

Institution: University of York		
Unit of Assessment: 32 - Art and Design: History, Practice and Theory		
Title of case study: Stained Glass Conservation and Research at York Minster: The Long-Term Legacy of the Great East Window Project		
Period when the underpinning research was undertaken: 2003-2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Professor Sarah Brown	Professor, History of Art	1/09/2008 - present
Professor Tim Ayers	Professor, History of Art	1/10/2005 - present
Professor Christopher Norton	Professor, History of Art	1/10/1984 - 14/11/2011; 24/10/ 2012 - 23/10/2016
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words)		
<p>The integration of art-historical research and conservation practice, a model that evolved during the conservation of York Minster's Great East Window, has produced a permanent cultural and economic shift in the way all stained glass conservation at York Minster is approached and implemented. The success of this model has raised the public profile of the international significance of the Minster's stained glass, and it has transformed the perceptions and priorities of its custodians and their fundraisers, triggering in 2017 a new twenty-year strategic plan for stained glass conservation, and attracting over GBP1,000,000 of new finance for conservation. Stained glass has now also been recognised as a major strand in an emerging bid to secure World Heritage site status for York, something that, if successful, would be of enormous value to post-Covid recovery of the fortunes of the Minster and the city. The York model has been adopted further afield, notably at UNESCO World Heritage site Naumburg Cathedral.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>Conservation of York Minster's stained glass – the most important and single largest collection of its kind in the country – is carried out by York Glaziers Trust, Britain's leading specialist conservation studio. Since 2008, Brown has divided her professional time 50% between her University of York role and directing York Glaziers Trust. The Minster's glass, including the Great East Window made in 1405-8 by John Thornton of Coventry and his workshop, has over the centuries been repeatedly damaged, treated, altered and reordered, so that effective current conservation requires both technical expertise and research-led interpretation of its complex histories. A new collaboration between York Minster, York Glaziers Trust and the University was first formalised as part of the conservation of the Great East Window (2008-18), one of the world's largest and most complex restoration projects. It entailed removing the 311 glass panels, replacing lost glass, improving the visual clarity of disturbed panels, and re-setting the renovated panels in the correct narrative sequence. Such work required interpretation of the glassmakers' original conception behind each individual panel and the window as a whole, and this developed through collaboration between researchers and conservators via the East Window Advisory Group, whose members included Brown, Ayers and Norton. Now reformulated as the Standing Advisory Group on Glass, it ensures that research informs the implementation by Brown's team at York Glaziers Trust of the Minster's 20-year stained glass conservation plan.</p> <p>Brown's research, combining material and visual analysis with archival work, has elucidated the complex histories of York Minster's glazing schemes. Most fundamentally, she has worked back through the disruptions of later restorations in order to redefine the relationships between concept, design and execution in the original construction of the windows (3.1, 3.2, 3.3). Comparison of the Great East Window's Apocalypse narrative with the English Apocalypse tradition in other media such as illuminated manuscripts has changed understanding of the panel sequence and highlighted the originality of John Thornton's design (3.1, 3.3, 3.5). The visual</p>		

narrative of the main panels moves left to right and top to bottom, but the design also thematically aligns scenes within columns or in visual symmetrical structures, thus encouraging complex forms of visual reading not possible in other media. Norton's research has reassessed the ecclesiastical politics of key figures associated with the creation of the Great East Window, notably Archbishop Richard Scrope, and has informed the understanding of dates, patronage and iconographic interpretation of the glazing schemes throughout the Minster's eastern arm (3.5). Ayers is co-investigator (with Prof Ian Freestone of UCL) in two major scientific inquiries relating to the composition and origin of medieval stained glass, focused on samples from York Minster (3.6). Scientific analysis of glasses from the Great East Window has confirmed identifications of original glass vs later inserts and revealed the introduction of new glass types to York in the years after 1400, hinting at Europe-wide networks of supply that opened up new choices for glazing workshops.

Research has not simply fed into advice given by scholars to conservators: rather, the active collaboration between conservators and scholars has itself constituted an invaluable form of research, and Brown's distinctive position as both lead conservator and academic researcher has been integral to the new interpretations and successful conservation of the Great East Window. The forensic examination of glass while undergoing conservation has resulted in Brown's new insights into medieval workshop practice (3.4), which has led to a reevaluation of the role of master-glazier John Thornton as designer and interpreter of one of the most complex Biblical narratives ever constructed in medieval Europe (3.3 and 3.4). Through the East Window Advisory Group, forensic examination was combined with new iconographic identifications and new interpretations of historical records of panel sequences by Brown, Norton and Ayers, and in several cases this provided evidential justification for reordering of disturbed and altered panels. This form of collaborative research has made possible the reconstitution of the authentic panel order of the Minster's greatest stained glass window, with significant implications for the wider discussion of the medium as a vehicle for monumental narrative in general.

3. References to the research (indicative maximum of six references)

- 3.1 S. Brown, *Apocalypse: The Great East Window of York Minster* (London, 2014)
 3.2 S. Brown, *Stained Glass at York Minster* (London, revised 2nd ed 2017, reprinted 2020)
 3.3 S. Brown, *The Great East Window of York Minster: An English Masterpiece* (London, 2018) [returned to REF 2021]
 3.4 S. Brown, 'The Medieval Glazier at Work', in E. Pastan and B. Kurmann Schwarz (eds), *Investigations in Medieval Stained Glass: Materials, Methods and Expressions* (Leiden & Boston, 2019), pp. 9-22 https://doi.org/10.1163/9789004395718_003 [peer-reviewed]
 3.5 C. Norton, 'Richard Scrope and York Minster', in P.J.P. Goldberg (ed), *Richard Scrope, Archbishop, Rebel, Martyr* (Donington, 2007), pp. 138-213 [peer-reviewed]
 3.6 I. Freestone, J. Kunicki-Goldfinger, H. Gilderdale-Scott, T. Ayers, 'Multi-disciplinary Investigation of the Windows of John Thornton, focusing on the Great East Window of York Minster', in L. Pilosi, M. Shepherd and S. Strobl (eds), *The Art of Collaboration: Stained Glass Conservation in the Twenty-First Century* (London, 2010), pp. 151-58 [peer-reviewed]

4. Details of the impact (indicative maximum 750 words)

The research underlying the conservation of the Great East Window enabled a reliable visual clarification of its 311 panels and their successful re-ordering into their correct sequence, transforming the window's visual impact and making it possible for the first time to understand fully and to convey to wider audiences the window's profound historical, artistic and intellectual significance. The recognised success of this project has led to a profound and permanent shift in the way glass conservation is approached and executed at York Minster: research has become an integral component of conservation planning and execution, and the results are widely disseminated to public audiences, whose interest in stained glass and support for its conservation has been greatly increased by the transformation of the Great East Window. The model of integrating academic research with conservation has attracted international attention and has recently been emulated at Naumburg Cathedral in Germany.

The Heritage Lottery Fund, sponsors of phase one of the Great East Window project, completed in 2015, had specified that the project must include a public engagement and research element as part of their conditions of funding. Although there was no obligation to continue these activities into the second phase (completed 2017), the Minster remained ideologically and financially committed to this model for the remainder of the work and has now continued this into all future stained glass conservation projects, as testified by the Director of the York Minster Fund (5.2).

Recognising the value of the research contributed by the East Window Advisory Group (EWAG), the Chapter of York, supported by the Cathedrals Fabric Commission for England, have opted to transform it into the permanent Standing Advisory Group on Glass (STAGG), retaining Brown, Ayers and Norton as key members due to their research expertise (5.1, 5.2). STAGG members contribute directly to the development of method statements for all new stained glass projects at York Minster, as well as providing strategic advice to Chapter and its Fabric Advisory Committee on context and practice (5.1, 5.2). The Director of the York Minster Fund comments on the 'direct bearing on the processes of conservation decision-making' provided by the University of York researchers, through 'a collaborative partnership, which to my knowledge is unprecedented among British cathedrals' (5.2).

In July 2017, York Minster announced the launch of a new 20-year strategic plan for stained glass conservation in exclusive partnership with the York Glaziers Trust, supported by the research provided through STAGG (5.1, 5.2). This initiative, designed to conserve and protect over 70 windows, has been supported by an initial pledge of GBP1,000,000 from the National Lottery, as well as a substantial endowment from the York Minster Fund; the overall project costs are estimated at GBP11,000,000 (5.1, 5.2). Between 2017 and 2020, a further eight windows from this world-famous collection have been conserved. The fifteenth-century St Cuthbert window (s7), the subject of recently completed doctoral research supervised by Ayers and Brown, will be removed for conservation in 2021 as part of the 11-year conservation of the cathedral's south choir aisle fabric, begun in 2016. The safeguarding and preservation of the Minster's medieval windows, now part of a continuous and unprecedented rolling programme of works, has provided the most enduring legacy of the collaboration. York Minster is currently the only British cathedral to benefit from a long-term plan of this type (5.1, 5.2). The 20-year programme represents a major shift from a reactive or emergency-driven response – as represented by the emergency post-fire restoration of the York Minster Rose Window (1984-88) – to a properly-resourced, measured, and research-driven model, with the History of Art department's members acting as key and permanent participants in this process. Such a model is seen by the Minster as crucial in ensuring the preservation of its stained glass for the long term. 'For the first time since 1920, the Minster is committed to a strategic rolling programme of stained glass conservation and protection', with the 'research of the University's art history department' informing its 'advocacy of the significance and value of this fragile heritage' (5.2).

While research and collaboration have long been identified as key components of best practice, as enshrined in the Guidelines for the Conservation and Restoration of Stained Glass established by the Corpus Vitrearum (Nuremberg, 2004), rarely has this been achieved in practice. The successful completion of the conservation of the Great East Window can be viewed as a watershed moment in this regard, with many more collaborations being realised between conservators and scholars since this project was initiated – the York model is now one to emulate. Since January 2018, for example, the partnership of academics and conservators is an approach that has influenced UNESCO World Heritage site Naumburg Cathedral. After a visit to York by a party of key stakeholders in August 2017 to evaluate the impact of integrating research with conservation, Naumburg has elected to establish its own cathedral studio and its own advisory committee in the likeness of EWAG and STAGG, underlining and consolidating York's influence in changing the way conservation is now practiced at home and abroad (5.3). The recently established stained glass conservation workshop there, supervised by York research associate and visiting lecturer Dr Ivo Rauch, is led by a York stained glass conservation alumna. The advisory committee includes numerous internationally renowned practitioners in the stained glass field, including Brown. Naumburg Cathedral credits the

'conservation concept, the recruitment of suitable conservators and the scientific support of conservation activities' to its collaboration with the York researchers and their work, which 'led to the decision to establish a dedicated cathedral workshop in Naumburg, which will exclusively take care of the stained glass in Naumburg Cathedral.' Their spokesman notes that 'some of the goals that have now been achieved have only become possible through [the] collaboration' with the University of York and York Glaziers Trust. He goes on to attribute an increase in tourist and visitor numbers to the Cathedral since summer 2018 in part to the successful stained-glass conservation project (5.3).

Closer to home, continued local and national press coverage, culminating in January 2018 with the completion of the Great East Window project, has provided forward momentum for growing public appreciation for stained glass artworks and support for their preservation and protection. The Director of the York Minster Fund states that 'The success of the Great East Window conservation project has created a formidable legacy in terms of public interest in the fate of York Minster's glass' (5.2). The completion of the York Minster project was featured in 210 articles in local, national, and international newspapers and magazines, including *The Smithsonian Magazine*, *The Times*, *The Express*, *The Telegraph*, and *The Guardian*. BBC and ITV also provided regional television coverage (5.6). At the 2018 York Design Awards, the Great East Window project won the prestigious John Shannon Conservation Award.

The imagery of the Great East Window was the star of a specially commissioned light and sound installation *Northern Lights*, held at York Minster 15-17 June 2018, while the soundscape was indebted to the work of scholars in the University's Centre for Medieval Studies. This event generated an exceptional GBP1,400,000 for the launch of the fundraising campaign for the 20-year programme, underlining the huge economic support that stained glass now garners from influential members of the wider York community. The show was back by popular demand in October 2019, selling out to a capacity audience of over 22,000, and raising a further GBP530,000 for the stained-glass fund (5.2). Media coverage of the event reached over 4,000,000 people in 2018 and over 8,000,000 people in 2019, with a third of 2019 media coverage being national or international (5.6). In July 2019 the Association of Leading Visitor Attractions reported that York Minster had welcomed its largest ever number of visitors, an increase of 2% on 2018 figures to over 706,000, pushing it four places up the national rankings (5.7), a success attributed by the Dean of York Minster to the appeal of both *Northern Lights* and the newly conserved Great East Window (5.1). Audience feedback from surveys and on social media indicated the central importance of the stained glass for many attendees, with many positive comments on the fact that the event was financially supporting stained glass conservation (5.6). Since the Great East Window project has showcased the high artistic and intellectual merit of stained glass, other new avenues of funding have become available for stained glass projects at York Minster, including the 2018 sponsorship by the Friends of York Minster of the conservation of the fourteenth-century north nave aisle Penitencer's window.

Visitor interest in the Minster's stained glass has risen appreciably in the period. In 2019 the Minster offered pre-bookable tours of the York Glaziers Trust studio as part of its Heritage Open Days, which sold out within 24 hours of being made available (5.6). Minster tour guides (approximately 100 volunteers), who show approximately 58,000 visitors per year around York Minster (2018 figure), have received training to enhance their understanding of the glass and its conservation (some training provided directly by Brown), and dedicated 'Stained Glass Tours' are now also available within the Minster. Most guides are consequently able to provide visitors with detailed information about conservation processes and techniques. Analysis carried out by a Minister guide notes that 'visitors are intrigued by the support given to edge-bonded medieval glass, the protective glazing design and how it was created. They sometimes question closely how the research is being recorded and how future generations will be able to interpret it.' (5.5). Brown's new overview of stained glass in York Minster (3.2) demonstrates a renewed appetite for publications focusing on stained glass subjects. Since its release in March 2017, over 3,500 copies have been sold through the Minster shop and the book was reprinted in 2020. Published in May 2018 (3.3), the monograph on the Great East Window has sold 1,469 copies. The York Minster Fund confirms that these sales are 'earning additional valuable income for the care of

the building and its windows' (5.2). Copies of the book are also available to visitors, with guides commenting that 'They are very well thumbed and have to be replaced at intervals.' (5.5) During the Covid-19 lockdown and its socially-distanced aftermath, public appetite for the Minster's glass has been met by an online resource, the 'Stained Glass Navigator' (5.8), initiated by Brown and launched in Spring 2020. Ultra-high-resolution images of the Minster windows taken by the conservators of the York Glaziers Trust, matched by captions reflecting up-to-date research undertaken by Brown and Norton (3.3, 3.4, 3.5), enable visitors to explore the glass in minute detail. The navigator, with 7,715 visits and 81,264 page visits between April and August 2020 (5.9), has also attracted new donations to the forthcoming conservation of the St Cuthbert window.

The enhanced public profile of the Minster's windows in general and the Great East Window in particular is having a major impact on the city beyond the Minster itself, through its role in the city's ongoing bid to gain UNESCO World Heritage Site Status. This long-term campaign, spearheaded by the York World Heritage Steering Group, is making a case based on multiple sites of historic importance in the city. The significance of the restored Great East Window in this regard is confirmed by the bid's co-leader: 'The project to research, document and conserve the Great East Window in York Minster has represented a step change in our understanding of medieval stained glass in York... The detailed documentation and analysis carried out by York Glaziers Trust and academics from the University of York has made it clear that this composition represents an outstanding example of human creative genius [one of the WHS criteria]. I think it is reasonable to say that prior to this project I and the wider community in York were simply unaware of the full importance and significance of the Great East Window and the achievement of John de Thornton' (5.4).

The Minster's stained glass is also seen as one of its most compelling assets in attracting vital visitors and related income back to the Minster in the Covid-19 aftermath (5.1). The Chapter is currently collaborating with several TV production companies who will feature the glass in new documentary programmes scheduled for 2021-22. The executive producer of Clearstory Films' forthcoming 'The Making of Us' for BBC2 wrote following filming with Brown: 'Ten years ago, if a British television company was researching masterpieces of art and culture in the Middle Ages, they would think immediately of Geoffrey Chaucer's Canterbury Tales... They might not have chosen the Great East Window at York Minster... The restoration supervised by Sarah Brown has revealed an extraordinary and powerful apocalypse window in all its colourful glory, beautifully conceived and narratively coherent over 311 panels. It has also re-established its designer, John Thornton, as one of our country's greatest artists and visionaries. In 2020, as we started research on our film about medieval art and culture, we came across scholarly articles and press accounts of the restoration of the 'Sistine Chapel of Glass' and what it revealed... The Great East Window is now an unmissable highlight and we will feature it in its rightful place in the canon alongside Chaucer' (5.10).

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 5.1** Testimonial letter from the Dean of York, in conjunction with the Director of Works and Precinct, York Minster.
- 5.2** Testimonial letter from Director of the York Minster Fund.
- 5.3** Testimonial letter, Director of the Vereinigte Domstifter, Naumburg Cathedral, Naumburg.
- 5.4** Testimonial letter, City of York Archaeologist and co-leader of UNESCO World Heritage bid.
- 5.5** Evaluation of impact of guided tours produced by York Minster Guide.
- 5.6** Comments from York Minster Marketing and Communications Manager, with detailed statistics for relevant media coverage.
- 5.7** York Minster online news item, 15 July 2020, quoting Association of Leading Visitor Attractions (ALVA) figures.
- 5.8** York Minster 'Stained Glass Navigator' (<https://stainedglass-navigator.yorkglazierstrust.org>)
- 5.9** Google analytics of the 'Stained Glass Navigator', supplied by York Glaziers Trust.
- 5.10** Testimonial email from Executive Producer, Clearstory Films.