

Seminar at the Society of Glass Technology Annual Conference at the University of Oxford, commemorating the 300<sup>th</sup> anniversary of the birth of Mikhail Vasilievich Lomonosov

## Abstracts

**09:00** Transparency and Opacity: Light and Colour in the Art of Stained Glass *Isabelle Pallot-Frossard* 

**10:00 Historic Windows: investigation without the sound of breaking glass** *David Dungworth* 

#### 10:40 Refreshments

11:00 The analysis of in-situ 17th century painted glass from Christ Church Cathedral, Oxford

Rebecca B. Scott

11:40 The Conservation of the East Window of the Savile Chapel - The Poisoned Chalice

Richard Jaques

12:20 Building Environment and the Conservation of Historic Stained Glass by Protective Glazing

**Tobit Curteis** 

#### 13:00 Lunch

14:00 The Heavenly City -"physical reconstruction or spiritual restoration"? The 'new' east window for Thornhill's Savile Chapel.

Ruth Cooke

14:40 Preserving the New Jerusalem: Research, Conservation and the Great East Window of York Minster

Sarah Brown

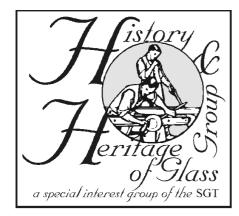
**15:20** A Vision Fulfilled: Swansea's Stained Glass Tradition *Alun Adams* 

16:00 Refreshments

**16:20** Stained Glass Collection of D Fernando II in Palacio da Pena *Joana Delgado* 

17:00 Recovery of the Lost Technology of Bright Red Copper Ruby Peter Wren Howard

17:40 End of Seminar



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## Abstracts

**Historic Windows: investigation without the sound of breaking glass** *David Dungworth* 

#### **Abstract:**

The guiding principle for England's heritage has been the 'heritage cycle'. If we improve our understanding of historic buildings we will have a greater sense of their value which leads to better care of them and allows us to derive more enjoyment from them (and the more we enjoy the historic environment the more we want to understand it). The repair and restoration of historic buildings is often accompanied by rigorous examination of the materials used, however, the glass used for windows is sometimes neglected. The modern window is 'invisible': it is of uniform thickness and virtually tint free, so goes unnoticed. Too often this attitude is replicated in replacement glazing for historic buildings. This paper celebrates the qualities of historic window glass and explores ways in which this glass can be identified and valued. Laboratory-based chemical analysis of historic window glass has recently established that chemical composition is a guide to its age (Dungworth 2011); however, this approach requires samples of glass. This paper reports subsequent experience using portable x-ray fluorescence equipment to characterise historic window glass in situ and non-destructively.

#### **References:**

Dungworth, D 2011 'The value of historic window glass'. Historic Environment: Policy and Practice 2, 19–46

### **About the Presenting Author:**

Dr David Dungworth is a materials scientist working for English Heritage at Fort Cumberland in Portsmouth, UK.





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## Abstracts

The analysis of in-situ 17th century painted glass from Christ Church Cathedral, Oxford Rebecca B. Scott

#### **Abstract:**

The stained and painted glass in Christ Church Cathedral, Oxford has had a varied and in some cases turbulent history. This is especially true of the High Lime, Low Alkali (HLLA) painted glass of the 17th century. During this period, a scheme of around 20 windows all painted by the Van Linges replaced the pre-existing Medieval stained glass windows. The Van Linge scheme took around 10 years to complete and survived in the windows for only a short time, before being removed in the Civil War. Some of the Van Linge windows survived and were re-instated into the Cathedral, along with windows by other 17th century artists such as William Price. The Victorian tastes did not favour the painted glass of the 17th century as is attested to by many contemporary authors, and during the 1870s renovations to the building much of the painted glass was removed. Two examples survive in the cathedral today, 'Jonah before Nineveh' and the figural image of 'Bishop King', both attributed to the Van Linges. An ongoing research project has focussed on investigating the history of the cathedral windows with particular focus on the painted glass of the 17th century. This paper focuses on one of the insitu windows, 'Jonah before Nineveh'. Handheld X-ray Florescence (HH-XRF) was used to analyse the window in a non-destructive manner to determine the extent to which the window was the work of a 17th century artist. The results showed that not only was the window of a HLLA composition, but also, two distinct HLLA compositions could be determined, indicating that the window had been repaired during the later 17th century.

**References:** 

**About the Presenting Author:** 



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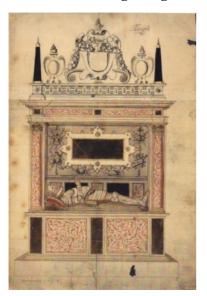
The Conservation of the East Window of the Savile Chapel - The Poisoned Chalice Richard Jaques

#### **Abstract:**

The Church of St. Michael and All Angels, the Parish Church of Thornhill, Dewsbury, is a grade 1 listed building of national importance. The earliest part of the fabric dates from the 9th century, the tower, chancel and chapels were added in the 15th century, during the 18th century extensive areas were rebuilt and further alterations were completed during the Victorian era. Within the Church the Savile chapel, built in 1447 with its collection of monuments and Doom window, has survived the later alterations. Of the Chapel monuments and glass Nicholas Pevsner in his volume on The Buildings of the West Yorkshire writes 'it contains a remarkable number of monuments' and



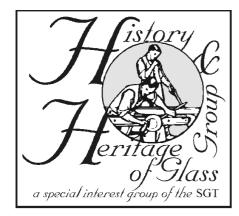
'much of the original glass remains. It has inscriptions of uncommon interest'.



The association of the monuments and historic glass within the Chapel elevate the already high status of the building but now the Doom window, possibly the most significant element of the collection, can no longer be conserved insitu. The removal of the glass from the window, the conservation and presentation of the historic glass and the nature of replacement glazing are highly controversial and contentious subjects, a poisoned chalice to those responsible for those developing the proposals.

This paper will first provide an understanding of the fabric and evolution of the Church, it will then set out the means of managing change to this highly significant building, as set out by the

recently published 'Conservation Principles, Policies and Guidance', and finally the presentation will summaries the means of financing the conservation works.



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#### **About the Presenting Author:**

Richard Jaques has practiced as a chartered architect for over thirty years and during the past ten years has worked as a historic buildings architect with English Heritage. By far the greater proportion of his time is directed to church repair projects. Before joining English Heritage Richard ran his own practice based in Cumbria where he was mostly involved in the conservation of historic buildings.



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## Abstracts

## **Building Environment and the Conservation of Historic Stained Glass by Protective Glazing**

**Tobit Curteis** 

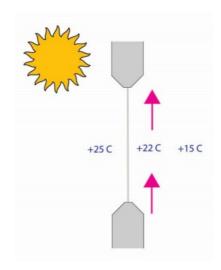
#### **Abstract:**

Stained glass windows are an integral part of the building envelope forming an interface between the internal and external environments. However, because of its physical and chemical characteristics, stained glass reacts to environmental changes and deteriorates very differently to other types of building fabric. Successful control of environmental deterioration requires a thorough understanding not only of the stained glass itself but how it reacts with the local microclimate and how this in turn is





influenced by the building environment and the external weather. Only if the wider environmental context is fully understood can control measures such as isothermal and other protective glazing systems be accurately designed and used.





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## Abstracts

#### **About the Presenting Author:**

Following a degree in the History of Art at the University of Warwick, Tobit Curteis trained in the conservation of wall paintings at the Courtauld Institute of Art in conjunction with the Getty Conservation Institute. Since 1992 he has run a practice specialising in the conservation of architectural decoration and the diagnosis and control of environmental deterioration in historic buildings. He works in the UK and abroad for private and institutional clients including English Heritage, the National Trust, Historic Royal Palaces and the World Monument Fund. He is an external consultant for the Building Conservation and Research Team at English Heritage and is the



National Trust's Advisor on Wall Paintings. His current conservation and research projects include Canterbury Cathedral, York Minster and Hampton Court Palace in the UK and the underground megalithic temple, the Hypogeum Hal Saflini, in Malta.



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## Abstracts

The Heavenly City -"physical reconstruction or spiritual restoration"?

The 'new' east window for Thornhill's Savile Chapel

Ruth Cooke, Jonathan Cooke, David Martlew

#### **Abstract:**

The 15th century York glass of the Savile Chapel at Thornhill Parish Church is in an advanced state of deterioration. A project to conserve the window has been initiated, but the prognosis was problematic. The condition of the window raises issues about how, if at all, it might be conserved, and presents a number of ethical dilemmas for those charged with its care. Attack by water vapour seems the likely cause of the deterioration of much of the glass in the Savile chapel windows. A set of six sensors was deployed to study the ambient conditions faced by the east window. These have provided vital information about the environment within the chapel, and the conclusions have informed the long and detailed discussions about the future programme. After careful consideration of the ethical issues and the nature of this particular case, the decision was made to remove the worst affected window for conservation within the building, and to restore the iconography using more durable glass.



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# Abstracts

#### **About the Presenting Author:**

Ruth Cooke works with her husband Jonathan in their long-established Stained Glass Conservation Consultancy. Ruth's primary role is that of business manager, amongst other things preparing stained glass audits for grant applications or other purposes. She is currently working with the client as project manager at Thornhill and is enjoying the involvement with



the glass science community that this project has generated since its initiation several years ago.

Jonathan Cooke ACR has been fascinated by the play of light through stained glass for as long as he can remember. At the age of sixteen, he began a four year apprenticeship at York Minster, and has worked in stained glass ever since, with a special interest in researching ancient techniques and recipes for glass painting. Since 1987, he has been in private practice as a stained glass conservator and artist. He is the tutor for short courses in glass painting at Swansea Metropolitan University and the University of York, and was invited to run a similar course in New Jersey in October 2010. He serves on the Stained Glass Committee of the Council for the Care of Churches, and several Diocesan Advisory Committees.



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# **Abstracts**

Preserving the New Jerusalem: Research, Conservation and the Great East Window of York Minster

Sarah Brown

#### **Abstract:**

The Great East Window of York Minster, made 1405-8 by a team of glaziers

led by John Thornton of Coventry, is the greatest expanse of medieval stained glass surviving in Britain. Conservation of the window by the York Glaziers Trust, which began in the Autumn of 2010, is shedding new light on the circumstances in which the window was conceived and made, in addition to providing new insights into approaches to repair and restoration in the 18<sup>th</sup> and 19<sup>th</sup> centuries.





Conservation is proceeding in tandem with research and this paper will present some of the results of the collaborations between conservators, art historians and scientists that make this one of the most innovative and exciting projects of its kind.



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## Abstracts

#### **About the Presenting Author:**

Sarah Brown is a lecturer in the History of Art and Course Director of the MA in Stained Glass Conservation and Heritage Management. She is member of the Stained Glass Research School at the University of York.

Her research has touched upon many aspects and periods of stained glass and its contribution to the decor of the ecclesiastical interior. She has published on the architecture, glass and furnishings of Salisbury and Bristol cathedrals, Tewkesbury Abbey, York Minster, St George's Chapel, Windsor, and Fairford parish church. She has also worked on the ecclesiastical architecture of the Catholic church and the impact of cultural and religious diversity on the



built environment. Current research interest include the early history of stained glass restoration and post-medieval reception of medieval art.

Sarah is Chairman of the British Corpus Vitrearum Medii Aevi and the Director of York Glaziers Trust.

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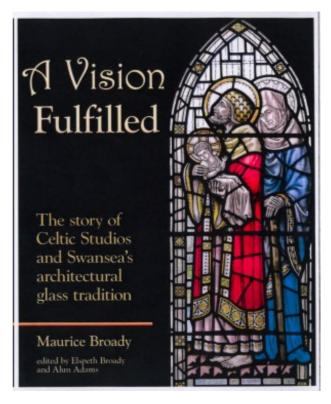
# Abstracts

A Vision Fulfilled: Swansea's Stained Glass Tradition

Alun Adams

#### Abstract:

2010 saw the 75th Anniversary of the Welsh School of Architectural Glass and the publication (not coincidentally) of the book by the late Maurice Broady on Swansea's architectural glass tradition. Martin & Thomas, Celtic Studios, and the teaching of stained and architectural glass in Swansea are all interlinked. These links within the broader context of stained glass in Wales will be presented and discussed as will the assertion that the 'Vision' of those who founded the taught programme has been fulfilled.



#### **About the Presenting Author:**

Alun Adams is Co-ordinator of the Architectural Glass Centre, the commercial arm of the Welsh School of Architectural Glass at Swansea Metropolitan University. A former student at the School he specialised in the history of stained glass with particular interest in Arts and Crafts and in issues and techniques of restoration and conservation. He was for 10years a lecturer at the School. He is stained glass adviser to the Cathedrals and Churches Commission of the Church in Wales, and has been involved in an advisory capacity on projects with the National Museum of Wales. He has written a number of articles/papers on aspects of the history of stained glass in Wales, and was co-author with David Dungworth on the glass at Margam Castle, Port Talbot. Most recently he was joint editor with Elspeth Broady of "A Vision Fulfilled: The Story of Celtic Studios and Swansea's Architectural Glass Tradition"



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## Abstracts

## Stained Glass Collection of D Fernando II in Palacio da Pena Joana Delgado,

#### **Abstract:**

In this project we intend to conduct a study of an exceptional set of stained glass windows that are part of the legacy of D. Fernando II. This set is in very unfavorable circumstances of preservation, being totally unknown to the public.

The panels in question date from the 14th to the 19th century. The artistic and historical study of these panels is being held in order, not only to identify the elements and scenes represented, but also to establish its relationship with other stained glass windows from the same period.

The characterization of the composition of the glass of the windows and decorative elements of painting such as grisaille, yellow staining and enamel, is being performed by energy dispersive





micro X-ray fluorescence and UV-Vis absorption analysis. The aim is to obtain relevant information about the materials and production techniques of these panels, and also to assess the state of conservation.

#### **About the Presenting Author:**

Joana Delgado is a PhD student at the Conservation Department of Faculdade de Ciências e Tecnologia-Universidade Nova de Lisboa (FCT-UNL). . In 2010, she finished her Master in Conservation and Restoration at FCT-

UNL, specializing in stained glass, under the supervision of Professor Márcia Vilarigues and Professor Pedro Redol. She graduated in 2008, also in Conservation in Restoration in FCT-UNL. During her Masters, and now in her PhD, she worked with several characterization techniques, such us x-ray fluorescence spectrometry, ion beam analysis, UV-Vis absorption, Fourier transform infrared spectrometry and Raman spectrometry.



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## Abstracts

### Recovery of the Lost Technology of Bright Red Copper Ruby

Peter Wren Howard

#### **Abstract:**

European Glassmakers of the early medieval period had a palette of colours that was based on the presence in their glass formulations of significant percentages of Iron and Manganese. The presence of these two metals in the glass form a colouring system that can be varied across the spectrum depending on the redox balance in the glass, from a light blue at extreme reduction, through green, yellow, sepia, pink to purple, at its most oxidised. Results of research in this system, done in collaboration with the Department of Mineralogy of the Natural History Museum have been previously published. On a visit to Chartres Cathedral in April 2005 the author was very surprised to find that the colours in the stained glass windows of the Cathedral which was built between 1196 and 1224 AD in no way resembled those of the technology available to European glassmakers of that period. In particular there is extensive use of a bright mid red colour which is the same colour throughout the cathedral, showing no streaks, and no tendency to show brownish dark shades of red. As red glass is notoriously difficult to produce, and the degree of consistency that had been achieved, it became apparent that this was the work of real masters of the art from 800 years ago who must have been using some technique that is unknown today. Researching the history of glassmaking revealed that this bright red Copper ruby glass when made up as an enamel was known as "Rouge Clair" and was applied to gold artefacts in special cases and was so highly prized that special mention was made of it in inventories of royal and aristocratic households. Knowledge of the technique was lost in the mid 14th century at the time of the Black Death. The author has conducted a number of research glass melts and has succeeded in replicating the clarity of the red produced by Copper in glass 800 years ago, and gone on to demonstrate that using the same technology, extremely low concentrations of Copper in glass can be made to form a pure pink glass, without any trace of the yellow cast that low concentration Copper normally gives.

#### **About the Presenting Author:**