

Piecing together Scotland's religious past with shards of glass

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Elgin glass Bag #10 grisaille



Glass fragments found at Elgin Cathedral. Credit: *Heritage* (2022). DOI: 10.3390/heritage5040180

Two Scottish researchers are trying to piece together part of Scotland's religious past by combining hi-tech science with historical knowledge.

A combination of scientific and [historical research](#) is shedding light on the physical and chemical properties of medieval stained glass, as well as its wider religious meaning.

The researchers, Dr. Craig Kennedy from Heriot-Watt University's Institute for Sustainable Building Design, and Dr. Michael Penman, a historian from the University of Stirling, hope they can bring the past to life with the project, and fill in the knowledge gaps created by the Reformation.

They've been supported by two research associates. Helen Spencer, Heriot-Watt, carried out the analysis of glass from Elgin Cathedral, while Tom Turpie, Stirling, contributed research on cults and popular religion in the pre-Reformation era.

Reformation's destruction wiped out church windows

During the Protestant Reformation of 1560, most of Scotland's Catholic churches faced widespread destruction. Items considered idolatrous were targeted and destroyed.

Significantly, stained glass windows were smashed and buried on-site, or otherwise left to decay, and were replaced by austere, plain glass.

In England and across Europe, [church](#) windows survived and still bathe visitors in their colorful light. In Scotland, visitors and historians have had to use their imaginations.

That's what Dr. Kennedy and Dr. Penman want to change with their research.

Dr. Michael Penman said, "If you visit the great medieval churches at Canterbury, Westminster or York, the stained glass windows are the main attraction for visitors, alongside the paintings on the walls."

"In [medieval times](#), most of the congregation would have been illiterate, so stained glass and paintings would have been the best way to address them."

"Nowhere else would they have seen anything so colorful and lavish. They were positioned and designed based on when the light would move round the church and shine through to best effect."

"You can step inside these cathedrals and get a real sense of what congregants would have experienced, sitting for worship several times a day, basked in color."

"In Scotland, the Reformation was much more destructive, and absolutely nothing remains in place."

"We want to try and recreate this experience and learn more about medieval daily life by combining historical research with [scientific findings](#)."

Recreating church windows from just 16 shards

The team has focused on two churches: Elgin Cathedral and Dunfermline Abbey.

Dr. Craig Kennedy previously worked on a project that tested 30 shards of glass from Elgin Cathedral. They were tested using the university's state-of-the-art electron microscopy facility and X-ray fluorescence to identify the elements present, which in turn revealed the color of the glass, and where it came from.

"Over the last few decades, we've been able to recover shards of medieval church glass during excavations."

"We can narrow down the age of the glass to part of a century, and from there we can use scientific techniques to determine where it was produced. We can work out when it was produced from some decorative patterns."

"We know the colors but so much more. The presence of certain glass tells us where Scotland had trade routes, and who sponsored or supported churches here."

Combining scientific information and historical studies has led to an educated guess on how the chapel windows may have looked at Elgin Cathedral.

"The glass recovered from Elgin was red, brown, blue, green and clear, and many of the clear sections were decorated in the French grisaille style."

"Elgin Cathedral's windows may have had grisaille borders and abstract top lights highlighting saintly figures. As to who those figures were, we have a number of candidates. The Virgin, Thomas Becket, St Columba of Iona and a few others are known to have regional dedications in the northeast of Scotland."

Trying to accurately imagine the stained glass windows of Dunfermline Abbey is proving difficult: only 16 shards of glass have been found.

Dr. Kennedy said, "It is fascinating that a site of such national importance as Dunfermline Abbey has yielded so few glass shards to date. This site, Scotland's national mausoleum, yielded red, white and blue glass samples."

"This site had a highly spiritual connection with St Margaret and we can assume that high-quality narrative glass was at some time installed in the Abbey."

Next steps: A modern day medieval church window

Kennedy and Penman hope that they will win funding to support two researchers, one historical and one scientific, so that they can try to answer a simple question: what did the glass look like?

Using scientific techniques to trace the origins of the physical glass and historical studies to understand the religious stories that were conveyed, an attempt to recreate these lost windows can be made. Further, through engaging with [local communities](#) near these sites, they aim to shed a light on a previously unknown part of Scotland's religious history.

They'd like to commission an expert glass artist to create medieval glass to tour Scotland and give people a window to the past.

Penman said, "All the stained glass currently in Scottish churches of a medieval origin is modern, from the 19th and 20th century and often for Protestant congregations. If our research can identify a distinctive Scottish palette and styles for stained and painted medieval church [glass](#), either figurative or decorative, then an artist might be able to recreate the imagery and thus the spiritual and huge emotional effect of such windows on Scottish worshippers before the Reformation."

The findings are published in the journal *Heritage*.

More information: Craig J. Kennedy et al, Interpreting Medieval Scottish Church Stained Glass Windows: Decoration and Colour in Relation to Liturgy and Worship, *Heritage* (2022). [DOI: 10.3390/heritage5040180](https://doi.org/10.3390/heritage5040180)

Provided by Heriot-Watt University

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