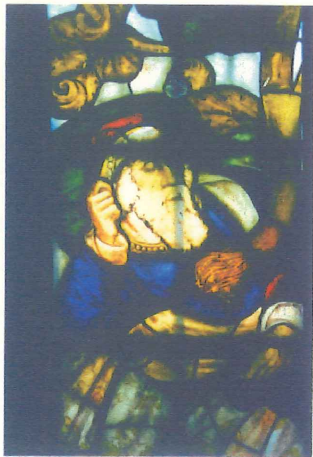


Ab.  
copy

Thorhall St Michael and All Angels: great east window

Photograph 21 1c Jesse - detail



Thorhall St Michael and All Angels: great east window

Photograph 19 3C? Abah - detail

Thorhall Tracing 3F - detail



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**Thornhill St Michael and all Angels**

**Great East Window  
Tree of Jesse**

**Condition Report**

**J&R Cooke  
July 1998**

This is a scanned copy of the original report- therefore the quality is not as good as the original document

August 3, 1998 ©



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## Thornhill St Michael and All Angels: great east window

### Commissioning of present condition report

This report on the condition of the window with outline recommendations was prepared at the request of the PCC, as an application to English Heritage for grant aid is being prepared at this time. The window was inspected on 15th May 1998 from ladders; internally to spring height of the main lights. External access was limited on height to panels 1 and 2 in all lights, and visually by polycarbonate protection and dirt in the interspace.

Thornhill contains several c15. windows, including the York glazing of the Savile chapel. There are five panels of fragments of ancient glass in the west window given by Dean Milner White in 1953. There is in the north choir a panel by Henry Gyles. The majority of the other stained and painted glass is the work of Burlison and Grylls, who also undertook restoration work to the ancient glass between 1877 -1880, at the time of the reordering of the church, under G E Street.

### 1. Historical context

The great east window is a Jesse tree in six lights, with twelve tracery panels depicting orders of angels and Anne teaching the Virgin, and can be dated to the last decade of the fifteenth century. The donor, Robert Frost, was Rector of Thornhill between 1484 and c.1498 and therefore chaplain to John Savile, Lord of the Manor. Frost also held other rich livings and had court connections.<sup>1</sup> It is probable that as Sir John had supervised the glazing of the north chapel at Thornhill in 1493, he was recommended by Frost to oversee the glazing for St Mary the Virgin, Fairford.<sup>2</sup>

By this date continental glasspainters were resident in England in significant numbers; the first examples of glass painting in a Netherlandish style date from the 1480's. In 1497 Barnard Flower was appointed as the King's Glazier at Richmond, having worked at Woodstock.<sup>3</sup>

The Thornhill Jesse differs stylistically not only from the earlier York glazing in the church:

"In spite of extensive restoration, sufficient remains to show that it differs markedly from earlier windows by York craftsmen in the church" Marks p.206

but also from contemporary glass in the city of York.<sup>4</sup> It is associated stylistically, and by patronage with the Court glass produced by the Southwark glass painters.

The window was restored by Burlison and Grylls; Grylls submitted a report in June 1877 to the Rector on its condition with proposals for its restoration. He stated that he undertook to supply the figures of David, Solomon and Jesse from 'ancient example' (Parish Magazine, June 1877)<sup>5</sup> Two sets of tracings which were made by the firm for this and at least three other windows survive<sup>6</sup>, and are useful in clarifying the extent of their restoration. The 'tracings' found in the church in 1971, recording the glass

prior to the 1877 restoration, we have referred to throughout as "Thornhill Tracing" or TT.

We have not had access to the photographs of the Thornhill Tracings for b light, though we are aware of their existence and extent.

The absence of any tracing for glass in the lower registers, and the higher proportion of c19. glass in these panels, would seem to indicate that these had been lost by the date of the Burlison and Grylls restoration. During the Civil War the church was occupied by Fairfax and the Parliamentary forces, though there is no supporting evidence that glass was lost at this date. The evidence both of the glass and the Thornhill Tracing is that, prior to 1877, the glass was leaded into much heavier leads throughout, (see 4b ii)), possibly 3/8" which would suggest an early 18c restoration. The window was stored in a mine during the 1939-1945 War, which could be a factor contributing to its present condition; minor repairs were subsequently carried out by a Leeds firm.

## 2. Sizes

Each of the six main lights measures approximately 179" x 18½" (stonework size) and each panel, excluding heads (11½") is approximately 42" high

Tracery, each in single panel

A1 A8 11½" x 7½"

A4 A5 C1 C2 14" x 7½"

A2 A3 A6 A7 22" x 7½"

B1 B2 24" x 7½"



### 3. Catalogue of glass

#### Notes

- a) panel divisions and dimensions see above and Diagram 1.  
 b) panel numbering: CVMA system has been used. The references in brackets [ ] are to Burlison and Grylls' numbering of the windows and tracings/cartoons  
 c) inscriptions

The continuous text running across base of all six lights reads:

"Pray /for/ y<sup>e</sup> gud\* /e pperity/mercy&grace//  
 of Robert ffrost/ccellor to ye/ redoubtyd\*//  
 Prince Arthur/1<sup>st</sup> sonne /of King /henry vii<sup>th</sup>//  
 who was /late parson/ of this /church who //  
 hath made new/est wyndow/ & also cl/erstoriéd//  
 & archede this /quire/fi<sup>sh</sup>ed y<sup>e</sup>/yere of /grace 1499."

/ indicates lead line

// indicates panel division

\_\_\_\_\_ \* probable original glass, (based on TT which shows these fragments in panel 3f)

As only fragments of c15. glass remain, as indicated, it would appear that Burlison and Grylls have based their text on Dodsworth's Yorkshire Church Notes relating to the 'middle quire window'

Underlining of inscriptions indicates identified c. 19 work

- d) the Thornhill Tracings are a guide as to maximum extent of ancient glass. We have not had access to the tracings for b light.  
 e) As a general comment, the original glass, late c15 and of the mixed alkali type, is more durable than earlier glasses. The restoration work of Burlison and Grylls is heavily distressed to replicate the condition of the original. Given that reasonable access was available to internal face only and the scope of the survey necessarily limited, the Thornhill Tracings, where available, have been used as supporting evidence for the extent and location of original material

#### MAIN LIGHTS

##### 1a [5A]

Armorial panel, Savile quartering Thornhill, surmounted by helm and torque with crowned female head and bush – the crest of Thornhill. Surrounded by mantling and resting on small hill. Burlison and Grylls 1877. See note c above for inscription at base

##### 2a [4A]

Isaiah half left, r. hand holding vine, l. hand pointing up. Blue hooded gown, white tunic; scroll above head reads 'Isaia[h]'  
 Burlison and Grylls reconstruction using 2/3 c15 material<sup>8</sup>

##### 3a[3A]

Jehoshaphat three quarters facing, apparently seated crosslegged. Blue and ermine mantle and green tunic with gold border of white glass stained. L hand points, r. hand holds vine. Scroll above head reads 'Josaphat re[x]' High proportion original glass (TT)

**4a [2a]**

Daniel, right profile, with blue cap, red robe with green collar. Scroll above head reads 'Daniell' Mostly c15 (TT)

**5a [1a]**

termination of vine stem with green flower; mostly c15 (TT)

**1b [5B]**

Armorial panel

Savile impaling Paston (Jones): mantling as 1a and helm surmounted by owl.  
Burlison and Grylls 1877 See note c above for inscription at base

**2b [4B]**

Abijah, standing three quarters right, wearing cap and crown, with purple robe; chain over left shoulder and under right arm. The Thornhill tracing<sup>9</sup> shows only the top half of this figure above waist. This, though somewhat scrambled, reads quite well. Photo 22, p.32 There is a glazier's mark in white glass above figure. See photo 29, p.35. Scroll, 'Abias', is c15. The glass is approximately 50% c15

**3b[3B]**

Jehoram, standing three quarters left, wearing crown and white tunic with short green cloak. His right hand holds vine and left is pointing up. The Thornhill tracing<sup>10</sup> shows only the top third of figure. It was possible by inspection to confirm the glass below this as mainly c19. c15 scroll reads 'Joram Rex'

**4b[2B]**

Ahaz, standing three quarters right, wearing red mantle with gold collar and ermine, with blue tunic. He has a blue and purple cap surmounted with crown. Right hand holds vine; scroll immediately above this reads 'Achaz Rex'. TT indicates most glass original to this figure, with exception of one piece of ruby glass below waist level.

**5b [1B]**

termination of vine stem with red fruit; mostly c15 (TT).

**1c and 1d [5C, 5D]**

Reclining figure of Jesse, resting head on his right hand, left arm draped across lower torso, on couch with floral drapery, head resting on green pillow, wearing a red cap with white band; blue tunic, red mantle with white lining.

Mainly Burlison & Grylls, "from 'ancient example'" with isolated c15.pieces

Scroll above figure in 1d 'Jesse'

See note c above for inscription at base

**2c [4C]**

David seated with red tunic with ermine collar, blue and green robes, green stockings, a cap and crown, holding a harp in left hand and with scroll above head which reads 'David Rex'. With the exception of a single piece in the top of the harp and a larger piece at lower corner, both of which which are reversed, the glass is c19 and this



figure is the work of Burlison and Grylls, again "from 'ancient example'".  
Thumbprints were noted in several pieces of ruby glass.

### 3c [3C]

Virgin, crowned and nimbed. Seated facing front, with Christ Child held on her right arm, wearing blue mantle with white lining and purple robe and holding in left hand a fruit for which the Infant is reaching. Top half of this panel mainly c15, with notable exception of the head of the Christ figure and the right part of the Virgin's face, and the lower half is mainly Burlison and Grylls. A painted thumbprint was noted in vine adjacent to Christ's head

There is a hole of approx. ½" diameter with radiating cracks in a small piece of glass by the right mullion. There is a post 1877 repair to purple glass below The Virgin's left hand (Photograph 26, p.34). This could be a replacement to one of the deteriorated pieces of murrey glass. See Section 4a ii) below

### 4c[2C]

Christ in Majesty seated front facing; cross-nimbed and holding orb in left hand. Green crown of thorns and loose purple robe. *Stigmata* visible on r hand and foot. With the exception of the face and several pieces adjacent to the figure this panel is shown to be nearly complete in Thornhill Tracing. The face of Christ has the incongruous appearance of a portrait. See photo 11, p.23

5c [1C] termination of vine stem - blue and green flower; mostly c15 (TT)

1d [5D] lower part of Jesse figure: see 1c above. See note c above for inscription at base

### 2d[4D]

Solomon seated facing front, red and green robe, with cap and crown. Temple on right knee, inscribed 'Templum Salomonis'. Burlison and Grylls composition, though with reuse of glass from elsewhere in window; from the tracing, the upper third of the glass now in this panel, excluding face, can be identified as originating from 4E (2e)

### 3d [3D]

Rehoboam standing left, with purple and ermine overgarment, blue stockinged legs; doffing his crown with l. hand, r. hand holds vine. Scroll reads 'Roboas Rex'  
Approximately 50% original material, including face. Thornhill tracing shows only the top 2/3 of this panel, with pieces missing.

### 4d [2D]

Hezekiah, seated left, wearing blue tunic with red cloak; left hand resting on knee, right hand above head, both holding the vine. He is crowned and has chain across right shoulder and under left arm. Scroll reads 'Ezechias Rex'. Lower third of this panel is all restoration work, and other pieces are confirmed as c19. The evidence of the glass is borne out by Thornhill tracing which shows only top 2/3 of panel and this with pieces missing.

### 5d[1D]

termination of vine stem with green flower; c15 (TT)



**1e[5E]Armorial panel**

Frost: argent, a chevron gules, three trefoils slipped azure, surmounted by a helm with crest of a man's head with laurel wreath. See note c above for inscription at base. No ancient material identified in this panel.

**2e[4E]**

Asa, standing left, white tunic, blue sleeves, red robe, blue stockings: gold collar, cap and crown, TT shows glass in this panel now used in figure of Solomon. (see 2d above) Scroll reads 'Asa'. From the tracings it would appear that the bottom third of this panel has come from what was in the position 2f. Leslie Jones suggests that "the V&A 'tracing' is in fact a cartoon for what is virtually a new figure."<sup>11</sup>

**3e[3E]**

Jotham, facing left, wearing green tunic and ruby mantle with ermine; cap and crown. Right hand grasping vine at shoulder height. Left hand lowered. TT shows blanks for top and bottom third of this panel, with confused centre of panel comprising drapery, foliage, (now possibly to left of his head), ermine and left hand. Scroll reads 'Joatham'.

**4e[2E]**

Manasseh facing left, with blue robe, red cap with crown and wearing a gold chain. Glass mainly c15 with exception of left leg, left arm and hand, right hand portion of the scroll and pieces of the vine ground. TT shows a nearly complete figure. Incomplete scroll reads 'Manass', as shown on tracing. There is an 'N2' mark written in wax crayon on piece of glass forming vine leaf adjacent to his cap, possibly dating from last removal during WW2.

**5e[1E]**

termination of vine stem with blue and green flower; high proportion 15c (TT)  
There is a piece of surface-fractured white glass in this panel: photo 25,p.33<sup>12</sup>

**1f [5F]**

Armorial panel:

See of York (ancient) impaling Rotherham<sup>13</sup>

See note c above for inscription at base. No ancient material identified in this panel.

**2f [4F]**

Jeremiah standing left, with purple robe and green hat, belt and shoes. Scroll above head 'Jeremiah'. TT for this panel shows confused drapery and foliage fragments. At base of tracing were draped legs, now forming bottom third of panel 2e. Glass c19., apparently Burlison and Grylls reconstruction. The entire figure is a copy of 4e (Manasseh, almost complete);<sup>14</sup> No original material positively identified, with possible exception of single piece of purple drapery.

**3f[3F]**

Ahab standing facing left, with blue robe with jewelled edging (stain on white), purple sleeves and shoes. Scroll reading 'Ahab rex' is c15 and shown on TT. All ancient glass shown in top third of TT for this panel is accounted for in the panel as

now seen - i.e from shoulders to top of rubbing is in the reconstructed glass panel. Lower two thirds mainly Burlison and Grylls' reconstruction. TT shows jumble of fragments, including three pieces of inscription apparently from the base of the window, two of which are now reused there and identified as such in note c.

#### 4f[2F]

Ezekiel, seated on vine branch facing front wearing brown robe with blue sleeves and blue tunic, purple and green cap. Scroll reads 'Ezechiell'. TT shows only head and vine in upper part of the panel, and the bottom 7" of the panel; glass otherwise mainly Burlison and Grylls reconstruction.

#### 5f [1F]

termination of vine stem with red fruit or bud; c15 (TT)

### TRACERY

Inspection of tracery internally limited by height:

A1 [5] Helmeted half-figure angel - green glass 1870 otherwise original

A2 [6] Full figure angel, standing front, facing right, wearing cross-diadem

A3 [7] Full figure feathered angel standing front, with staff in left hand and harp in right. Staff might denote messenger. The harp not a specific attribute. Head and staff are c15 (TT)

A4 [8] St Anne instructing the Virgin. The Virgin, nimbed, wearing a blue robe and with a book, standing left of St Anne, seated, with red hooded robe and veil. Thornhill Tracing shows the complete figures

A5 [9] Full figure feathered angel, seated, facing half-right

A6 [10] Full figure angel with crown and ermine trimmed robe; sword in left hand, sceptre in right.

A7 [11] full figure two-winged angel, facing half left, wearing golden robe; orb in left hand, red banner with ? star in right. Mostly c15 (TT)

A8 [12] helmeted half-figure - red-feathered angel with cross-staff across body. Mostly c15 (TT)

B1 [2] full figure two winged angel all in ruby flashed glass with feathered body, facing three quarters right. Face and tops of wings appear to be c19 restoration, otherwise original glass. this figure may be representative of the seraphim (see B3 below)

B3 [3] full figure two winged angel with black cap and ermine collar, feathered body, now holding open book. To his right at base of panel is a wheel. Jones suggests that the attributes might be sufficient for this figure to represent the cherubim, (based on Ezekiel's vision) though face and book are c19 work

C1 [1] Half figure of St John Baptist, carrying book on which rests The Lamb: book and Lamb appear on the Thornhill Tracing, remainder is Burlison and Grylls conjectural recartooning

C2 [4] unidentified male half-figure, hands raised, facing front and ? looking down. This is almost entirely 1877 reconstruction (TT shows only ruby drapery fragments and part of a hand)



#### 4. Condition

At the date of inspection condensation was not evident, though there was evidence of past action of condensation on the internal surface. As a general note, both the glass and pigments of this window are in better condition than the earlier York glass in the church, which is to some extent to be expected as mixed alkali glass of this date is more durable (c p ) than earlier glasses.

##### a) condition of glass

As indicated above, the window was restored in 1877. The original material, approximately 50% of the total glass area, is distributed throughout the main lights and tracery panels, and has been made up by the restorers from redrawing and sometimes reversing the more complete figures, conjecture and 'ancient example'

For the purposes of this report it is necessary to describe the glasses and the degree of weathering based on observation of their appearance. As access to the external surface was difficult where not impossible, what follows is necessarily provisional.

Jones(p 8) and others refer to the storage of this glass in a mine during the 1939-1945 War, and we are aware of the arguments advanced by Newton (1982) pp. xiii- xiv for the damage caused to glass by adverse war-time storage and accelerated post-war corrosion. As a general comment, however, most of the ancient glasses in this window are durable and showing minimal signs of weathering.

i)

In individual pieces of both pot metal and white glasses throughout the window, there is isolated pitting, with pits < 1 mm diameter on the external surface and to a lesser extent the internal surface. The frequency of small pits is greatest at the lower edge of such pieces both internally and externally: i.e. where water collects and is most noticeable in the ochre glasses of vine stem and leaves, but found to some extent in all colours. Pitting of this sort can be detected in photo 17, around lower edges)

The most severe pitting noted in this form was on the external face of the white glass forming the cloth on the Virgin's lap in panel 3c where the pits, each of small diameter as above, have joined and a white crust is in the process of forming. The internal face however was apparently unweathered.

..

ii) The deterioration of the c15 pink/purple "murrey" glasses is much more advanced than other glasses, and examples were noted in at least nine panels. (3a, 2b, 4b, 3c, 4c, 2d, 3d, 4e, 4f) The most deteriorated examples have lost both their original surfaces. They have a heavily pitted or crusted external surface (Ezekiel's hat in panel 4f has a light coloured crust) with an irregular internal surface, partially covered with a hard crust of a brown appearance. Additionally, the majority of these pieces are surface fractured. These glasses no longer transmit light efficiently or at all, and have a black appearance. Photograph 24, p 33 of piece from panel 2b ( Abijah) shows fracturing and crusting to internal face.



There are some pieces of murrey glass which, although surface-fractured, and with internal crusting to some extent, are only micropitted on the external surface. (See photo 23, p.32)

There is circumstantial evidence that this process was under way at the time of the 1877 restoration, as the murrey glasses of Solomon's cap, and those in Ezekiel's have been internally leached at this time.

There is also an *in situ* replacement of a piece of this glass below the Virgin's left hand in 3c. (original glass is showing on the 1877 Thornhill tracing) which could be one of the repairs said to have been carried out by a Leeds firm after WW2.

iii) a piece of surface fractured unpainted white glass was found in panel 1e. See footnote 12. In panel 5f a single piece of white glass was found which was heavily pitted with larger pits on both faces. The pits did not contain corrosion deposits.

#### b) condition of pigments

##### c15 pigment

i) All pigments applied to this glass are metallic oxides. On close inspection in reflected light the pigments of the trace lines can be differentiated; the original a darker brown than that by Burlison and Grylls which is reddish brown in appearance. The shading work, both original and that of Burlison and Grylls has been achieved by stippling. Back painting comprising fine shading has been used to strengthen facial features on c15 glass. Neither its condition, nor the extent of loss, was possible to determine from our inspection because of the polycarbonate.

ii) There is pigment loss on many pieces in a band 2mm-6mm approx. around the present lead lines. These damaged areas correspond to the heavier leading of the previous restoration shown on the TT. Photograph 11 shows a clear area of pigment loss around the hair of the Christ figure which is c15, and the c19 face of Christ which has been deliberately distressed around the edges to emulate paint loss in the original pieces. Note that the painted hair above the crown of thorns shows in tracing to be in a similar state in 1877.

iii) A comparison of the present condition of the painted work with the TT demonstrates that the TT differentiate, by means of intensity /thickness of lines, the condition of the pigment in 1877 and also where pigment had been entirely lost at that date: the areas indicated as unstable in 1877, correspond well to the evidence of the glass. This holds good throughout the window, but can easily be seen by examining inscriptions. For example, the tracing [2A] of the Daniel panel indicates loss of pigment to the left eye area and the inscription on his scroll corresponds in intensity to the glass as seen; Photo 5, p.19. The same is true for Manasseh in panel 4e, where the tracing [2E] shows pigment loss throughout the inscription which corresponds relatively to the glass, (photograph 17, p.27) though the loss is now greater, and for the inscription "Ahab" in 3f. (compare photograph 19, p.29 and tracing 3F). The tracing of Hezekiah [2D] shows the loss of detail to his left eye, comparable to its present condition - photograph 14, p.25.

iii) A comparison of the glass itself with the painted detail of 1877 as shown by the Thornhill Tracing indicates that since 1877 there has been considerable further pigment loss throughout the window. Photograph 10, p.22 and tracing 3C show the head of the Virgin in panel 3c; the tracing shows faint details of the main features. There are now residual traces only to the eyes, nose and mouth, not visible from floor

level to the naked eye. TT shows complete traceline to the vertical line forming the LH edge (as viewed) of the crown. This is now lost in places. Comparison of Manasseh in panel 4e (Photograph 17, p 27) with the tracing of this panel [2E], indicates a considerable amount of pigment loss since 1877 as does a similar comparison of the detailing on the crown of Ahab in 3f (Photo 19, p.29) and tracing 3F) and the face and crown of Rehoboam in panel 3d where the pigment loss noted in 1877 is now more severe and there is additional loss of painted detail to face, which was apparently almost intact in 1877 ( photograph 13, p 24 and tracing 3D). iv) There has been further damage to the painted glass of the window, probably caused by water in the form of condensation standing on the glass and running down. The repeated action of running condensation has removed the paint from the glass. this more particularly applies to the c19 but was noted on some of the ancient glass. Photograph 13, p.24 of Rehoboam's inscription in 3d shows this type of damage to c15 pigment.

**c19 pigment v)** this has been 'antiqued' and distressed in places to match what would have been the condition of the original glass at that time. Photograph 16, p 26 shows the deliberate nature of the erasure of pigment by stickwork prior to firing in Jotham's inscription in 3e. The face of Christ (photograph 11, p. 23) has been mentioned above. Photograph 15, p 26 shows the detailing to right eye of Asa in 2e which appears to have been deliberately erased. It is a reverse image of upper part of c 15 figure of Ahaz (See note 5) ) which has suffered pigment loss to his right eye. Further antiquing appears to have been achieved by means of erasing pigment with a stiff brush. Photograph 28, p.35 of the Arms of Savile and Paston in 1b shows removal of paint prior to firing. These techniques make it more difficult to determine from an in situ inspection the degree of paint deterioration suffered by the c19 glass. The back painting to the c19 glass comprises a stippling or spattering to tone in with ancient glass (photograph 33, p 38)

vi) As noted in 4b iv), runs throughout the window which have removed the paint are characteristic of the action of condensation on underfired pigment. This can be seen in photographs 21, p.31 and 9, p 21, of Jesse's right hand, and David's face respectively. The writers have found loss in the form of runs in other Burlison and Grylls windows of similar and later date. While this may have been a problem peculiar to this building, it may also be associated with the practices of the studio fluxes and firing temperatures.

**c) deposits** Internally, the window throughout is covered with a loose deposit of fine dust and cobwebs and a more adherent coating of candle soot. Externally, the glass was not dusted down prior to installation of polycarbonate, the stone dust from the masonry drilling for the installation of the polycarbonate was not removed and there is a build up of debris on the face of the glass. No biological growth was noted.

**d) Condition of leadwork** The leads, predominantly 3/16" but also 1/8" and horizontal leads of 1/41" all flat beaded, date from the Burlison and Grylls restoration of 1877, though the window has been removed and reinstalled since that date. The lead matrix was structurally sound, indicators being that there was no movement within the panel, all ties were sound and no cracks were found around solder joints.



Panels 1-4 in all lights except a light have double outside leads on each side, indicating that the panels are small for the apertures: this might be a consequence of the 1877 rereading or stonework renewal for which there is visual evidence, but in any case could be of some significance if isothermal glazing is at some time being considered, as it could allow mounting within the mullions rather than setting forward in the stonework reveals.

In three panels, areas of deformation were noted: the upper third of panels 3f and 4f and the division between 4b and 5b: in none of these is there movement within the panels.

The leaded light cement appears generally in reasonable condition, though there are areas where deterioration was noted, the cement is of a powdery consistency. In places it is entirely lost or absent.

**e) fixings /ferramenta** The panels are supported on external ferramenta, to which they are tied by copper ties. These comprise a central stanchion of approximately 5/8" square section set arriswise and twelve horizontals of approximately 5/8"x 1/2" rectangular section per light, almost certainly dating from 1877. The panels are pointed in to grooved stonework with what appears to be a hard cement mix. See Diagram 2 for stonework sections.

**f) external protective glazing (polycarbonate)** Photographs 30- 31, pp 36 and 37 The window is protected externally by 74mm polycarbonate to each light (in two sections), and each tracery. See Diagram 3 for fixing method. In the main lights soft timber has been attached to the reveals of the mullions and jambs, these fixings are not visible, so it is not possible to determine the material. To the timber small rightangled brackets have been attached and the polycarbonate is attached to these by fixings which appear to be zinc-plated. The tracery panels have been attached to stone work by a bead of silicone, with a gap at top and bottom. The polycarbonate is sited 2-2 1/2" from the face of the glass.

The debate on the aesthetics of polycarbonate is not within the remit of this report. It is clear that from the position of the church and damage to other windows the polycarbonate has prevented vandal damage to this window. However, several problems were noted:

1. The thickness of material is not adequate for this application and there is too much flexing. Moreover, the fixing method, which does not allow for the degree of expansion needed for polycarbonate (as much as 1/8" expansion per linear foot~5 ), has caused bowing and distortion.
2. While the fixing method for the main lights is theoretically reversible, allowing access to the glass, that of the tracery is not, and damage to stonework could result from removal.
3. As noted above, the window appears not to have been cleaned prior to installation of the protective sheeting and the stone dust generated by drilling holes for the fixings of the wooden frame has not been removed. Protected in the interspace, this debris favours the collection of further deposits which may be damaging to the glass.
4. The soft timber is potentially favourable to biological growth which in turn would create, either directly or indirectly, an adverse environment for the glass.



5. The sheeting is externally ventilated, though this is probably inadequate at base of lights, though allowing for ingress of water at the heads. The internal face of the polycarbonate on all lights is marked with streaks. This would indicate that the air in the interspace is damp, at least intermittently. 6. We have not found direct evidence of damage to the glass by the polycarbonate. The window is on the east wall and partially shaded, so receiving a maximum of 2-3 hours direct sun daily in the summer months. However, the microclimate created in the interspace could be a factor in the future rate of deterioration of this window.

Summary: the sheeting fulfils the function of protecting the window from external impact damage. The externally ventilated polycarbonate will not prevent condensation settling on the painted surface of the stained glass, which is likely to be the most significant factor in future rate of deterioration of glass and pigment.

### **Condition summary**

There are three main areas of concern:

Lost and unstable pigment, on both ancient and cl 9 glasses

Deterioration of some of the cl 5 glasses, mostly of ancient murrey pink glasses, also noted in some clear glasses

Effects of the polycarbonate on the glass

## 5. Recommendations

The balance of circumstantial evidence of patronage, association and style is that the Thornhill Jesse is one of a relatively small number of windows surviving from a considerable documented body of work for the court and wealthy patrons, by the Southwark community of immigrant glass painters and glaziers. There has been considerable scholarly interest in the window in the recent past. "The Tree of Jesse at Thornhill... is one of the most splendid examples of 15th century Anglo-Flemish glazing to survive in a parish church." (Wayment 1996 p. 183)

The main problem identified by this survey is that of lost and unstable pigments. Although the substrates are in good condition compared with the earlier York glass at the church, there are early signs of deterioration.

Isothermal glazing is internationally recognised as the best means in principle of retarding deterioration to glass, and to pigment. Given that the lead matrix is structurally sound, and would in any case no longer need to fulfil the function of weatherproofing the building, the panels could be mounted into frames with a minimal amount of intervention. A maintenance and monitoring programme could be considered. Suitable protection against impact damage should also be retained.

If the window were to be isothermally glazed, the opportunity could be taken to improve the legibility of parts of the window by means of painted detail on backplates. We regard the most visually disturbing elements as the face of the Virgin in 3c and the head and hair of Christ in 4c, though there are other faces suffering similarly. There would also be the possibility for removal of some of the disfiguring mending leads, and edge bonding with appropriate conservation grade resins. Cleaning, using appropriate and approved techniques, would be undertaken to both faces of the glass. See Appendix at end of this report for outline method statement.

If at this time, no remedial or preventative action is to be taken, we recommend that a programme is devised and implemented which would adequately monitor changes in condition of the glass and pigment. This should include the periodic removal of the polycarbonate to assess the condition of the glass and for cleaning to remove loose dirt and debris.

J & R Cooke, July 1998

The writers of the report have benefited by discussion of the window with Sarah Brown of the Royal Commission on the Historic Monuments of England, and David O'Connor of The University of Manchester

## References and selected bibliography

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**NOTES**

<sup>1</sup> Jones records Frost's appointments as follows:

1484 –1498	Rector of Thornhill
1486 –1489	Rector of Tankersley
1487 –1502	Archdeacon of Winchester
1489 – 1489	Warden of Free Chapel of Kingston, Isle of Wight
1491 – 1507	Canon of York, Prebend of Bole
1497 – 1506	Archdeacon of Stowe
1497 –1500	Canon Lichfield, Prebend Gaia Major
1499 - ?	Canon of St Paul's, London
1500 – 1507	Preb. Pipa Minor, Lichfield
1502 - ?	Warden St. Joh.Bap. Hospital, Lichfield
1511 - ?	Vicar, Sandal Magna, Yorks.
1495 - ?	Kings Counsellor
1499 –1502	Chancellor to Prince Henry

<sup>2</sup> Sarah Brown and Lindsay MacDonald (eds.): *Life, Death and Art –The Medieval Stained Glass of Fairford Parish Church* p. 87

<sup>3</sup> *ibid.* pp.93-94

<sup>4</sup> York Minster south transept and St Michael le Belfry (Sarah Brown, pers. comm)

<sup>5</sup> We note that with the exception of the figures of David, Solomon and Jesse, other mainly c19 figures are closely based on original glass in the window itself. Thus the figure of Jeremiah in panel 2f, is almost identical to that of Manassch in 4e. The head and shoulders of Asa in 2e is a reverse image of Ahaz in 4b.

<sup>6</sup> One set, recording the work at an interim phase, were deposited with the V&A by Harry Grylls in 1931. Another set found in the church in 1971 and commonly referred to as the Thornhill Tracings are deposited with the West Yorkshire Archaeological Service at Wakefield

<sup>7</sup> Roger Dodsworth's Yorkshire Church Notes 1619 –1631. Relevant entry for Thornhill 29th January 1619

<sup>8</sup> TT shows some glass not original to this window, being mid c15 English glass, now probably in window sIV.

<sup>9</sup> Jones

<sup>10</sup> *ibid*

<sup>11</sup> *ibid* p.92

<sup>12</sup> Cox G.A.; Heavens, O.S.; Newton, R.G. et al. A study of the weathering behaviour of medieval glass from York Minster, *Journal of Glass Studies* 21 (1979) pp. 54-75

This included a sample of Thornhill glass, identified by Peter Gibson as c15 and categorised as surface fractured. The writers of this report do not know from which window this was taken, though it is likely to be one of those worked on by YGT during the 1970's which would exclude this window. It is interesting nonetheless that, from a statistically insignificant sample from Thornhill (two pieces from a survey of 530), one piece of identified c15 glass with surface fracturing should have been found.

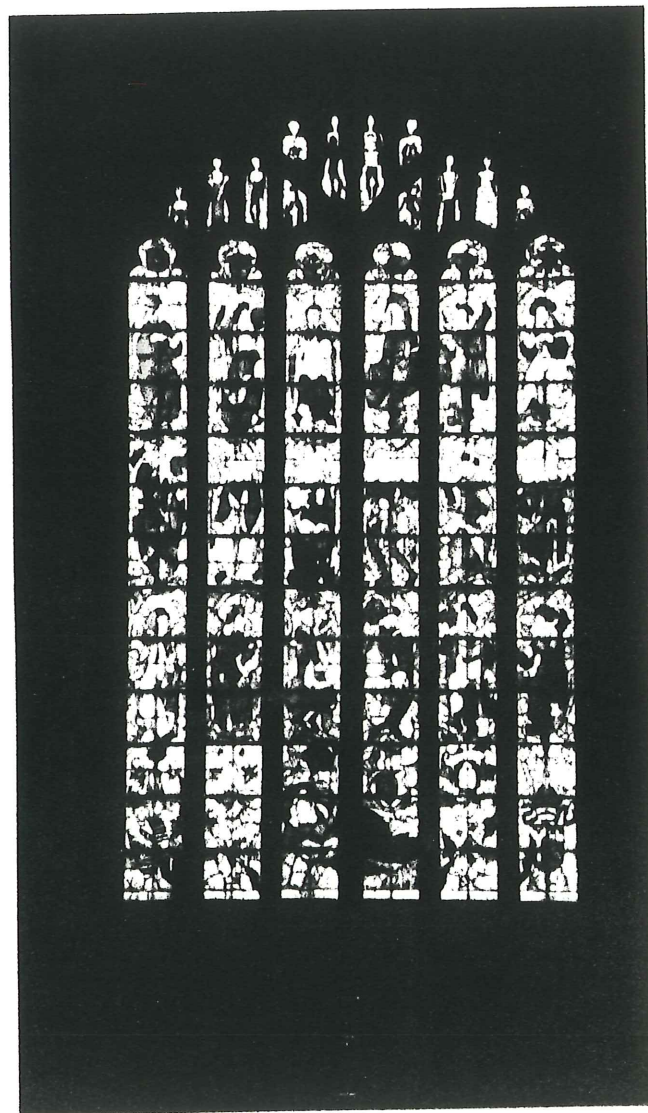
<sup>13</sup> Thomas Rotherham (or Scott) was Archbishop of York 1480 –1500. The writers think that Burlison and Grylls may have made an error here. The ancient Arms of the See of York should have four crosses formée fitchée on the pallium, and there are five.

<sup>14</sup> see note 5 above

<sup>15</sup> Femenella and Simon Protective Glazing Study 1996 p.102

Thornhill St Michael and All Angels: great east window

Photograph 1: full window

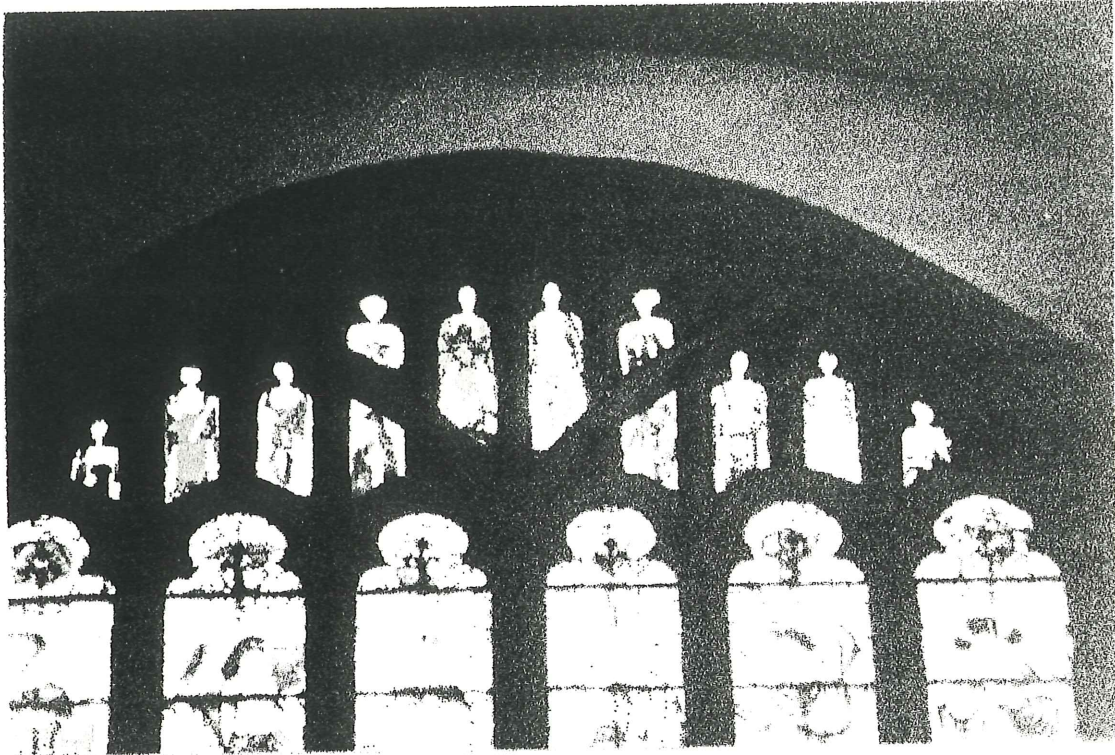




Thornhill St Michael and All Angels great east window

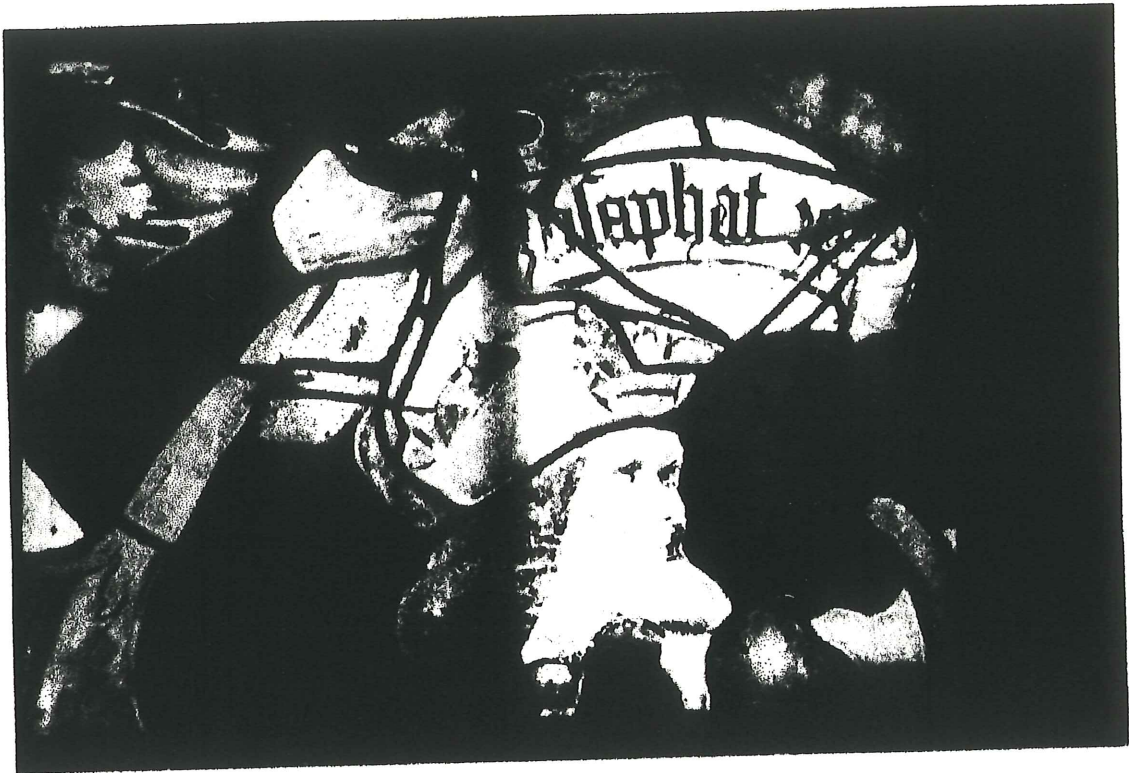
Photograph 2 tracery

Photograph 3 Za Isaiah -detail



Thornhill St Michael and All Angels: great east window

Photograph 4. 3a Jehoshaphat -detail  
Thornhill Tracing 3A -detail





Thornhill St Michael and All Angels: great east window

Photograph 5: 4a Daniel -detail  
Thornhill Tracing 2A -detail



Thornhill St Michael and All Angels: great east window

Photograph 6: 2b Abijah - detail

Photograph 7: 3b Jehoram - detail

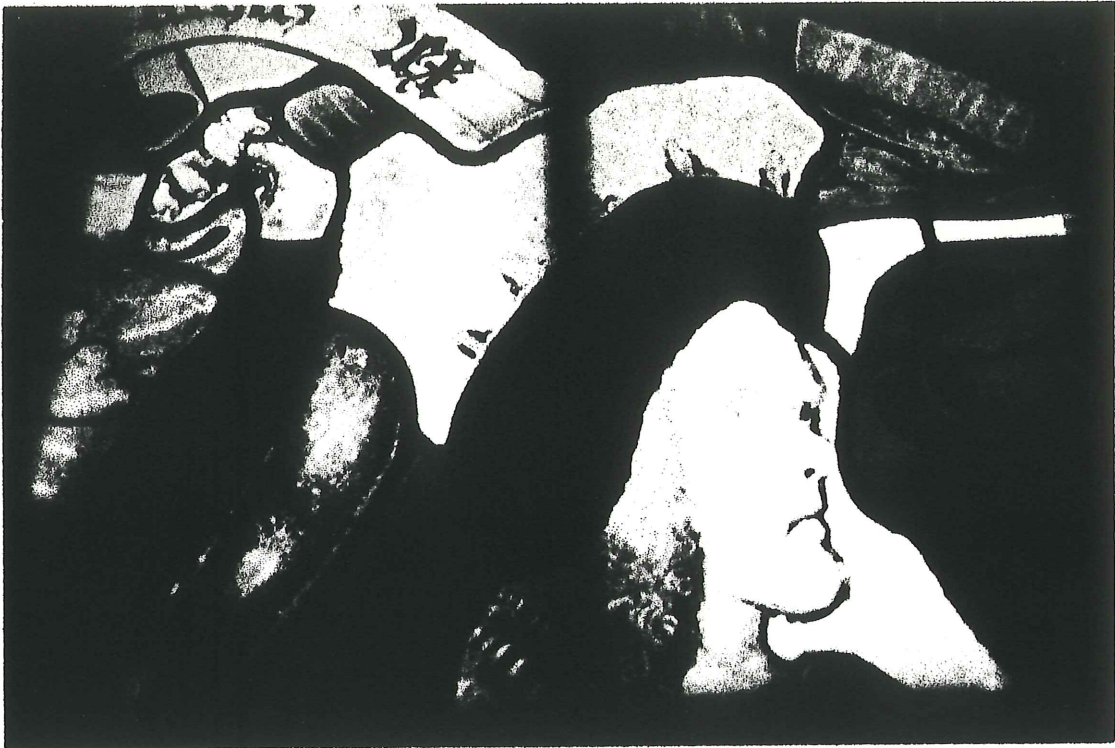




Thornhill St Michael and All Angels - great east window

Photograph 8: 4b Ahaz - detail

Photograph 9: 2c David - detail



Thornhill St Michael and All Angels - great east window

Photograph 10 3c Virgin and Child - detail  
Thornhill Tracing 3C -detail





Thornhill St Michael and All Angels - great east window

Photograph 11: 4c Christ in Majesty - detail

Photograph 12: 2d Solomon - detail





Thornhill St Michael and All Angels: great cast window

Photograph 13: 3d Rehoboam -detail  
Thornhill Tracing 3D - detail



Thornhill St Michael and All Angels: great east window

Photograph 14.4d Hezekiah -detail

Thornhill Tracing 2D - detail





Thornhill St Michael and All Angels, great east window

Photograph 15: 2e Asa -detail

Photograph 16: 3e Jotham - detail





Thornhill St Michael and All Angels. great east window

Photograph 17: 4e Manasseh -detail

Thornhill Tracing 2E - detail



Thornhill St Michael and All Angels: great east window

Photograph 18: 2f Jeremiah -detail





Thornhill St Michael and All Angels: great east window

Photograph 19. 3F? Ahab - detail

Thornhill Tracing 3F - detail





Thornhill St Michael and All Angels, great east window

Photograph 20. 4f Ezekiel - detail  
Thornhill Tracing 2F - detail



Thornhill St Michael and All Angels: great east window

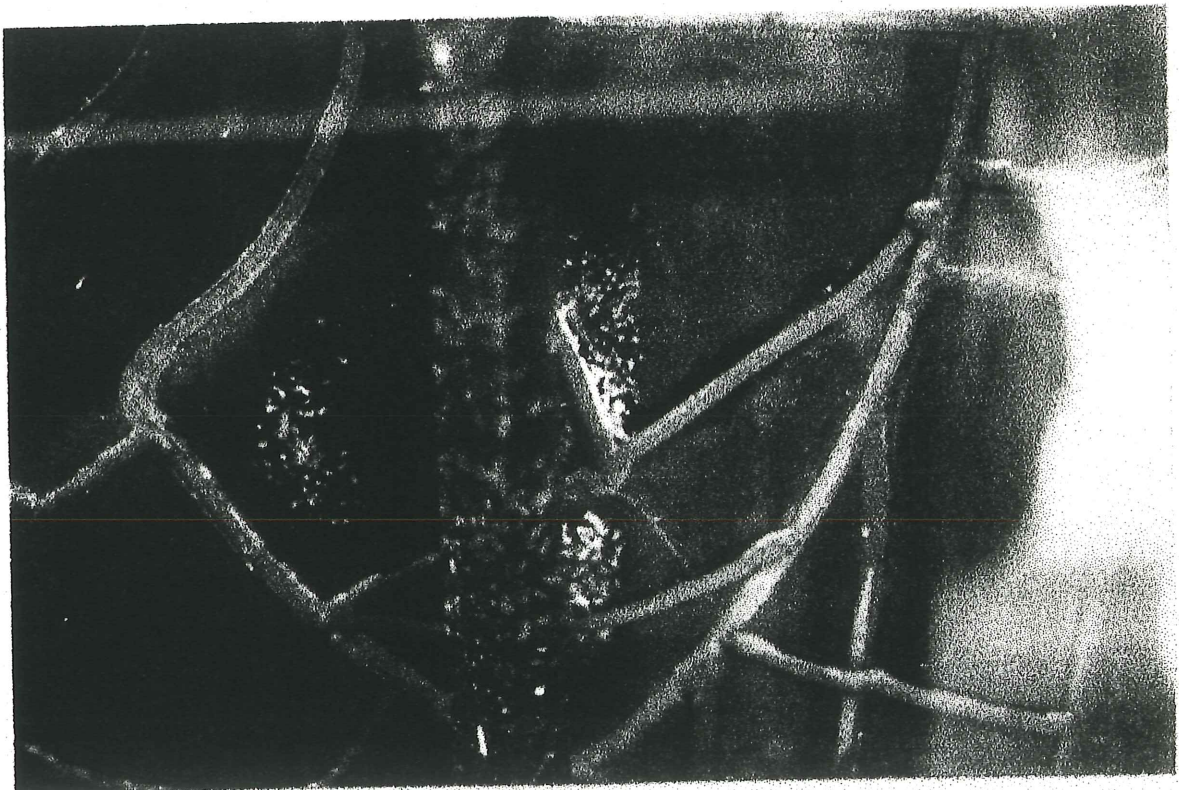
Photograph 21. 1c Jesse --detail





Thornhill St Michael and All Angels: great east window

Photographs 22 & 23: Panel 2b internal and external of same detail - c15 murrey glass

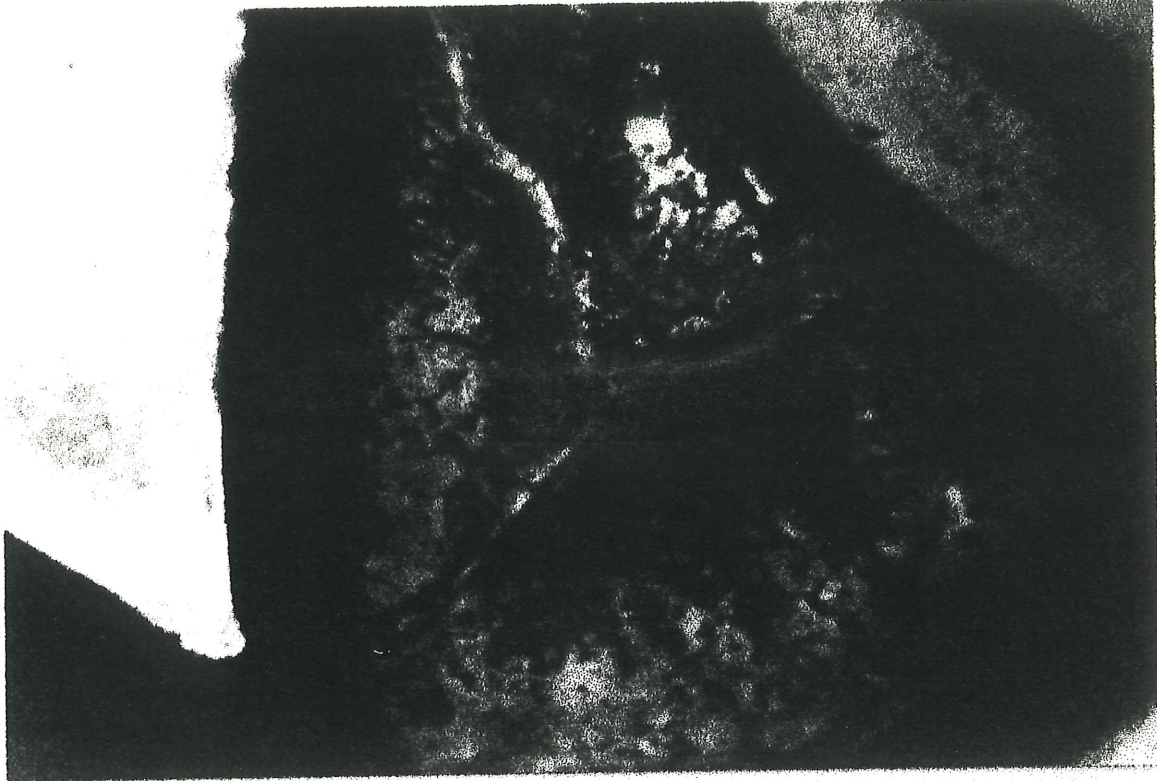




Thornhill St Michael and All Angels: great east window

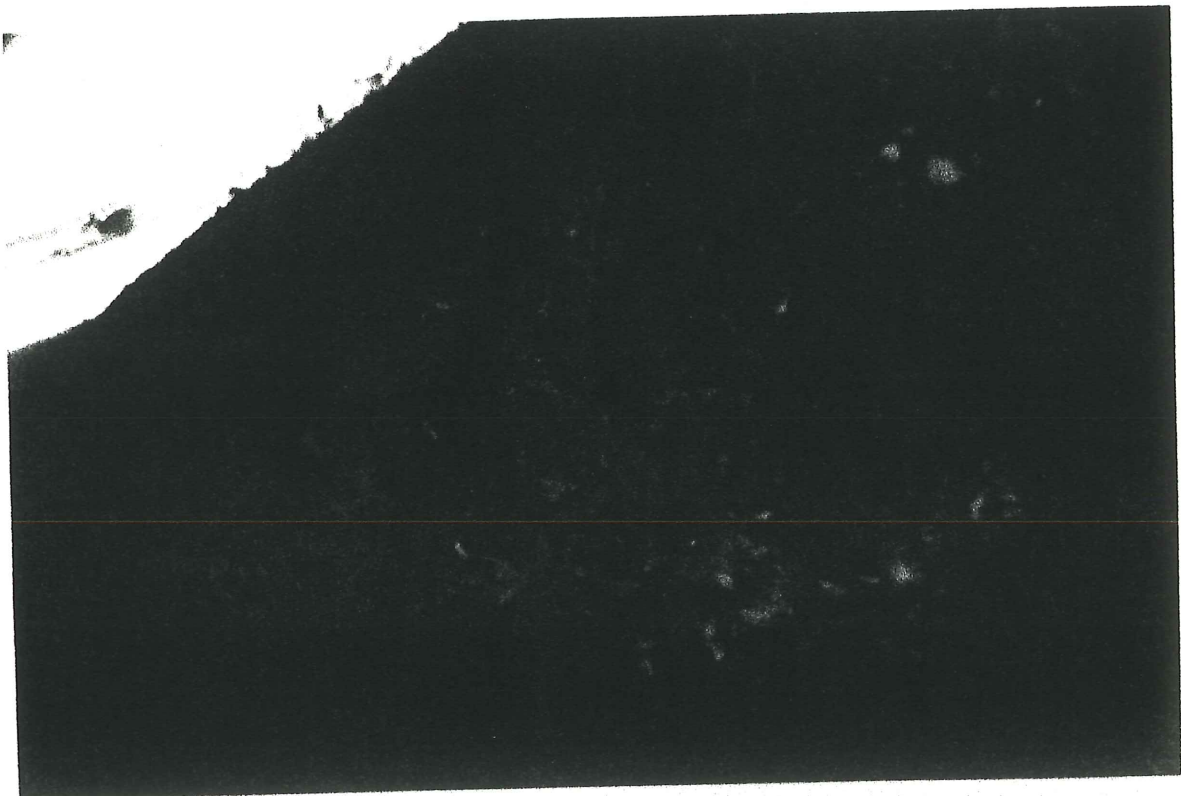
Photograph 24.2b Abijah detail of hat (internal) c15 murrey glass, with surface fracturing and crusting

Photograph 25: 5e detail (internal) c15 white glass surface fractured



Thornhill St Michael and All Angels: great east window

Photograph 26:3c Virgin and Child: post 1877 *in situ* replacement of murrey glass,  
Photograph 27: 4f detail (internal) c15 surface fractured murrey glass





Thornhill St Michael and All Angels: great east window

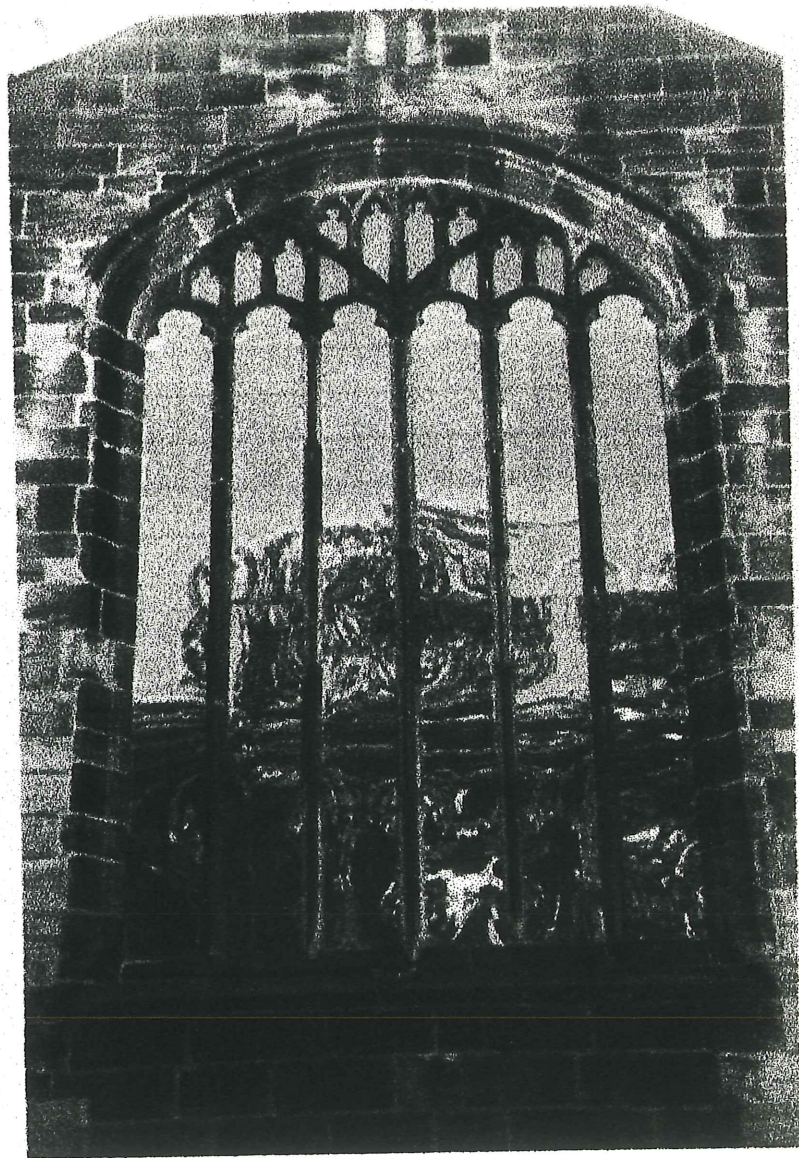
Photograph 28: 1b Savile/Paston armorial: intentional distressing of pigment prior to firing and pigment loss

Photograph 29: 2b - ?glazier's mark on reverse



Thornhill St Michael and All Angels: great east window

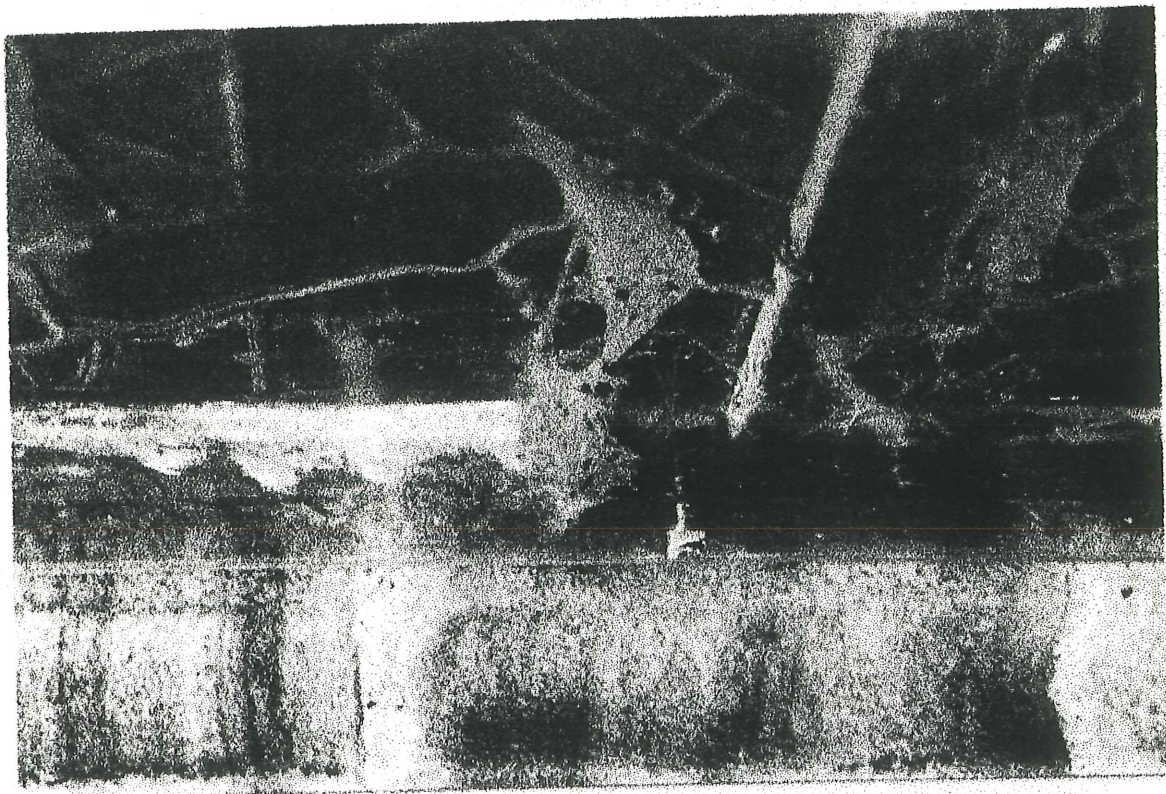
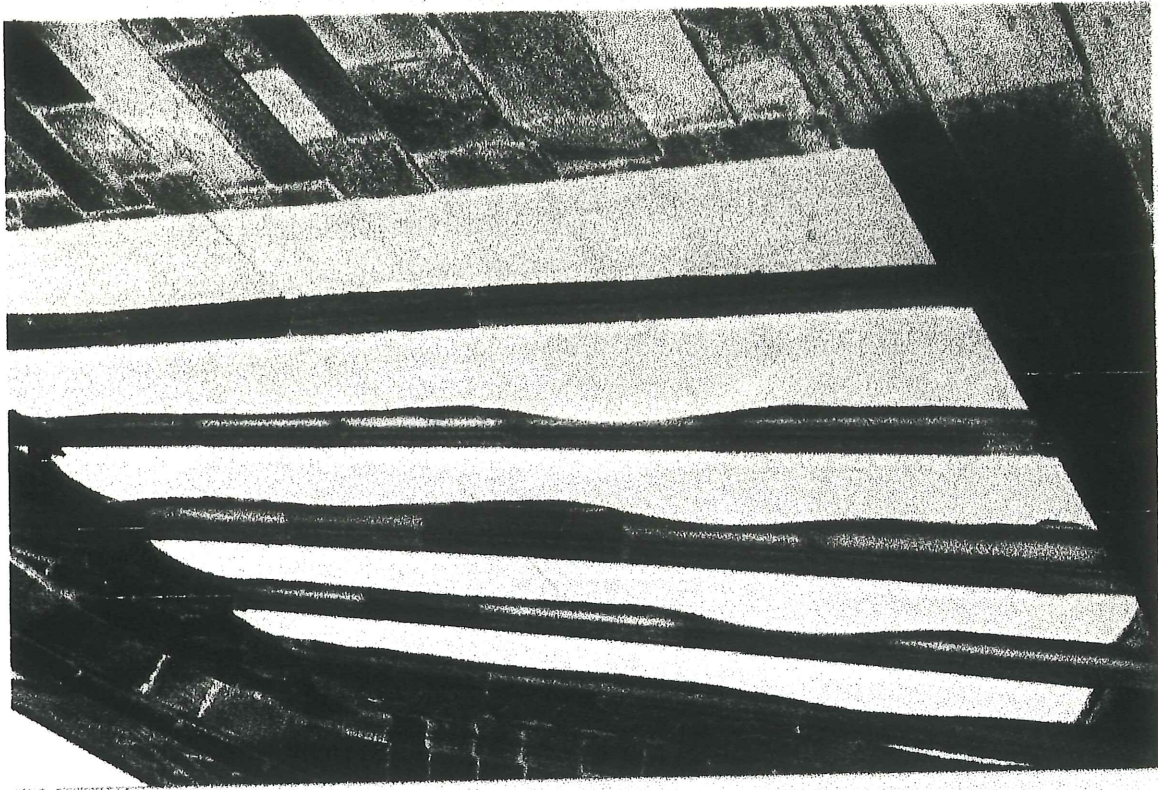
Photograph 30: full window (external)





Thornhill St Michael and All Angels: great east window

Photograph 31: full window (external) showing distortion of polycarbonate sheet  
Photograph 32: If jamb side(external), fixing method and debris in interspace

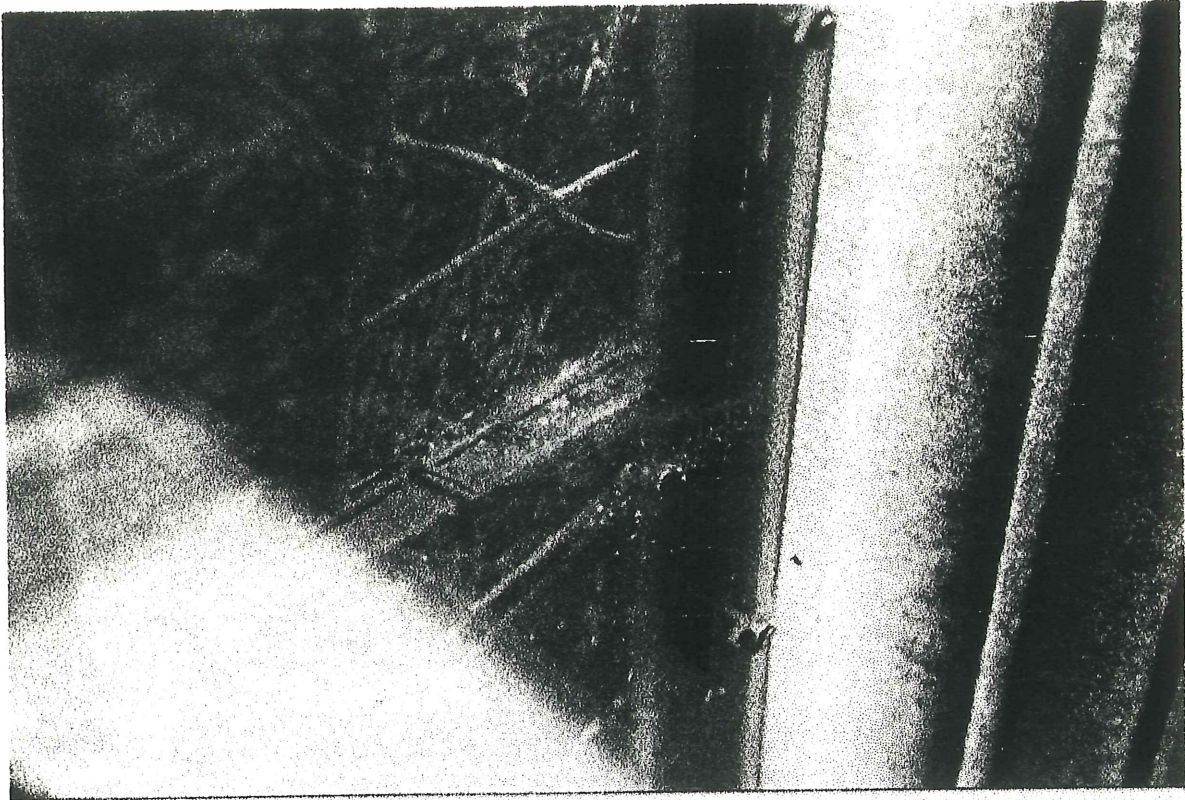




Thornhill St Michael and All Angels: great east window

Photograph 33: 1e detail (external) c19 backpainting

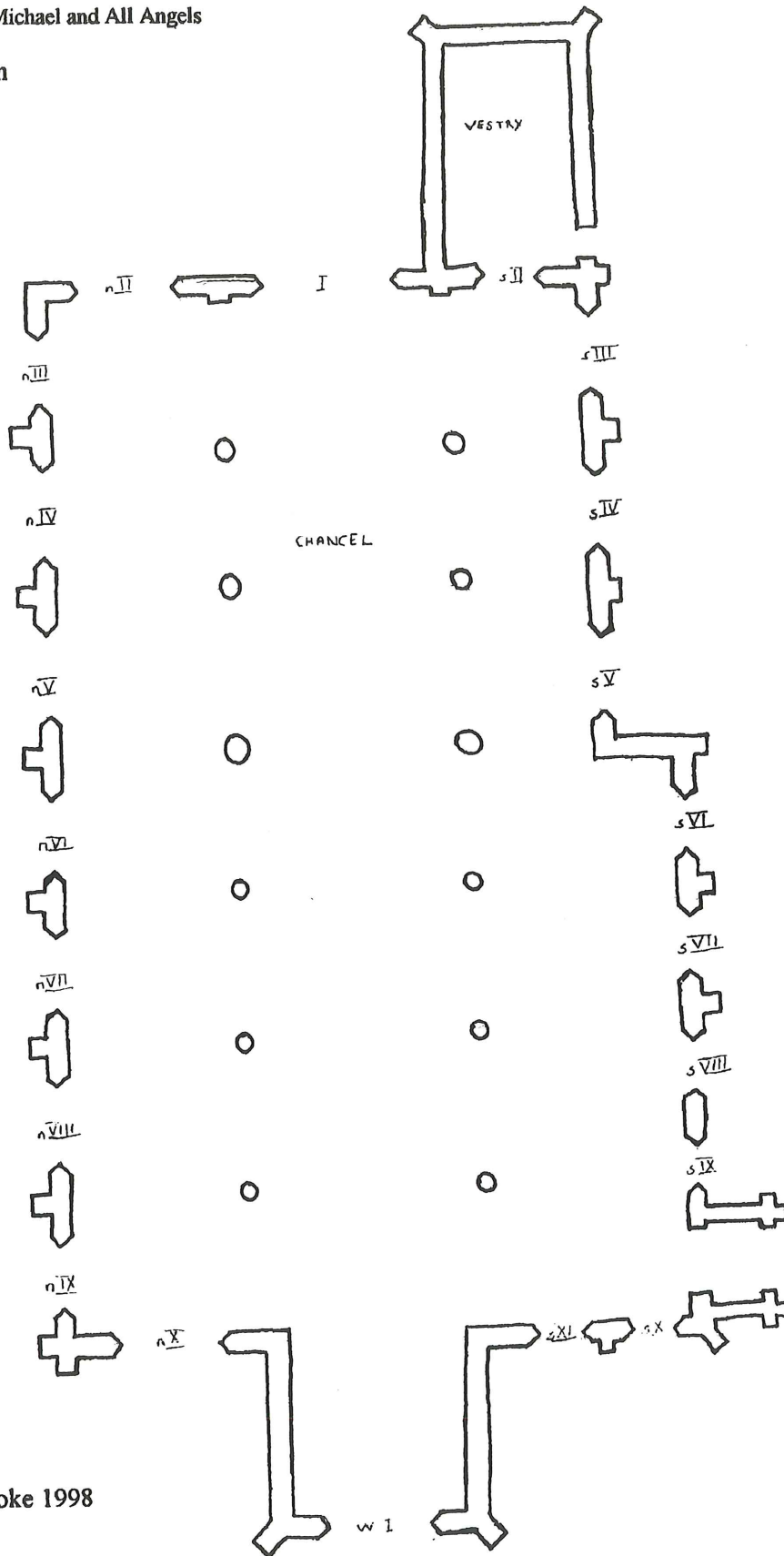
Photograph 34: 1d detail(external), debris and stonedust in interspace





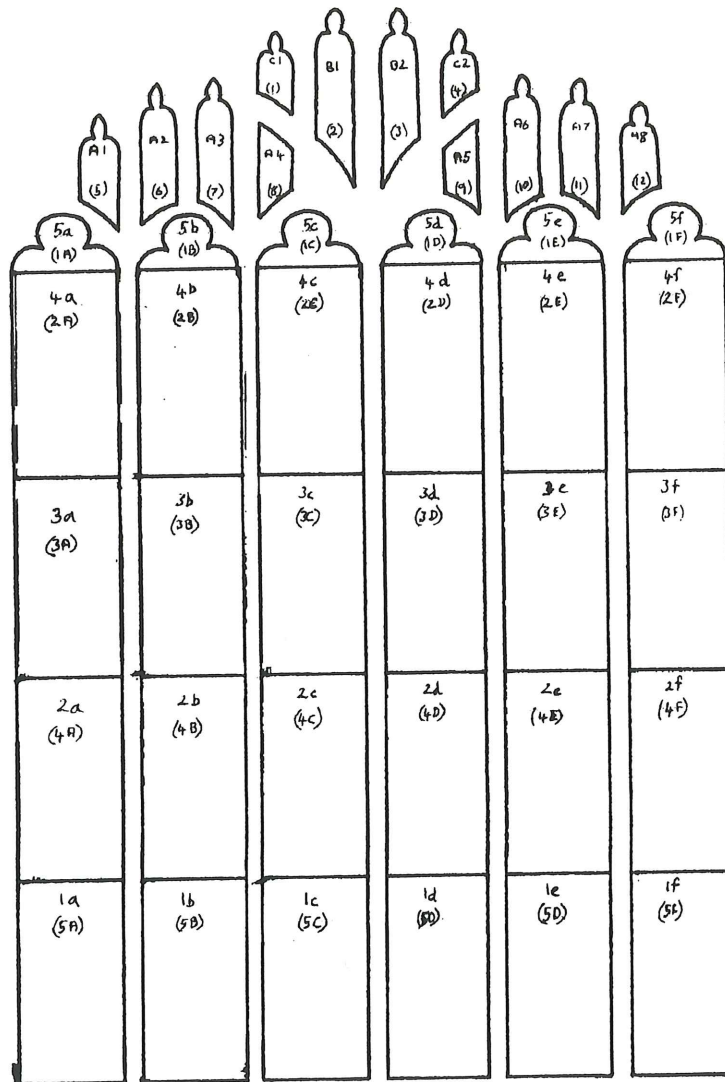
Thornhill St Michael and All Angels

Ground plan



Thornhill St Michael and All Angels: great east window

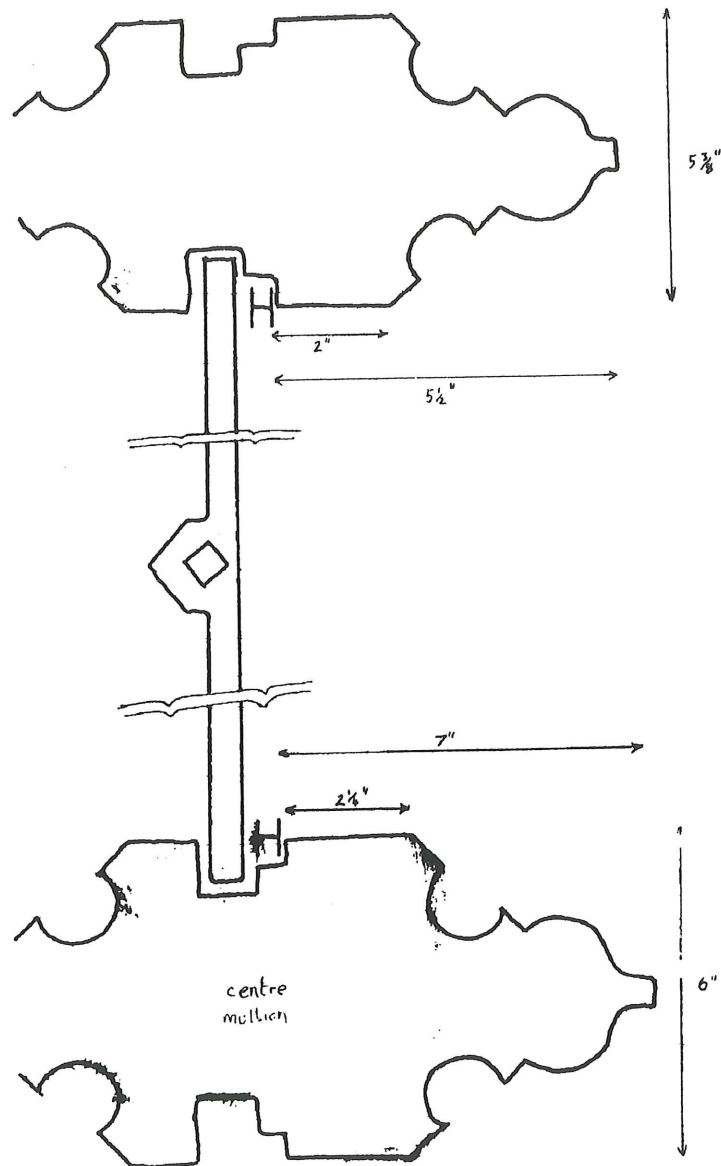
Diagram 1  
Positions of subjects, with CVMA panel numbering [Thornhill Tracing numbering in brackets]





Thornhill St Michael and All Angels: great east window

Diagram 2  
Sections through mullions

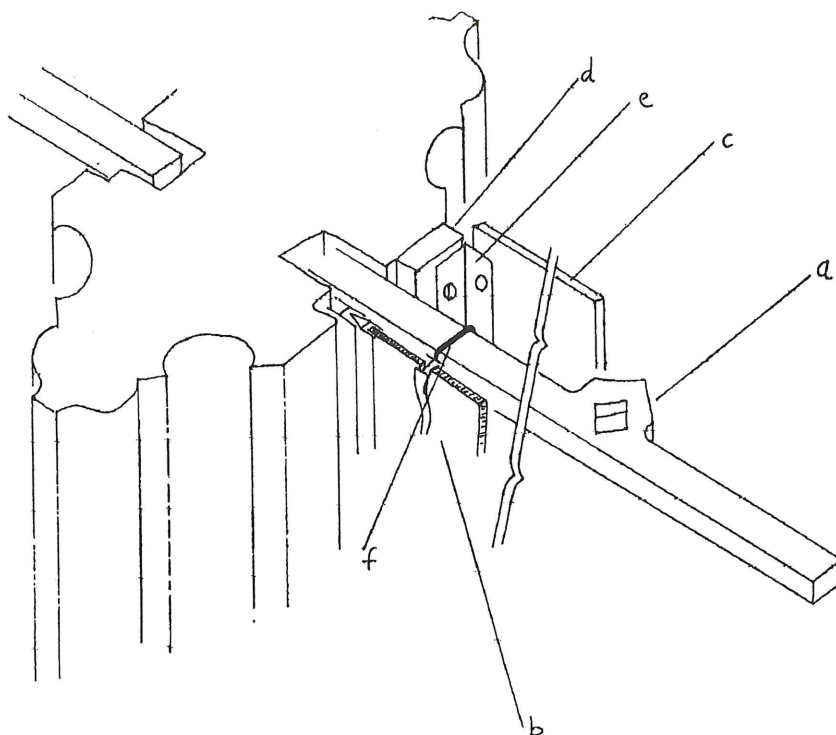


Thornhill St Michael and All Angels: great east window

**Diagram 3**

Axonometric view showing installation method of polycarbonate sheeting.

- a. lugbar
- b. stained glass
- c. polycarbonate sheet
- d. soft wood frame
- e. bracket
- f. copper tie





Thornhill St Michael and All Angels: great east window: Thornhill Tracing - a light





Thornhill St. Michael and All Angels: great east window: Thornhill Tracing - c light





Thornhill St Michael and All Angels: great east window. Thornhill Tracing - d light



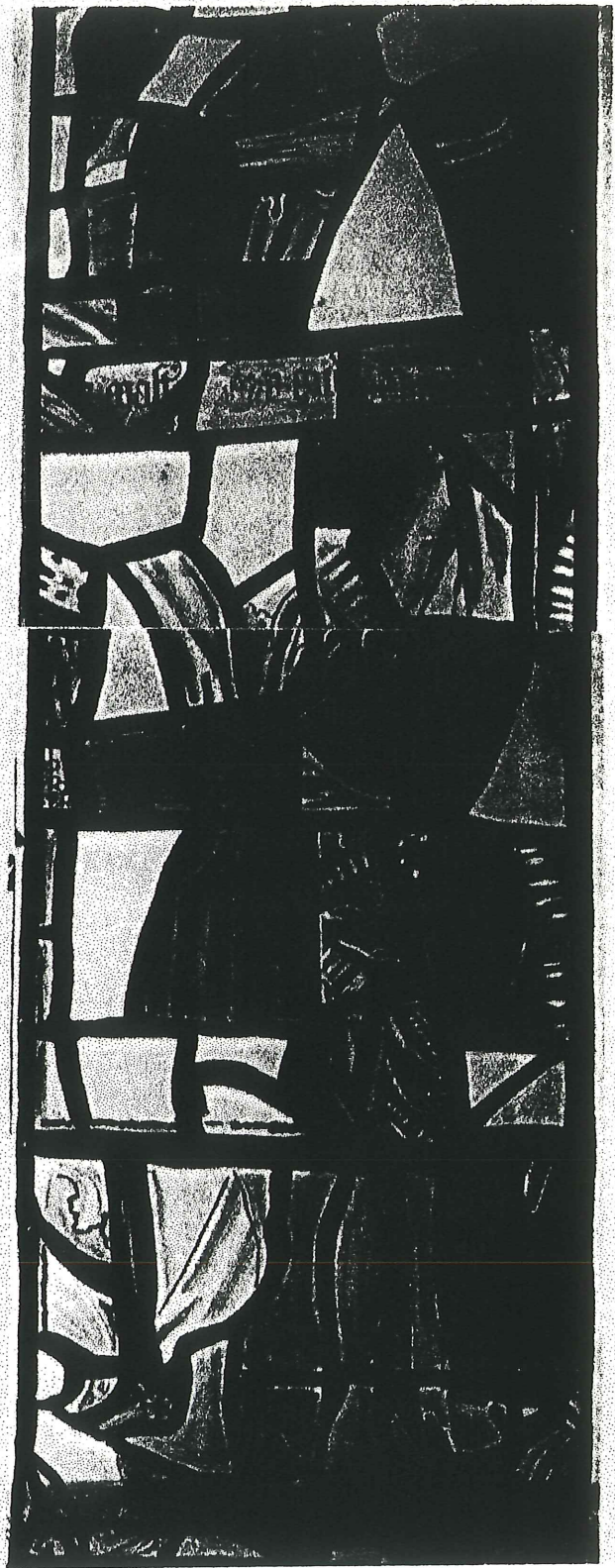


Thornhill St Michael and All Angels: great east window. Thornhill Tracing - e light



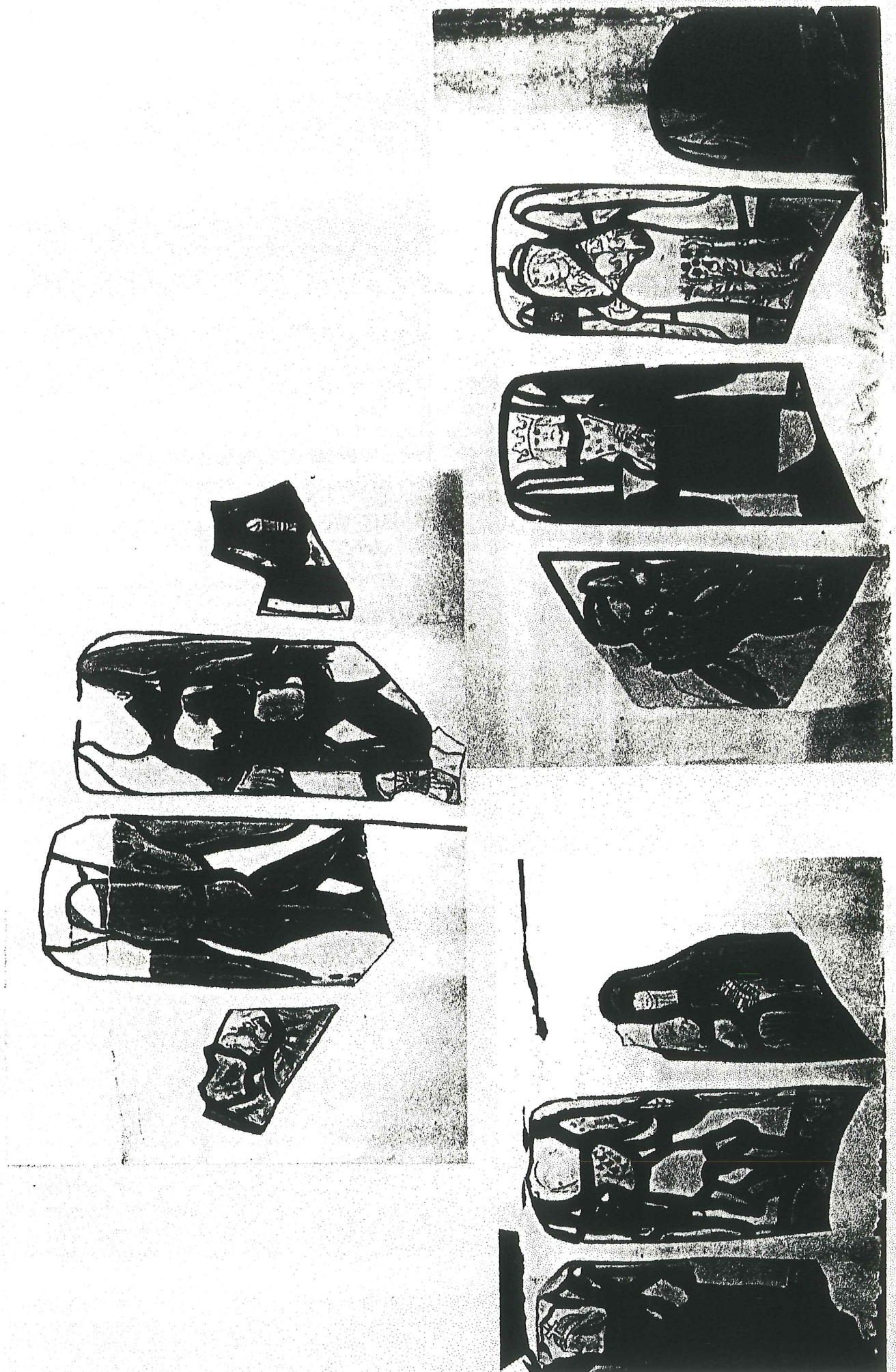


Thornhill St Michael and All Angels: great east window: Thornhill Tracing - flight





Thornhill St Michael and All Angels: great east window: Thornhill Tracing - tracery panels





**APPENDIX Thornhill St Michael and all Angels: great east window**

The recommendations are for a full isothermal glazing system.

**Provisional outline method statement**

All main lights and tracery panels to be removed from stone, crated and transported to the studio, the openings to be temporarily glazed. Removal of ferramenta for tipping, shotblasting and treating with rust-inhibiting system such as Croda Triple Coat Ironguard.

A full assessment to be made of the existing condition of each panel: rubbings, photographs and diagrams to record cracks and breaks in glass, corrosion, paint condition and previous restorations.

Pigment and corrosion deposits to be examined under microscope : appropriate cleaning methods determined and work carried out.

Partial releading of some panels for removal of mending leads where possible: edge bonding with use of conservation grade resin such as Hxtal NYL-1, missing areas, if any, to be cut in and painted to match, with moulded external plates where necessary for mechanical support, edges to be sealed with conservation grade silicone sealant such as CAF 33. Restoration of painted detail could also be achieved by means of moulded sealed external plates. In releading, leads to be of same weight and profile as those being replaced.

New perimeter leads to all panels, 'Barley method' glazing into U channel manganese bronze frames

Fabrication of leaded external glazing; kiln distorted rectangular panes to design of external ferramenta are suggested, as at Fairford, but details to be determined.

Fixing of external glazing in current glazing groove pointed in lime mortar mix; lead cills to replace existing ones

Internal mounting of stained glass ( See Section 4d, page 11 for observation on sizes).Details to be determined.

Stainless steel powder coated mesh guards or 6mm polycarbonate protection to external face of individual lights: all fixings to be stainless steel.

Photographic, diagrammatic and written record of conservation work to be created and deposited with the appropriate authorities, in accordance with any grant conditions.