NO. 5 2003

SGT NEWS

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Creativity in glass

The 2004 Annual Meeting takes place in Liverpool on 21-23 April. After organising a successful series of meetings under the banner 'Glass Opportunities' covering all aspects of glass manufacture, the Society has decided to start afresh in 2004 with a new title. The meeting in Liverpool takes the theme of 'Creativity in Glass' and covers all aspects of innovation from the research stage, through to the final product.

Topics to be covered will include, but will not be limited to, the following subjects:

- environmental emissions
- melting
- new techniques in analysis
- the secret in the surface
- the strength of structure
- furnaces - little and large
- refractories.

Submission of potential papers and posters relating to the above topics are now being invited; oral presentations will be 25 minutes in length with overhead, carousel and computer projection facilities provided, and each poster will be allocated enough space for an A0 presentation. Each abstract should be of approximately 200 words. The closing date for abstract submission is 30 November 2003.

NEW RESEARCHERS FORUM ON GLASS

Continuing the success of previous years, the New Researchers Forum on Glass will once again be held during the SGT's annual meeting. This provides people who have been working on glass and related materials for only a short time, with the opportunity to meet workers from other institutions (academic and industrial) and to present and discuss their current research. This will take the form of talks and posters followed by mentoring sessions, with the objective of increasing awareness of the range and variety of work going on in the UK which involves glass and glass ceramics, and to encourage greater interaction in the UK glass community. Any research involving glass can be presented and it does not have to be completed. Talking to others may help in interpreting that unexpected data point!

HISTORY AND HERITAGE OF GLASS

After the successes of the History and Heritage Session during the International Congress on Glass in 2001, and the one day Session at the Society's meetings in Durham in April 2002 and Birmingham in 2003,

Continued ▸

PROCEEDINGS OF THE INTERNATIONAL CONGRESS ON GLASS

The *Physics and Chemistry of Glasses* special proceedings volume is now complete. The refereed papers have been passed for publication and the volumes are now available for distribution. There are 97 papers accepted for publication in the volume, totalling 512 pages.

The volume is available for £100.00, and £50.00 to members. Groups of papers can also be ordered from the SGT website; members can pay for sets of four papers for £10.00, non-members pay £10.00 for three papers. Once payment is cleared, the papers will be sent by email as Adobe Acrobat files to the customer.

The contents pages can be viewed on the website.

For further information, contact david@sgt.org or visit the Society website: www.sgt.org

JOURNAL OF THE SOCIETY OF GLASS TECHNOLOGY

The *Journal of the Society of Glass Technology* was published by the Society until 1959 when it was split into parts A and B: *Glass Technology* and *Physics and Chemistry of Glasses*. The 1952 volume of the journal can be viewed from the Society of Glass Technology website at: www.societyofglasstechnology.org.uk/cgi-bin/open.cgi?page=publications

The different sections of the journal can be searched (Proceedings, Transactions, and News and Reviews) or all of them together. The items selected can either be viewed at the opening page, the page with the most mentions of the searched term, or the full article can be downloaded.

The contents pages of all the volumes from 1917 have been scanned and will shortly be available to view on the SGT website. Copies of papers will then be available to order.

the SGT is holding another one day meeting. The meeting will take place on Friday 23 April, and submissions for papers and posters are welcomed. Partners for joint sessions at the meeting are being approached.

THE CITY OF LIVERPOOL

There has been a settlement in the Liverpool area at the mouth of the River Mersey at least since the 1st century AD and when King John granted Liverpool its charter in 1207, it had grown into a large fishing port. It continued to grow through trade with the West Indies and, with the introduction of steamboats in the middle of the 19th century, Liverpool became one of the greatest sea ports in the world. Liverpool is unusual in that it has two cathedrals - the gothic Anglican cathedral built in 1904 and the modern Roman Catholic cathedral built in 1967.

The city has many fine art galleries including the Tate, Walker and the Sudley Art Galleries. The Merseyside Maritime Museum on the restored waterfront quays contains a fine collection of full-sized ships and boats. The City Library is one of England's largest with over two million books. Liverpool is also famous for the Royal Liverpool Philharmonic Orchestra, the Beatles, Aintree Racecourse - the home of the Grand National - and its two major football teams, Liverpool and Everton. Liverpool is linked to Birkenhead via the famous Mersey Tunnel.

THE UNIVERSITY

Established more than a century ago as one of the first of the civic universities, Liverpool now has over 23,000 registered students. Liverpool is distinctive for the high proportion of teaching and research which relates to the professions including accountancy, architecture, dentistry, engineering, law, medicine, planning, social work and veterinary science. This is combined with considerable strengths in all the principal areas of study in the humanities, sciences and social sciences.

DALE HALL, CARNATIC CONFERENCE PARK

This is a self-contained conference centre in its own right. Built in the late 1950s, it was the first hall of residence to be built at Carnatic. There are 265 fully carpeted single bedrooms. Each pair of bedrooms shares a private bathroom and toilet. These can be made available as a single unit giving the benefit of en-suite facilities in a total of 136 rooms. As with the other halls at Carnatic, Dale Hall enjoys a peaceful parkland location.

ORGANISING COMMITTEE

- David Bain
- Russell Hand, University of Sheffield
- Diane Holland, University of Warwick
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- Margaret West, West X-Ray Solutions
- Adrian Wright, Reading University (SGT President)
- Sara Lindley and Christine Brown, Society of Glass Technology

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2005 ANNUAL MEETING

This meeting will take place in Sheffield in early September. The University of Sheffield will be celebrating its Centenary in 2005 and this meeting will be a focus for its many glass connections. ■

Society of Glass Technology, 3rd Floor, Don Valley House, Savile Street East, Sheffield S4 7UQ. Tel 0114 263 4455. Fax 0114 263 4411.

Bosc d'Antic on glass making

INCLUDING ESSAYS ON THE MANUFACTURE OF FAIENCE AND THE ASSYING OF ORES, PUBLISHED 1758-80

Translated by Michael Cable.

This is the second of three volumes illustrating progress in understanding glass making from the 17th century to the early part of the 19th. The first was Christopher Merrett's *Art of Glass* of 1662, an extensively annotated translation of Antonio Neri's *L'Arte Vetraria* first published in Florence in 1612. This volume from France covers the years 1758-80 and the third will describe glass technology in Austria and Germany in 1820-35. Each of these shows notable advances in understanding over the previous volume.

Paul Bosc d'Antic was a Protestant physician who became fascinated by glass making and gained influential friends who gave him the task of improving the manufacture of plate glass at Saint-Gobain in 1755. He spent two years there before being dismissed but continued to make his career in glass making. At one stage he came to England hoping for a post at Ravenhead but was disappointed. After returning to France he eventually became physician to the King.

He wrote extensively and very readably on glass making and several other subjects, in papers published between 1758 and the appearance of his *Collected Works* in 1780. His most important essay is a long one on *Means of improving glass making in France* which in 1760 won him a prize offered by the Royal Academy of Sciences, but also offended his erstwhile employers at Saint-Gobain. It was supplemented by extensive notes written for the 1780 publication.

This volume contains translations of the Preliminary Discourse that he wrote for the *Collected Works*, the prize essay with the notes inserted where appropriate, nine others concerned with various aspects of glassmaking, and two more on the assaying of ores and on the manufacture of faience.

The subjects of the nine papers include:

- bubbles in glass
- smears in glass
- crucibles from the Auvergne
- manufacture of potash
- use of unusual minerals as raw materials
- manufacture of sheet glass.

The volume is 250 pages long with six illustrations, A5 format (210 mm x 148 mm), ISBN 0-900682-44-2. Paperback. £25.00 (£20.00 SGT members & ICG affiliate members). ■

SGT NEWS

Culture, heritage and history

The ICG 2001 Glass Technology proceedings volume features a substantial section on culture, heritage and history from the special sessions on Wednesday 4 July 2001. All the contributions add to the debate on where glass stands in our culture and what can be done to promote this further.

George Ravescroft's royal patent for "a perticuler sort of christaline glasse resembling rock christall" in 1674 is seen as marking the foundation of the British 'flint' (lead crystal) glass industry. Colin Brain discusses the glass technology developments that lay behind this patent and its links to innovations in other countries, particularly The Netherlands. Previous analyses have concentrated on Ravenscroft's introduction of lead into the glass batch but that was not new and represents only a small part of the story. This paper covers a wider scope addressing the contribution that fuels, furnaces, pots, processes and materials all made to this successful innovation. In particular, reference is made to three period glass technology books and to the results of analyses of excavated drinking glass fragments. The paper concludes that far from being the result of an individual effort, this patent represents just one thread of a whole fabric of inter-related glass technology developments across Europe.

Until the end of the 17th century, glass production in Portugal would have been very modest, limited to creating useful articles for daily household usage. The 18th century marks the turning point in the development of the Portuguese glass industry. Marinha Grande was a small settlement with very few residents until 1748 when the construction of the glass factory took place. The factory closed down after just a few years in operation and in 1769 was reopened by Guilherme (William) Stephens, providing a new and permanent boost to the glass industry in Portugal. Besides reopening the factory, creating jobs and encouraging a demographic and economic growth, he also added value to the workers' tasks by providing training, not only at a technical level but also at an artistic and cultural level.

At the end of the 19th century dozens of glass production companies started appearing, from the domestic glassware industry to the container glass industry, which have contributed immensely to the development of Marinha Grande and a culturally, socially enlightened and interventionist community. Catarina de Sousa Carvalho describes the urgency and the determination in opening a glass museum in order to maintain, preserve and dignify an historical and cultural live patrimony, strongly rooted in people's daily lives. The museum was promoted and inaugurated in 1998 by the Marinha Grande Municipal Council who were determined to give the patrimony back to the city and to finally open the museum. It is structured in a way that allows visitors to get to know not only the social aspects of the glass industry, but also its technological, scientific and cultural aspects.

Preliminary results of surveys of 18th century central European colourless tableware by Jerzy Kunicki-Goldfinger of the Institute of Nuclear Chemistry and Technology, Poland are reported. The survey includes an energy dispersive x-ray fluorescence analysis and a visual inspection of the glass items' surfaces. The relation between the glass technology applied and the glass susceptibility to crizzling are discussed, with reference to the crystal glass technology used in Central Europe. Special emphasis is made on the arsenic (As) and calcium (Ca) contents as well as on the significance of the As/Ca ratio.

One of the most important figures in the Scottish revival of stained glass design at the start of the 20th century was the Aberdonian, Douglas Strachan, who produced over 350 windows throughout Britain. His work, which spanned the first half of the twentieth century, continues to inspire and influence designers. Juliette MacDonald of the Edinburgh College of Art describes Strachan's approach to, and innovative use of, glass through an analysis of some of his most important work (many examples of which may be seen in Edinburgh). These include an early scheme for Lowson Memorial Kirk in Forfar, the Alabaster Box of Ointment window at St Ninian's Episcopal Church in Troon and Stilling of the Waves in St Giles' Cathedral, Edinburgh.

A detail of Moses from Douglas Strachan's Creation window, Lowson Memorial Kirk.

When the glassmaker was once both a glass technologist and a glass artist, his scientific knowledge of the material's properties combined with his artistic creativity to form and finish a glass object. With the 17th century Scientific Revolution came a shift in thinking that led to the technological developments of the 19th century Industrial Revolution. A schism developed between the art and the science in glassmaking that has led today to two separate disciplines – glass science and glass art. Yet a number of historic commercial art glasses can be seen as precursors to some of today's advanced technical glasses,

LOCAL SECTION CONTACTS

For details of forthcoming local section events in your area, contact the following. All SGT members and non-members welcome.

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– Dr D Martlew,
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NORTH AMERICA
– Dr A G Clare,
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New York State College of Ceramics at Alfred University,
2 Pine Street, Alfred,
NY 4802-1296, USA.
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INDIA
– Dr J Mukerji,
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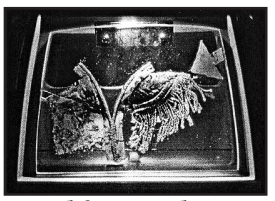
Tel 473 3496.

suggesting advantages to encouraging renewed collaboration between artists and scientists in glassmaking. Margaret Rasmussen of the Paul Vickers Gardner Glass Center at Alfred University presents the case for the reunion of art and science in glassmaking.

For the traditional glass artist the challenge to create perfect facsimiles of natural and organic forms within cast glass sculptures has required the application of intricate and specialised lamp working techniques. This process requires the artist to weld together small pieces of glass rod into delicate and complex forms prior to casting within monolithic glass casts. This process can take weeks and months and has a very high rate of failure. Ed Smy of the University of Hertfordshire has taken a look at the artistic applications of the sol-gel process; the ability to coat and impregnate organic material with colloidal alkalite gels has opened up the possibility for glass artists to create detailed facsimiles of natural forms and include them in cast glass sculptures.



Panel from a glass sculpture showing detail of a silica glass facsimile.

The process of deterioration of a stained glass window, or more precisely of its component glass, lead and paint pigments, has in recent decades been researched thoroughly and is now well understood. The need for the protection, in particular, of the potash window glasses of the middle ages is therefore widely accepted but not the means of how to achieve this aim. Early attempts such as coatings applied on the glass or the sandwich process, known as the Jacobi-Process, have failed for a variety of reasons and with disastrous consequences. Short of removing the windows to safe storage, the only response currently available is the creation of a museum-like condition on site in the form of the introduction of an isothermal glazing system. Despite its unquestioned merits, the isothermal glazing system is still in dispute, mainly because of its interference with a given historic setting. A variety of designs for isothermal glazing are discussed by Sebastian Strobl of Canterbury Cathedral, all aimed at minimising their physical and visual impact on the building, making a strong case in favour of this important protective measure.

The *Glass Technology* International Congress on Glass, special proceedings volume has 80 papers in the volume, totalling 394 pages.

The volume is available for £80.00, and £40.00 to members. Groups of papers can also be ordered from the SGT website: members can pay for sets of four papers for £10.00, non-members pay £10.00 for three papers. Once payment is cleared, the papers will be sent by email as Adobe Acrobat files to the customer.

There is also a volume dedicated to the subjects covered by *Physics and Chemistry of Glasses*. This is available for £100, or £50 to members.

A CD-ROM with Acrobat versions of all the available presentations at the conference can be bought for £35. The contents pages of both can be viewed on the website.

For further information, contact david@sgt.org or visit the Society website: www.sgt.org ■

History and Heritage of Glass series publications

In 2001 the Society of Glass Technology published the first of a series of books edited by Professor Michael Cable which illustrate the progress made in the understanding of glassmaking from the middle of the 17th century through to the early part of the 19th century.

The first book is entitled *Most Famous Glassmaking* and is a collection of works, primarily that of Christopher Merret's 1662 translation of Antonio Neri's The Art of Glass including Merret's observations of Neri. The book is prefaced by a paper by WES Turner about Merret's translation and its contribution to glassmaking, and a closing paper given to the Royal Society by Sir Robert Moray on Prince Rupert Drops.

In 2003 the Society published the second in the series entitled *Bosc D'Antic on Glass Making*. It is a collection of papers written by Paul Bosc D'Antic which were published between 1758 and 1780; the original French papers have been translated and edited by Michael Cable.

Soon to follow will be the final volume of the trilogy which describes glass technology in Austria and Germany between 1820 and 1835. This publication will be named *Early Nineteenth Century Glass Technology in Austria and Germany* and is the work of Professor B Scholz and Factory Superintendent Kirn. Again the original papers have been translated and edited by Michael Cable.

Continuing this theme the History and Heritage Section of the Society of Glass Technology has decided to reprint collections of papers that have previously appeared either in the *Journal of the Society of Glass Technology* or *Glass Technology*. Sometimes the articles will be from a single source, whereas others will be from a number of different authors on the same theme.

***Old English Glass Houses* is the first of this series; the papers were all researched and written by Francis Buckley and originally published in the *Journal of the Society of Glass Technology* in the 1920s. Buckley has also published some separate books: *Old London Glasshouses* in 1915 and one solely on glassware, *The History of Old English Glass* in 1925.**

Between 1681 and 1703 John Houghton, an eminent member of the Royal Society, wrote a series of letters to Parliament which were collected and published later under the general title of *Husbandry and Trade Improvement*. In letter number 198, dated 15 May 1696, Houghton listed all the glassworks in England and Wales which were working at that time, around 90 in total, but some double counting might have occurred. It is quite possible that Francis Buckley used Houghton's listing for his research as it is an obvious starting point; most of the glassworks in Houghton's list are mentioned along with many more. There are also glassworks listed for areas not covered by Houghton - for example Cumberland and many parts of Yorkshire - and there are also some in Scotland mentioned.

Buckley's references to each of his papers contain a rich amount of additional information to that in the main text, charting the rise and fall of companies, the entrepreneurs, their families and, in places, marital disagreements.

***Old English Glasshouses* by Francis Buckley**

242 pages, A5 (210 mm x 148 mm), ISBN 0-900682-46-9

£20.00 (£15.00 SGT Full and Special Interest Group members). ■

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