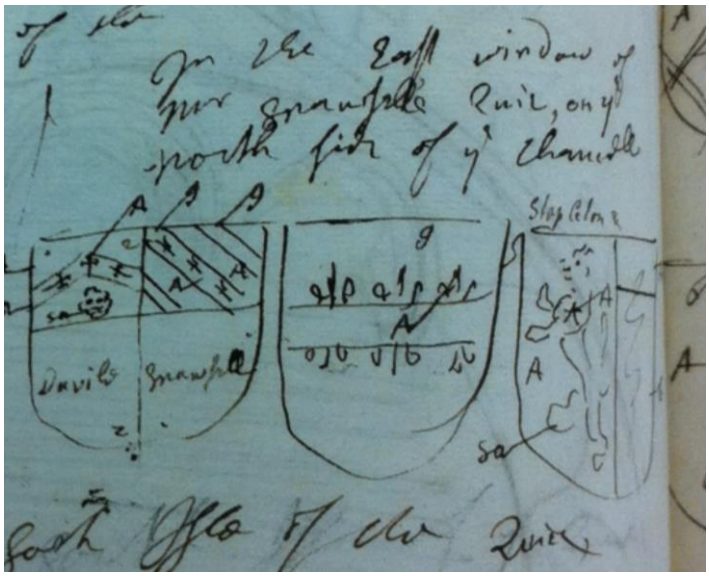
Stained Glass condition and conservation report

Object Title: Bilton in Ainsty St Helen's Church, window nll (Vestry)	
Window removed by: Daniel Thomas and Alison Gilchrist	**Date:** 16 October 2018
Conserved by: Keith Barley, Liam Bradley, Alison Gilchrist, Charlotte Roden, Daniel Thomas and Rose Waits	**Location:** Barley Studio, York
Reinstated by: Daniel Thomas and Alison Gilchrist	**Completion date:** 15 January 2019
Owner / client: Susie Pilling on behalf of PCC St Helen's Church	
General Description: 3 light window of diamond quarries, with inset medieval shield at head of centre light and opener panel below.	

Iconography:
The medieval shield dates to the late fourteenth or early fifteenth century and bears three fleur-de-lys on a white (or silver) band over a red background.
It was recorded in St Helen's Church by Nathaniel Johnston in 1670:



Detail from manuscript dated 25 May 1670, held in Bodleian Library, Oxford

The shields from the flanking lights (since lost) are believed to relate to the Snawsell and Stapleton families. The surviving shield may relate to the Usflete family (connected by marriage to the Stapleton family) or perhaps to the accession of Henry IV in 1400.
[Image and research notes kindly supplied by Susie Pilling, St Helen's Church Archivist]

Overall dimensions of opening (sight size, h x w in inches):
Each light approx. 61" high x 14" wide

Panel dimensions (full size, h x w in inches):
Panel 3b 15″ x 13¾″

Removal:
The head panel of light b was removed from the opening by removing the outer plywood covering and chipping out the mortar holding it in place. The wire ties to the support bars were already detached.
The opener frame below was removed by chipping out the mortar holding it in place and releasing the bars to top and bottom of the frame.
Clear twin-wall box polycarbonate was installed as temporary boarding during the conservation of the window.

Materials and condition:

Glass:
Within medieval shield, antique glass in clear and red, with several breaks and significant corrosion of the internal surface. The external surface is in good condition. Much surface dirt, with evidence of insect infestation.

The surrounding quarry panes and quarry panel from the opener frame are of thin crown sheet glass, generally in good condition with no corrosion but many breaks and missing areas.

Paint Layers:
Red-brown pigment for both tracelines and shading. Surface corrosion has caused almost complete loss of the shading layer, leaving only the tracelines on the white glass evident.

Lead:
3/8″ flat profile milled lead (post-medieval, probably dating to late C18th) in quarry panels; generally in weak condition with several lead fractures.
1/8″ round profile cast medieval lead within shield; sound condition.

Support:
The head panel was previously supported by lead ties, soldered to the panel and attaching to two support bars. All ties were broken.

Further information:
Glazing Report by Barley Studio, April 2016.

Pre-conservation recording:
Full-size rubbings of each panel were taken on detail paper and marked up with damages such as glass cracks and missing areas.

Photographs of each panel were taken using a Nikon D800E digital camera; all panels were photographed with transmitted light on a light box, and in reflected light (both internal and external faces).

A brief condition report was prepared and forms pages 1-2 of this report.

Panel 3b before conservation, transmitted light

Panel 3b before conservation, reflected light – note glass corrosion and surviving medieval lead within shield

Studio conservation work:

Glass:
The quarry panels were carefully dismantled, keeping the medieval shield section intact. The clear crown glass pieces were cleaned with deionised water on microfibre cloths. Broken pieces were replaced with reclaimed historic crown glass. In order to introduce both environmental and mechanical protection for the shield panel, a new piece of laminated glass (2+2 float glass) was cut to take the place of the shield within the quarry panel.

The medieval shield was carefully cleaned by dusting with a soft brush, and then swabbing with deionised water on cotton wool buds. Where possible, fractures were edge bonded using CAF3 silicone adhesive (Elkem).

Paint and enamel layers:
No intervention to the existing paint layers was considered necessary.

Lead:
The medieval lead within the shield was retained; one mending lead added in 1/8″ round profile extruded lead and new perimeter leads added in 5/16″ flat profile extruded lead (Heaps, Arnold and Heaps).

The quarry panels were re-leaded in 3/8″ width flat profile extruded lead (Heaps, Arnold and Heaps) to match the original leadwork.

The quarry panels were waterproofed by brushing traditional linseed oil leaded light cement under the lead cames on both sides of the panels.

Ties in 1.25mm soft copper wire were soldered to the head panel in appropriate positions for the support bar. A 10BA brass bolt was drilled through one quarry joint and soldered into place on the reverse side.

Framing:
The shield panel was framed in manganese bronze 10 x 12 x 2 mm U-section bars. Holes were drilled in the top bar to allow screw fixing into the support bar of the quarry panel behind. An additional bolt fixing to the leadwork below the shield was fixed to the frame side with a copper rivet.

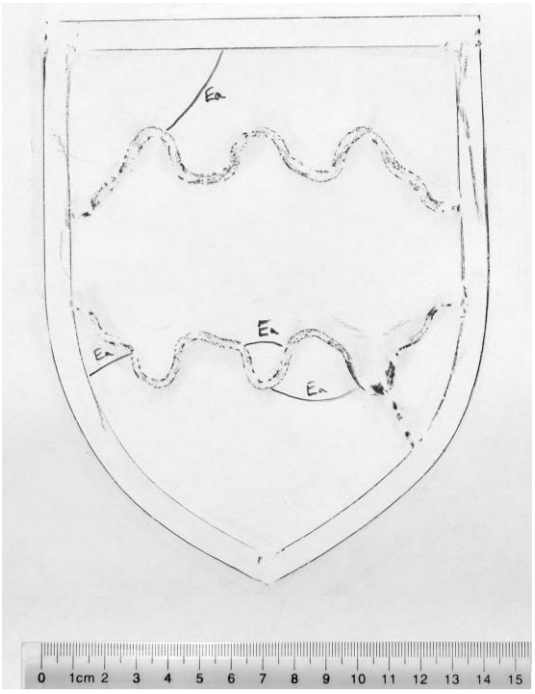
A new top opening frame with wire mesh guard was welded from stainless steel, powder coated to a black finish, and fitted with a catch closer. The quarry panel was puttied into the inner section of the frame with blackened linseed oil multi-purpose putty.

Post-conservation recording:
A new full-size rubbing of the shield panel was taken and marked up with our interventions (edge bonds).

Photographs of each panel were taken using a Nikon D800E digital camera; all panels were photographed with transmitted light on a light box, and in reflected light (both internal and external faces).

Head panel with laminated glass protection in place of shield

Shield panel after conservation



Record of interventions to shield panel
***Ea** = edge bond, silicone adhesive*

Reinstatement:
The new opening frame was fixed into the stone reveal using marine grade stainless steel screws into drilled and plugged holes, and pointed in with lime mortar.

The head panel was reinstated with a 3/8″ x 1/4″ square section bronzed brass support bar and pointed in with lime mortar.

The framed shield panel was screw fixed to the support bar and fixed to the 10BA brass bolt using 10BA brass washer and nuts.

In-situ maintenance carried out:
The remaining panels of the window were cleaned in situ with deionised water on microfibre cloths.

Existing support bars were rubbed down and painted with smooth black rust-inhibiting paint (Hammerite). Two additional support bars in 5/16″ round profile bronzed brass were added to light a to match the positions of those in light c. New copper ties were stitched through the leadwork to re-attach the panels to the support bars.

window nII after conservation

Detail of shield, showing frame, fixing and ventilation interspace

Object Title: Bilton in Ainsty St Helen's Church, window wl (West oculus)	
Window removed by: Daniel Thomas and Alison Gilchrist **Date:** 16 October 2018	**Recorded by:** Alison Gilchrist **Date:** 6 November 2018
Conserved by: Alison Gilchrist and Rose Waits	**Location:** Barley Studio, York
Reinstated by: Daniel Thomas and Alison Gilchrist	**Completion date:** 15 January 2019
Owner / client: Susie Pilling on behalf of PCC St Helen's Church	
General Description: Oculus window, decorative plain glazing	
Overall dimensions of opening (sight size, h x w in inches): Approx. 16" diameter	
Panel dimensions (full size, h x w in inches): 16½″ x 16½″	

Removal:
The outer glass pane was removed from the opening by cutting away the sealant holding it in place. The leaded panel was removed from the opening by chipping out the mortar holding it in place. Clear twin-wall box polycarbonate was installed as temporary boarding during the conservation of the window.

Materials and condition:

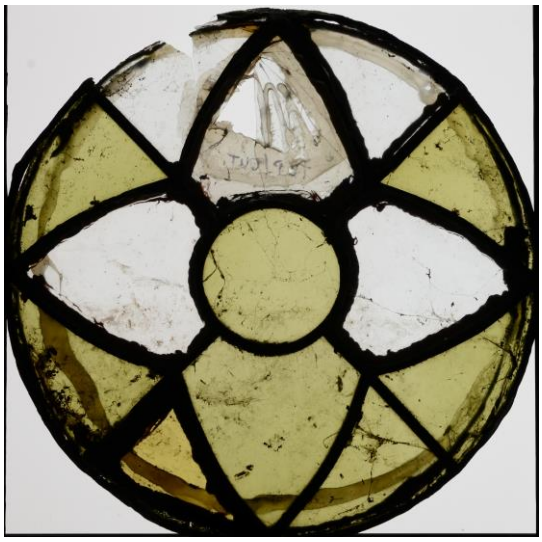
Glass:
Antique glass in green tint and clear white (previous repairs). No surface corrosion but several fractures. Very dirty, with sealant from previous outer pane and remnants of insect infestation.

Paint Layers:
None

Lead:
5/16″ flat profile milled lead (probably dating to C19th), weak condition with much damage from previous repairs.

Support:
None.

Further information:
Inspection Report by Barley Studio, June 2018.



wl oculus before conservation, transmitted light

wl oculus before conservation, reflected light

Pre-conservation recording:
A full-size rubbing of the panel was taken on detail paper and marked up with damages such as glass cracks and missing areas.

Photographs of the panel were taken using a Nikon D800E digital camera; with transmitted light on a light box, and in reflected light (both internal and external faces).

A brief condition report was prepared (see above).

Studio conservation work:

Glass:
The panel was carefully dismantled, setting aside all undamaged original glass for re-use (central circle and piece below). The glass was cleaned with deionised water on microfibre cloths.

New glass to replace broken pieces and previous repair pieces was cut from antique glass of matching green tint and texture.

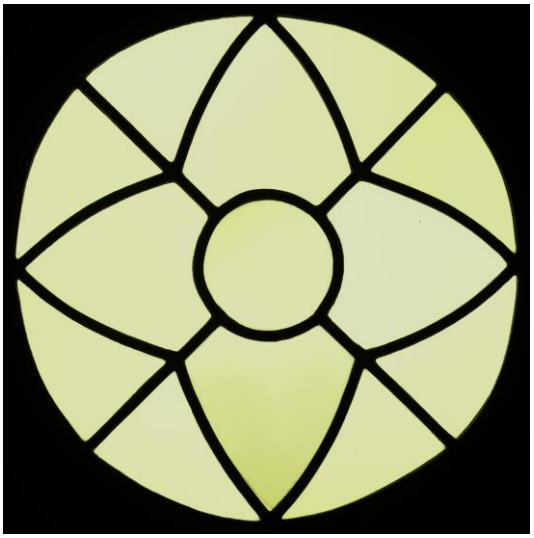
Paint and enamel layers:
None.

Lead:
The panel was re-leaded in 5/16″ width flat profile extruded lead (Heaps, Arnold and Heaps) to match the previous leadwork, with a 1/2″ flat profile perimeter lead.

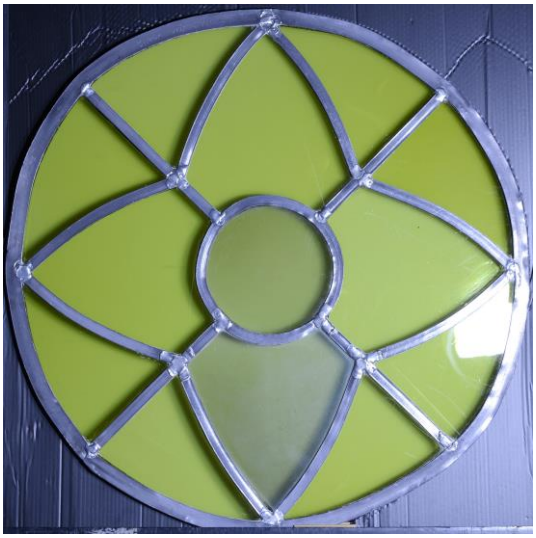
The panels was waterproofed by brushing traditional linseed oil leaded light cement under the lead cames on both sides of the panels.

Fixings:
Fixing brackets in 1mm tinned copper sheet were soldered to the perimeter lead in four positions (top, bottom, left, right) to allow for screw fixing on reinstatement (due to the lack of both glazing groove and any support structure).

Post-conservation recording:
The panel was photographed using a Nikon D800E digital camera; with transmitted light on a light box, and in reflected light (internal face only).



wl oculus after conservation, transmitted light



wl oculus after conservation, reflected light (note darker patina of original glass in centre circle and piece below)

Reinstatement:
The previous cement mortar was left in place to the interior to form a rebate to fix the panel against. A bead of neutral curing black silicone (Silfix U9, Hodgsons Sealants) was added around the perimeter of the panel to seal it to the existing cement mortar. The panel was fixed in position from the exterior using marine grade stainless steel screws into drilled and plugged holes, and pointed in with lime mortar.