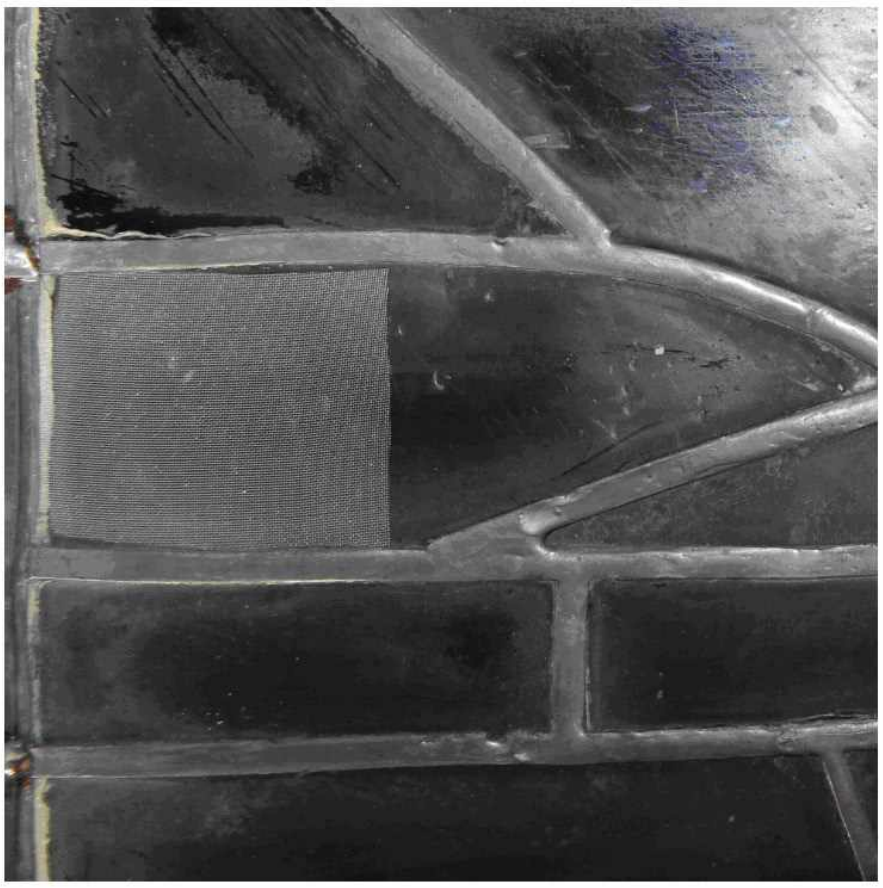
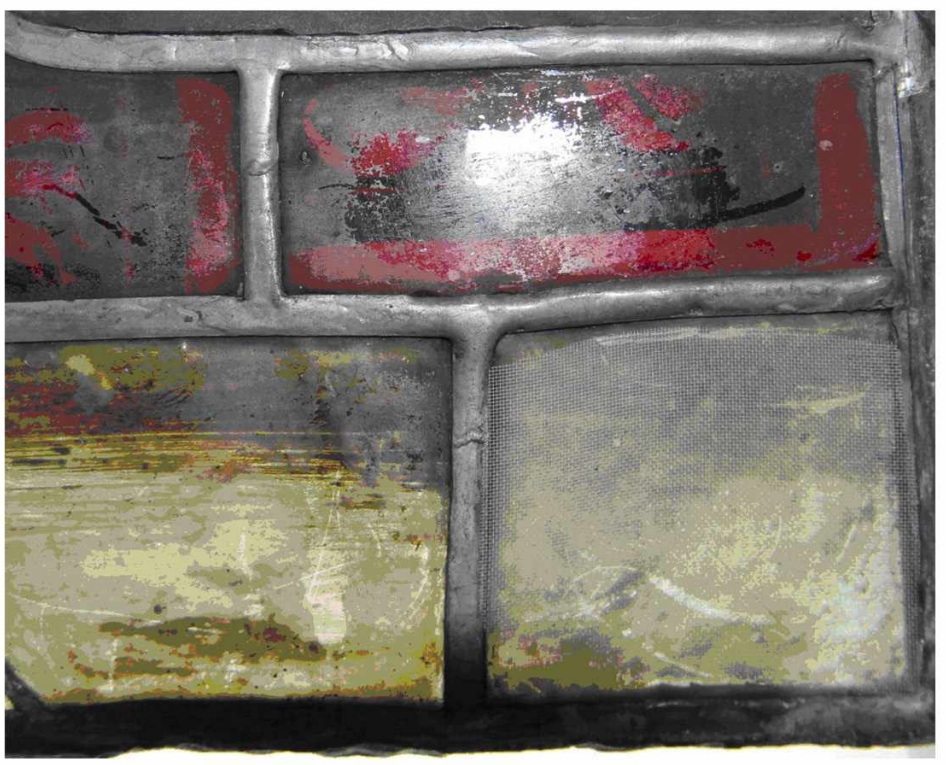
68. Repairing Fractures III

After the success with the polyester in the fabric tests we decided to see how it performed on fractures in stained glass.



White polyester against yellow glass in reflected light (left) and transmitted light (right)



White polyester against clear glass in reflected light (left) and transmitted light (right)

The images above show that white polyester contrasts against the coloured glass and is visually distracting. Textile conservators suggested this could be improved with the use of coloured polyester. Because this is only available in a limited range of colours they proposed dyeing the polyester, as they do when the colours they require are not available.

Dyes were tested to create a range of coloured polyester that complements the colours of the glass, to reduce the visual impact of the treatment as much as possible. The white polyester was placed in a vat of dye and heated to around boiling point in order for it to absorb the colour.

Due to the large quantities of boiling water involved and the fumes released by the dyes there were health and safety implications. Because of this I used fume extraction and wore protective equipment: heat and water proof gloves, water resistant apron and visor.

It was not always possible to get an exact colour match to the glass, as some dyes absorbed into the fabric more than others. Reds were particularly hard to achieve as the red dye appeared pink when dried. I decided to aim for a colour that was lighter but closer in hue to the colour of the glass. I deliberately did not want the colour to be too strong in case it affected the tone of the glass.

As you can see below, the colour of the dye mixture didn't always look too promising, but it managed to create some successful results!

LEFT: STIRRING THE DYE TO ENSURE EVEN COLOUR DISTRIBUTION

RIGHT: COLOURED POLYESTER PRODUCED WITH THE DYES

DYEING THE POLYESTER

Several pieces of glass of different colours containing fractures were selected for repair using the dyed polyester, of which a couple are shown below. The chosen colour of polyester was cut to shape and applied with wheat starch paste to the back of the fractures.

Fracture before polyester is applied (transmitted light)

Fracture after polyester has been applied (transmitted light)

Fracture after polyester has been applied (reflected light)

Example 1: (On Left)

The repair provides good structural support and the polyester is remarkably invisible when viewed in transmitted light. When seen from the back of the panel it is still clearly discernable but blends in far more sympathetically than the un-dyed polyester. The colour of the polyester is sufficiently light that it does not alter the colour of the glass, yet it is enough to disguise the chink of light that had previously been visible through the fracture.

Example 2: (on Right)

Satisfied that this technique provides maximum support to the fracture with minimal intervention to the panel, and is durable yet easily reversed, we have now trialled this technique on several panels which we will continue to monitor regularly to assess its behaviour over the long term.

Fracture before polyester is applied (front transmitted light)

Fracture after polyester has been applied (front transmitted light)

Fracture after polyester has been applied (back reflected light)