family groups as data tables of group base width quartiles, with context and dating information and clear illustrations summarising the catalogued base patterns.

The chronological analysis in Chapter 10 (155–169) used the corpus data from military sites across Roman Britain, alongside data from Pompeii and Herculaneum, for comparison as first-century Roman sites. The data was presented for each of the family groups against seven time periods from 43 CE to 301+ CE, again with the rationale set out in the book. The results indicate that there was a variety of forms and sizes from early in the first century CE until the mid-second century CE with indications then of a trend towards small bottles and with less variation in form size. A discussion of the geographical and social distributions follows in Chapter 11.

Regional base patterns were identified with northern provinces similar to Roman Britain and with a particular pattern more common in Britain than elsewhere. Cool suggests military supply could have driven their distribution through the movements of individuals and transports. The distribution analysis for the military sites also includes comparisons with urban and rural site types with similar proportional distributions of patterns for each of the family base design categories. The author argues that bottles were used as vessels to decant, for example, olive oil from larger amphoras in local contexts, taking advantage of the material quality of glass bottles for washing and re-use.

The analysis also makes a compelling connection between bath flasks and small bottles of the second century CE, with both forms used as reusable containers, albeit for different contents, and a connection between the popular Spanish olive oil trade in the second century CE and the small square bottles.

This book will be of interest to glass specialists and researchers in that it presents a collated corpus of glass bottle forms with base patterns and sets out a methodology to categorise, analyse and present detailed

data that promotes new ideas of the distribution and use of bottles. Cool in this book reinforces, by example, the importance of recording as much as possible in the archaeological record of the characteristics, features and dimensions of glass fragments.

NOTICE: OUR WEBSITE

The AHG website (www.historyofglass.org.uk) is the go-to place for all the information you need about our events and activities. There are back issues of Glass News, information about our grants programme, and bibliographies on glass-related themes. The most recent issues of Glass News, The Glass Intelligence and links to recordings of lectures from past meetings on our YouTube channel are available in the members-only area as well as opportunities to post queries about glass finds and research via the discussion boards.

The website includes a publicly visible page on which members who so wish can list their name, interests and a mail link. See: https://historyofglass.org.uk/about-us/members/

Members are also encouraged to submit material for the resources section of the site such as their publication lists and bibliographies they have produced. Do log in and have a look around! If you need help accessing the member's area, or need us to resend your log-in details, then please get in touch with our website manager Victoria [victoria.sainsbury@arch.ox.ac.uk].

Membership of the AHG is currently £15.00 per annum and is open to all interested individuals. It is available through our website www.historyofglass.org.uk. It includes Glass News, reduced costs to attend events, and access to the resources of the members only area of the AHG website. In addition, we are currently trialling The Glass Intelligence, an email bulletin which goes out to members several times per year providing information about current exhibitions, forthcoming conferences, and other events.

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