Kemsing
St Mary the Virgin

The conservation of the 13th century stained glass in the south aisle window sV (CVMA numbering)

Final Report

The Cathedral Studios

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1. **Survey:** Carried out by Leonie Seliger on 5 November 2009 (Site report enclosed in Appendix A)

2. **Report and Recommendations:** Submitted to Mrs Janet Eaton, Churchwarden.

3. **Removal**

   3.1. Date: 28 September 2010

   3.2. Removed by: Joy Bunclark, David Griffiths, Daniel Steinbach

   3.3. **Particular Findings / Comments:** The panel above the removed stained glass had been crudely chopped off when the stained glass was removed to protect it in the past. There was no bottom perimeter lead on the upper panel, just raw glass edge.

4. **Reinstallation**

   4.1. Date: 22 October 2010

   4.2. Installed by: Joy Bunclark, David Griffiths, Daniel Steinbach

   4.2.1.1. **Particular Comments:** The new protective glazing panel made by the Cathedral Studios was fitted with a wide upper perimeter lead that allowed the cut bottom edge of the upper panel to be fitted into it. The panel division thus created was puttied up thoroughly to prevent water ingress. Three pieces of old green tint quarry glass were used to fill in missing pieces of quarry glass along & White Prints) / Kodachrome 64 EPR (Colour Slides)

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St Mary the Virgin

Report
on the condition of the
13th century stained glass
in the south aisle

Window sV (CVMA numbering)

1. Introduction

The church of St Mary the Virgin in the Diocese of Rochester is a Grade 1 listed building dating in parts to the 11th century.

The church has many fine stained glass windows of the nineteenth and twentieth century, but of the medieval glazing only a few remnants remain. These, however, attest to the very high quality of the medieval glass that must once have adorned the building.

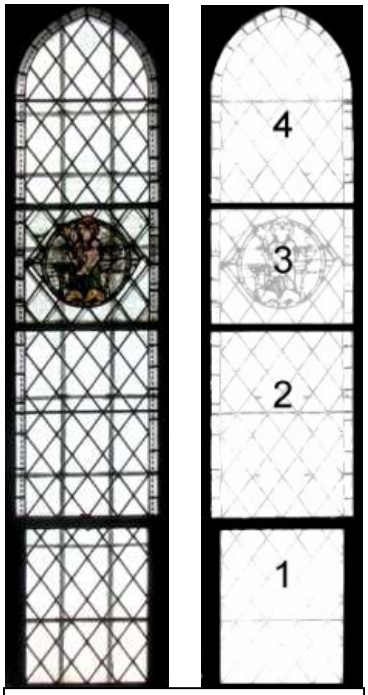
The earliest of the surviving glass is a roundel dating to the 13th century installed within a single lancet window on the south side of the nave (window sV). Concerns over the condition of this glass prompted the PCC of St Mary's Church to commission a survey by the undersigned, which took place on 5 November in the presence of Mrs Jane Eaton, churchwarden.

St Mary's Church from the south, with location of window sV

2. Description

Window sV is a single lancet window with early wrought iron external ferramenta. Internally the glazing is supported by 5 ferrous saddle bars of 11mm diameter. The glazing is divided into four separate panels set into a groove in the stonework with hard cement mortar. The lowest panel (panel 1) is set into an opening metal casement frame.

Panel 3 is a double layer arrangement, with the medieval glass set into a new groove on the inside behind the outer glazing. The inner panel appears to be sealed into the groove with putty.



Window sV, panel numbering

The majority of the glazing dates to the late 19th or early 20th century and consists of diamond quarries painted with the Christ monogram IHC. Panel 3 (outer) consists only of plain colourless glass, whereas panel 3 (inner) incorporates the medieval roundel.

The roundel shows the Madonna with Child seated on a throne in front of a simple ornamental background, the pattern of which may represent a wrought iron screen (see plate 2) or a tapestry. A pearl border frames the roundel, and there are two small triangular pieces of glass at the outer rim on the left and right hand which indicate that the roundel may have originally been set onto a foliate grisaille pattern. Stylistically as well as technically the glass dates to the 13th century.

2.1. Size:

The roundel is set into a rectangular panel 450mm high by 535mm wide.

The roundel itself measures 335mm in diameter.

2.2. Glass

The roundel contains six different colours of glass: very pure white, a warm light flesh tone, dark emerald green, amber yellow, cool medium blue, and ruby. All colours are pot metals (coloured throughout the mass) with the exception of the ruby, which is a rich streaky (made from a mixture of clear white and ruby glass). Nearly all of the glass appears to be original; there are only a few pieces (most notably a large background piece at the bottom right) of medieval glass that were used as stop gaps.

2.3. Painted decoration

The majority of the painted decoration is on the internal surface, but there may be remnants of shading (backpaint) on the external surface. The painted decoration is done exclusively

in dark brown vitreous oxide paint. There is no yellow stain, which dates the panel firmly before the end of the 13th century.

2.4. Lead

The lead is not the original medieval lead. Condition and profile (4mm round) suggest a date in the middle of the nineteenth century. This lead differs from the lead of the surrounding later glass, which is of a different section (6mm flat) and later date.

2.5. Previous interventions

The panel has been restored at least three times:

- The roundel was releaded probably in the middle of the nineteenth century.
- The glass surrounding the medieval roundel dates to the late 19th or even early 20th century. It is a simple diamond quarry arrangement with the Christ monogram IHC painted onto each quarry. Whether this glass was made to complement the medieval roundel, or whether the roundel was inserted into an existing diamond quarry window is unclear. The medieval glass was part of the window plane in that arrangement and fully exposed to the external environment.
- At a later stage, possibly around the middle of the 20th century, the rectangular section immediately surrounding the medieval roundel was extracted from the window and replaced with plain diamond pattern leaded glass. The stained glass rectangle was then re-set on the inside of

External glazing visible through internal panel.

The crudely chopped upper edge of the internal panel. Note the two layers are touching.

the window, creating a double layer of glazing. The interspace between the two layers is nearly non-existent, with the inner stained glass panel touching the external plain panel. The diamond lead pattern of the external glazing is very visible through the medieval roundel and is visually intrusive.

3. Condition

The surrounding later glazing is in sound condition, but the internal ferrous saddle bars are causing some fractures in the stonework through rust expansion. The external ferramenta are sound.

Structurally the medieval panel is sound. The glass and paint are affected by corrosion and are covered in surface deposits. Because of the absence of a well ventilated interspace, the external glazing is unlikely to prevent condensation from forming on the medieval glass.

Close-up of internal surface, paint loss and glass corrosion. External corrosion pits can be seen through the glass.

3.1. Glass

The internal surface of the glass is in relatively good condition. Corrosion in the form of shallow small-scale pitting is mostly concentrated on areas that are painted, but there are some areas that show wider spread corrosion patterns, most noticeably on the white background.

The external surface exhibits a much more serious corrosion pattern, with deep pits that are filled with corrosion products.

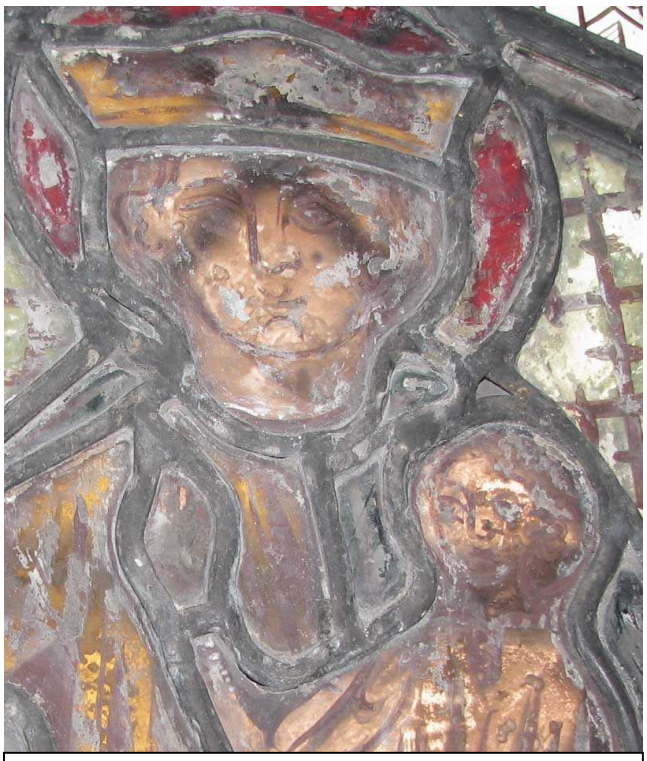
External surface with white corrosion deposits.

3.2. Painted decoration

The painted decoration has been attacked by corrosion which has led to some loss of detail. The remaining paint is likely to vary from perfectly sound to quite fragile. Close examination of the paint under the microscope will be necessary to determine which areas are unstable.

3.3. Surface accretions

One of the concerns by the parish was that microbial growth might be present on the glass. Upon close examination this does not appear to be the case on the internal surface, although it is quite possible that some growth will be present in the interspace between the two layers of glass. Patchy and widespread deposits on the inside have the appearance of lime scale and adhere to the surface very firmly. It is highly unlikely that they were present at the last intervention, as they are quite disfiguring and at least an attempt would have been made to remove them. There is, however, no trace of a cleaning attempt. These deposits have therefore probably accumulated since the panel was re-set on the inside of the window. This indicates that the medieval stained glass is still regularly covered by condensation, which allows dust particles and run-off from the surrounding building fabric to adhere to the glass surface. More seriously, glass corrosion is caused by liquid water, and will therefore still be active on the glass.



Surface accretions on the inside

3.4. Lead

The lead is in sound condition, firm and with no breaks.

4. Recommendations for treatment

The findings of this survey show that the current protection of the medieval glass is not sufficient to preserve the glass effectively. The absence of a well ventilated interspace allows condensation to form on the historic glass, which will allow corrosion to continue. Any condensation on the external glazing will affect the external surface of the medieval glass directly, creating a micro-climate of stagnant air with very high humidity, again perfect conditions for corrosion to occur. The accumulation of surface deposits is also likely to continue. Aesthetically, the additional lead lines of the outer glazing interfere with the delicate painted decoration of the medieval glass, although seen from the outside they do continue the leading pattern of the glazing.

Window sV showing reflective surface of the current protective glazing.

In order to improve the effectiveness of the environmental protection, the rectangular panel containing the medieval roundel should be removed and re-set further inwards. The design of the outer layer should also be changed. This will change the visual appearance of the window externally. Currently the diamond lead pattern is continued across the window, although the glass of the protective glazing has a brighter reflection than the 19th century glass. In order to eliminate the double lines of lead showing through the medieval glass, and to provide effective protection from impact damage, a single sheet of 6.4mm laminate glass would be preferable. It has to be understood, however,

St Peter's Church, South Weald, external protection of 17th century stained glass, installed in 2007. 6.4mm laminate safety glass.

that this will be even more reflective than the current arrangement. An example of this type of protection can be seen in St Peter's Church in South Weald. The external ferramenta in St Mary's Church will help to improve the appearance slightly.

We therefore recommend the following actions:

4.1. Removal

To remove panel 3 (inner) from its setting and transport to the conservation studio in a suitable container. To take exact measurements of panel 3 (outer), which will remain in situ while a new protective glazing panel is manufactured.

4.2. Saddle bars

To replace 5No. internal ferrous rusting saddle bars with new phosphor bronze bars of the same section.

4.3. Cleaning

To carefully clean the medieval glass with suitable dry cleaning methods (sable brushes, scalpels if necessary to remove accretions). The removal of corrosion products beyond what is easily taken off by a soft brush should not be attempted. All cleaning to be carried out under the microscope.

4.4. Paint consolidation

Only loose flaking paint to be consolidated with small amounts of acrylic resin.

4.5. Protective glazing arrangement

The historic glass should be framed in a bronze channel frame and re-set onto the inner edge of the stone reveal, thus creating a larger interspace of at least 40mm. A ventilation gap at the top and at the bottom of this panel will ensure a constant air exchange in the interspace, thus keeping the historic stained glass closer to the internal air temperature. Please refer to the sketch on plate 3 for the technical specification.

Before conservation

After conservation