Calvary with Donor

Hieronymus Bosch
c. 1490–1500

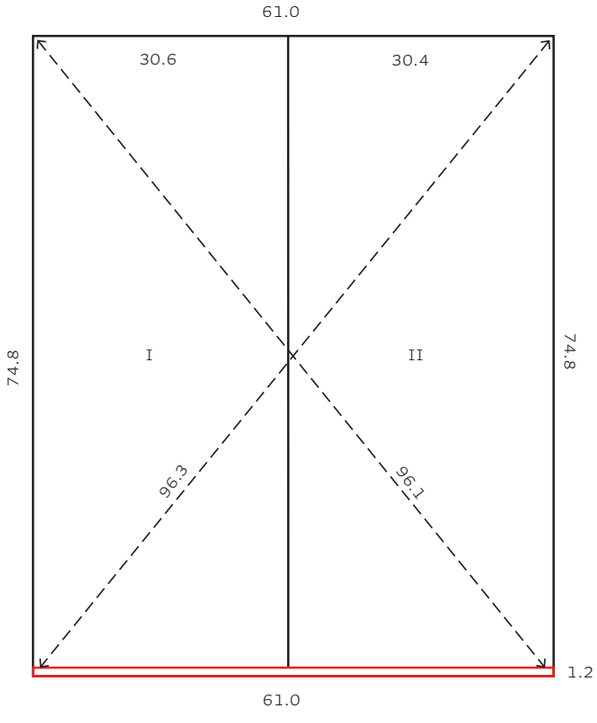
Oil (not analysed) on oak (analysed) panel, 74.8 × 61.0 cm (including added strip on the bottom).
Musées royaux des Beaux-Arts de Belgique/Koninklijke Musea voor Schone Kunsten van België, Brussels, 6639

BRCP, *Catalogue Raisonné*, cat. 15; www.boschproject.org no. 15.

Inscriptions and labels
Top centre, *inri* as part of the iconography inscribed in black on the white plaque above the cross.
Reverse, top centre: a museum identification label.

SUMMARY OF CONCLUSIONS

The technical evidence is in full agreement with the attribution of the Calvary with Donor *to Hieronymus Bosch. There are relatively few differences between the phased underdrawing and the paint layers, but the painting technique as well as the style and material of the underdrawing place the panel in the core oeuvre.*
At some point in time, the donor was at least partly painted over with another figure at the foot of the cross, probably a Mary Magdalene, but that figure was later removed. A strip at the bottom of the panel was cropped off and reconstructed. The panel was originally housed in an engaged frame, now lost. Dendrochronology indicates that it could have been painted from 1477 onwards, although a date after 1479 is statistically more probable. As further explained in BRCP, Catalogue Raisonné, *cat. 15, we date this work to around 1490–1500.*



15.1 Construction diagram (seen from the front).
Red lines indicate non-original section.

EXAMINATION DATA

5–6 October 2011 (Luuk Hoogstede, Matthijs Ilsink, Rik Klein Gotink, Jos Koldeweij, Ron Spronk).

The painting was examined in a photo studio. The panel was studied upright on an easel and flat on a table under strong visible light and UV radiation.

- ***Previous research and additional documentation available***
Stroo et al. 2001, 70–83.
Five complete XRS of the painting were studied and photographed.[1]

- ***Previous treatments*** The painting was extensively treated at least once before it entered the collection of the Brussels museum in 1952. The two boards must have come apart at some point before 1952, and, according to Stroo et al. 2001, two extra dowels were inserted into the thickness of the wood to reinforce the join.[2] Also before 1952, presumably during the same treatment, nine buttons were adhered onto the reverse on the join, and a larger, rectangular piece of wood was inserted into the upper left (as seen from the reverse) corner of the panel. The reverse was sealed with glue. A figure that had been painted on top and just left of the donor at the foot of the cross (probably a Mary Magdalene; a hand is still visible on the vertical crossbeam in the X-radiograph) was largely removed before 1952 and the painting was retouched (see below, *Filling …*).[3]

  During the 1966–67 treatment by A. Philippot and his team (which included Nicole Goetghebeur and Regine Wittermann) at the Royal Institute for Cultural Heritage (KIK-IRPA), a strip of wood was used to replace the severely worm-eaten lower edge; the glue layer on the reverse was scratched off and the reverse was impregnated with wax; the paint layer was consolidated; varnish, overpaint, early retouchings and fills were removed; and new fills and retouchings were applied.[4] There may be a report from the 1984 treatment, but it could not be located.

SUPPORT

- ***Panel*** Dimensions: see construction diagram (fig. 15.1). The thickness of the original panel is irregular, but measures around 1.6 cm.

  The wood species, Baltic oak, was identified through dendrochronology. The painting consists of two quarter-sawn planks, vertical in grain, laid vertically. The two planks were butt-joined, dowelled and glued. The position of the dowel holes is visible in XR, although only one dowel shows clearly.[5]

  Traces of possible scrub-work and planing can be observed on the reverse.

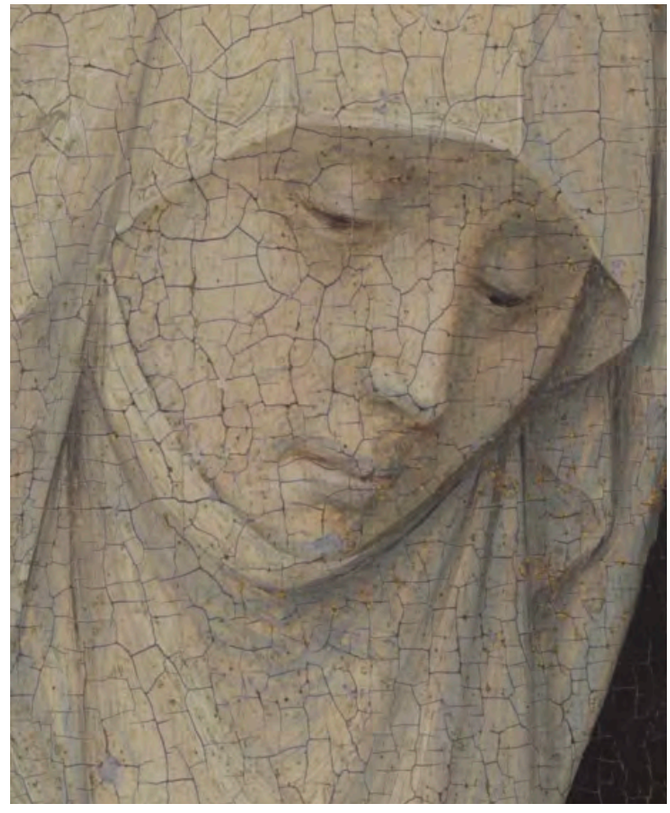
- ***Bevelled or half-lap edges*** Half-lap edges are present on the left, top and right of the panel reverse. The half-lap section at the bottom edge is a later addition (see below, *Altered dimensions*).



RR 19



RR 20



15.2 VIS

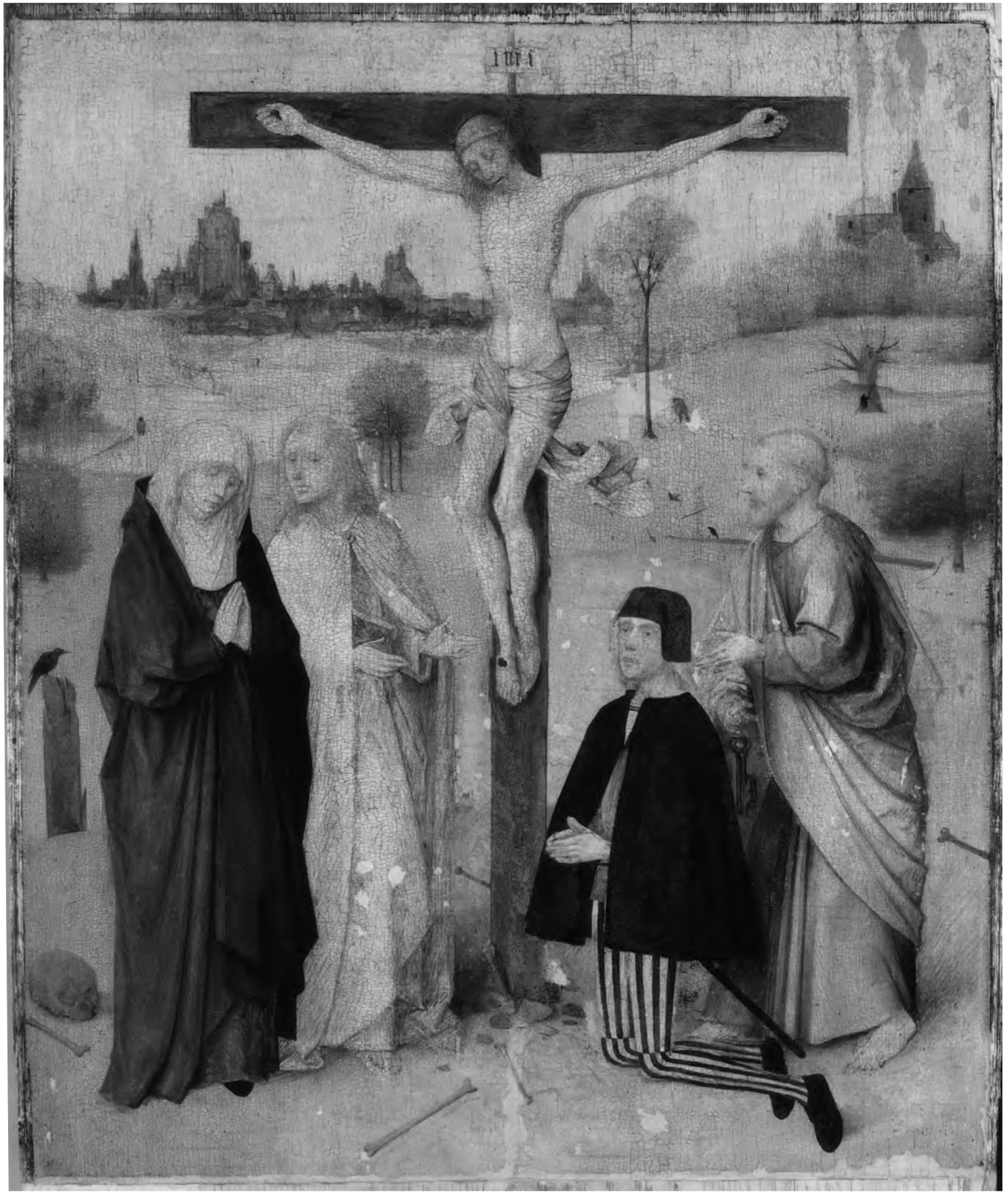
- ***Dendrochronology*** The youngest heartwood ring dates from 1466, which, with the minimum of nine sapwood rings for Baltic oak, implies an earliest possible felling date of 1475 for the tree that produced the wood for that plank.[6] A felling date after 1477 is statistically more probable, however, since 93 per cent of the possibly missing sapwood rings would be covered by that range. Assuming an additional minimum of two years for drying and transportation, the painting could have been produced from 1477 onwards, although a production date from 1479 onwards is statistically more probable.

GROUND

- ***Visibility*** The cream-coloured ground (not analysed) is present overall. In VIS the ground can be seen in damages and at craquelure.
- ***Barb and edges*** The original barb and ungrounded and unpainted edges have been preserved on the left and right sides and at the top of the panel, establishing that it was originally housed in an engaged frame, now lost. These original ungrounded and unpainted edges vary in width between 0.8 and 1.2 cm. The bottom edge is a modern reconstruction of the ungrounded and unpainted edge and barb (see below, *Altered dimensions*).
- ***Application*** The ground seems to have been applied fairly evenly. Brushmarks in the ground application were not noted.[7]

PREPARATORY LAYERS

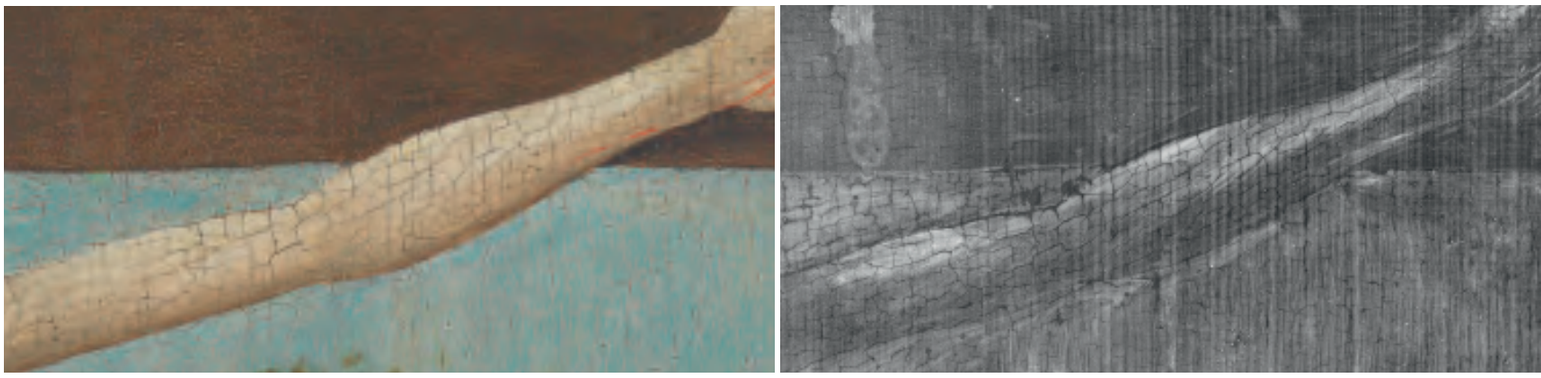
- ***Underdrawing*** Extensive underdrawing is discernible in most of the painting, both in VIS (shimmering through paint layers; fig. 15.2) and in IRR/IRP, but the dense craquelure and the ample use of dark and green paints reduces its visibility (fig. 15.3). Underdrawing was used to indicate most pictorial elements and thus to determine the overall composition. The background landscape was quite elaborately prepared, especially in the left middleground and in the lower right corner, where Saint Peter's shadow is indicated. Locally, underdrawing was noted at the top edge of the cross, left of Christ's head. The underdrawing also aided in modelling, with large zones of parallel hatching. Areas of deep shadow were prepared with denser hatching, using broader, more opaque lines that were placed closer together. It appears that the underdrawing in the red robe and mantles indicated those areas where lead-white-based underpainting was not to be applied. It seems unlikely that the underdrawing was meant to be evident in the final composition. Its current visibility in several areas has probably been caused by changes in refractive index due to the ageing of the paint film and fading of the red lake.
- ***Medium and application*** The underdrawing was applied using a brush in a liquid medium in what appear to be two or three stages. The possible first-stage underdrawing indicated the contours of the main elements and facial features, with a medium-size brush. Most of the large zones with the finer parallel hatching were also done with a medium-size brush, in a presumed second stage. It is possible that the areas of deepest shadow were laid in last, in a third stage, with a larger brush – for example, in the dark right section of Saint John's robe, in the lower right part of his cloak and in the dark area on Saint John's chest above the book. The density of the lines varies somewhat, but diluted pigments were not noted in the IRR macro.
- ***Style*** The relatively detailed underdrawing seems to have been applied quite fluently (especially in the robe and face of Saint John). Some longer, continuous lines are present at folds and contours, but most tend to be short and discontinuous (e.g., the contour of the Virgin's headdress). Hatching is done almost exclusively with



15.3 IRR

parallel lines that follow the direction of the feature. Lines tend to run from top right to bottom left, but also vertically, and from top left to bottom right. Cross-hatching was only rarely used, for example in some of the folds of Saint Peter's robe. Shadow was indicated with thicker lines and denser parallel hatching. Shadows on the ground were also prepared with hatching. Line ends are mostly straight and often tipped, but the lines themselves often have some curves.

- ***Revisions in underdrawing and differences from painting stage(s)***
  There are only very few revisions within the underdrawing, which itself was largely followed in the paint application phase. The contours of the heads of Mary, John and Peter were reduced and the hands of John and Peter were altered. The back of Peter's mantle was shifted to the left, and two short, more horizontal folds in the lowest part of his red cloak were not painted. The foot of John was shifted



15.4–5 VIS and XR

slightly to the left. The larger bone in front of him was planned somewhat lower, but the smaller bones, ribs and skull were not underdrawn. Also, an earlier contour appears to have been drawn above the head of Christ.

- ***Intermediate layers*** A pigmented off-white isolating layer was applied overall and is visible in VIS (glimmering through the paint layers) and in XR. The thinly painted layer contains some lead white that makes it distinguishable in XR, revealing broad brushstrokes that do not relate to the composition. The underdrawing probably lies below this layer, since the underdrawn lines do not 'skip' anywhere over the roughly brushed strokes.

PAINT LAYERS

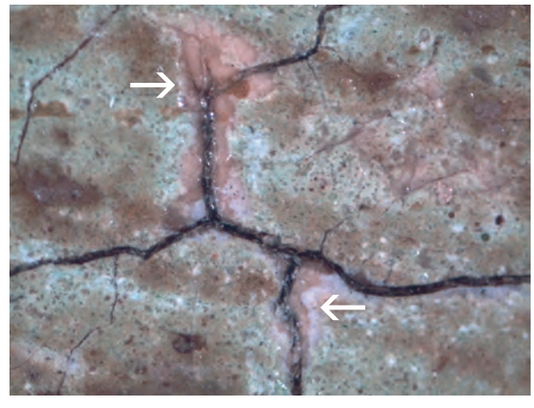
- ***Paint application and painting technique*** The oil paint (not analysed) was applied with the brush over the entire original panel surface and onto the edges of the barbs (see below, *Altered dimensions*). It was applied in several stages atop the pigmented isolating layer (as can be seen, e.g., at the opened craquelure in the foreground; fig. 15.6), mostly in one to two layers, followed by additional modelling and detailing. Paint application was mostly wet-on-dry, but locally some wet-in-wet was observed; for example, in the tree trunk with the bird at the left and in the black lines on the white undergarment on the donor's chest. Here and elsewhere, paint does not seem to have been manipulated with the back of a brush but moved aside by brushstrokes (19MICGBM005).

  The thin dark lines that are visible in XR at the contours of the horizontal beam of the cross and around Christ's body are probably not the result of incisions, but seem to be related to the linking of craquelure along the edge of the sky. The craquelure has widened due to paint loss, possibly as a result of solvent interaction (figs. 15.4–5). A similar effect is visible at the interface of Christ's chest and the sky to his left.

  The generally wet and glossy paints were applied in both opaque and semi-transparent layers. Both thick and thin paint layers were used, some allowing the underlying pigmented isolating layer to shimmer through. This is more apparent in lighter areas or where there are red glazes. But no extensive use was made of the underlying layer shimmering through, and in several deep red lake zones a dark or black paint was applied afterwards to enhance the shadow. Also, the current visibility of the underlayer is largely due to ageing of the paint (see also below, *Discoloration …*).

  In general, the panel was painted to a high degree of finish, using fine brushstrokes. Rougher strokes were frequently used in the underlayer (e.g., in the white of the sky and in the background). Brushstrokes were utilized to some extent to render contour and volume throughout the painting, but more so for impastoed paints, which often contain a lead-white component. In Mary's cloak, final red lake touches were locally applied atop the lighter grey paint, using short, parallel lines perpendicular to the direction of the long folds, giving the cloak a purplish sheen. The dark and light shades of grey in the face of the donor seem to have been painted adjacent to one another, only slightly overlapping and blended. The lighter colour of the cheekbones was possibly applied after the darker grey, but this area is in a generally poor condition (see below, *Abrasion*).

- ***Texture*** Several passages do not have a smooth finish but a light impasto with slightly textured brushstrokes. This is the case in Christ's chest, the landscape, the sky and areas where thick azurite paint was employed. Many of these brushstrokes have become more apparent because of darkened varnish and dirt residues in the interstices. Aside from some impastoed highlights, texture was also used for some modelling, as in the robe of Saint Peter. A very fine,



15.6 19MICGBM006



15.7 VIS

regular textural pattern is discernible in a few areas of Mary's robe. It may have been pressed into an underlying layer, but does not appear to serve a specific purpose in the pictorial layer.

- ***Build-up and palette*** The paint was applied from light to dark (as in the sky, areas of red and green glazes and shadows) and from dark to light (as in the foliage of the trees, Mary's robe and highlights). The painting was largely built up from back to front and was almost completely planned. Larger features were left in reserve, but smaller objects like the rocks and bones in the foreground were executed atop the background layer. For the entire sky, first a light blue layer containing primarily lead white and azurite pigments was applied atop the lead-white-based isolating layer. This was followed by a second, darker blue layer, seemingly only applied closer to the top of the panel. When the sky was painted, the cross, Christ, the landscape and most of the architecture were roughly left in reserve. Subsequently these elements were painted in, slightly overlapping the sky, which is also the case with trees extending into the sky area. The farthest and darkest row of buildings in the left background was painted atop the sky, as were the buildings on the far right.



15.8 XR

For the trees, first a darker green base colour was applied, followed by light green dabs, then adjacent touches of a still lighter hue in a fairly fluid impasto. The *titulus* on the top of the cross was left in reserve from the blue. The figures that had been left in reserve were painted roughly at first and received their detailing only after the landscape was completed. This is illustrated, for example, in Saint John's hair, where greenish landscape paint covered part of the base colour (reducing the size of his head), but was followed by the fine lines of his locks. His hair was also painted after his mantle, beginning with a brownish base. Then, from the top of his head some lighter, blended brushstrokes were applied, gradually becoming the thinner, more defined, hatched highlights towards his shoulders.

Red lake was used extensively in the garments of the saints and in the striped breeches and stockings of the donor. The lighter sections of Peter's mantle and John's robe seem to have been thinly and locally modelled with white to greyish paint before the application of red lake. Also, Peter's purplish-blue robe was modelled before the red lake was applied, apparently over the entire robe. The cloak of Mary received initial modelling in red lake, followed by lighter grey paint and final red lake touches to create local purplish effects (see above, *Paint application …*). Some red lake pigment was also found in Christ's crown of thorns, his side wound, and on his hands (19MICGBM001), but an orange to red paint was generally used to indicate blood.

Mary's headdress is composed of a thinly applied, wet-in-wet, greyish white (fig. 15.2). Her dark blue robe under her cloak appears to have been painted with azurite pigment, which was also used for John's book. The azurite paint was applied after John's hand was painted. The brownish outlines visible in the hands and feet were essential to convey physiognomic detailing; without them, the hands and fingernails would hardly be legible as such. The black stripes on the donor's hosiery were painted atop a still-wet paint layer, as evident from the displacement of paint. The closing cords of his lower garment were also painted wet-in-wet with the white layer underneath. In a similar way, black strokes were pushed into the still-wet grey base paint of Saint Peter's keys. Subsequently, highlights were applied. A green lake is present in the crown of thorns, in which light green highlights appear as well.

- ***Changes*** There are few changes in the paint layer, as the painter closely followed the underdrawn composition and the areas left in reserve. The heads of Mary, John and Peter were reduced in size slightly at the tops; Mary's blue robe was extended downwards slightly over her footwear; and Peter's robe was shortened at the bottom while the paint was still wet.

FRAME

The original, engaged frame has been lost. The panel is exhibited in a modern, reddish-brown wooden frame with black exterior (85.8 × 73.0 cm).

CONDITION

Support

- ***Altered dimensions*** The panel's original dimensions and thickness have largely been maintained, except on the bottom edge, where new strips of wood were added during the 1966–67 treatment. Considering the woodworm-damaged state of the panel, it seems plausible that it was reduced in size before coming into the museum's collection in 1952. During the 1966–67 treatment, the damaged lower edge was scraped clean, presumably to create a better gluing face. At that time, the lower barb had already been lost.[8] The edge of the painted surface, therefore, originally continued slightly further down, to an extent that can be roughly judged from the brushstrokes at the bottom of the panel. Currently, these stop rather abruptly, which would not have been possible when the picture was painted in the engaged frame. In the corners, the start of curved brushstrokes are visible in XR, indicating that perhaps 1 cm of original paint may be missing. This would place the original barb about 0.5 cm lower than the current false barb. Assuming an unpainted edge of about 1 cm (the average of the surviving unpainted edges), the panel could originally have been 0.5 cm longer at the bottom. In total, the bottom edge would have been reduced in size by about 1.8 cm. Scraping off about 2 mm of original paint at the bottom edge then created a new unpainted edge, so the panel would appear as a complete painting. Possibly at that time, the sky was extended a bit further upwards as well, to create a narrower unpainted edge matching the new one at the bottom, but that paint was later largely removed again. The incised line still visible at the top probably indicated the edge of the extended paint area (fig. 15.7).
- ***Additions*** Sections of wood with a vertical grain to match that of the original panel were added at the panel's bottom to form a longer strip (see above). On the reverse of the panel, nine small, wooden blocks were glued along the entire length of the join. A larger rectangular wooden block was glued onto the largest crack at the top left of the reverse, and an insert was added to the damaged top left corner.
- ***Cracks*** There are three cracks in the top right of the painting, as seen from the front. They run parallel to the wood grain, and two extend from the top edge. These fissures are open to some extent, but are old and stable. The longest crack was stabilized on the reverse by a wooden block and is still stable. The two smaller cracks, one below the other, are adjacent to it. There is still activity in the upper crack, as filling material is lifting slightly and a few more recent losses are discernible. At the bottom edge of the panel, just to the right of the donor's feet, another recent crack is also detectable in the wooden addition and filling.
- ***Deformations*** The panel has a convex curve overall (seen from the front), and the right plank also shows some undulation.
- ***Joins*** The join in the centre of the panel is closed, but there is a slight difference of levels in the middle. The boards must have come apart at some point.
- ***Coated reverse*** The reverse of the panel was impregnated with strong glue. Also, residues of wax and possibly resin are present.
- ***Biological damage*** Woodworm tunnelling severely damaged the panel in the past. The weakened wood (consolidated with glue and wax during previous treatments) led to losses, fractures, and local panel collapses that are visible on the reverse. There are several sections where the wood is raised slightly.

Ground and paint layers

- ***Stability*** In general, the adhesion of the paints and that of the ground are both good. Most craquelure is caused by natural dimensional changes in the panel. Drying cracks were not noted. There are many areas with more open craquelure, but these are related to abrasion and solvent damage (see below, *Abrasion*).

  Metal soap aggregate formation, which can appear as small opaque points in XR, has been observed throughout and has severely affected the painting's appearance (fig. 15.2). Expansion of the aggregates may cause them to protrude from the paint surface, resulting in minuscule raised spots and a more granular surface texture. Loss of these metal soap aggregates results in tiny, craterlike holes that appear dark in XR. Over time, accumulation of dirt and varnish residues in these holes causes them to appear dark in VIS and IRR/

IRP. Since these paint defects are also visible in the brown crossbeam that was left in reserve from the sky, it is likely that the saponification takes place in the lead-white pigmented isolating layer applied overall and not just in local paint layers.

- ***Losses*** Most of the larger, old losses of paint and ground have been filled and retouched. These are mainly present around the panel join in the centre and around the cracks at top right, where some recent losses are present as well (see above, *Cracks*). Losses appear, too, in the cross and the tall, isolated tree in the background, in the robes of Saints John and Peter, around the donor and in the landscape. Many smaller losses spread over the paint surface remain untreated, and among them are also several woodworm holes and numerous tiny craters from metal soap aggregate formation (see above, *Stability*).
- ***Abrasion*** The paint surface is quite abraded overall. This is clearly visible in sections of the sky; for example, the building at right has been scuffed to such an extent that the blue paint underneath has become visible. The central foreground was damaged as well, especially in the area of the donor, when the overpainting was removed there to reveal that figure (see further below, *Filling …*). In several other areas, the edges of paint craquelure have become more abraded, making them more noticeable, as in the mantle of Saint John.
- ***Discoloration and increased transparency*** It is possible that the glazes have discoloured somewhat, although this is not apparent. There is an increase in transparency in the red lake, but in many areas its reduced presence is mainly the result of abrasion. The lighter paints, which often contain lead white, have become more transparent in ageing. This has resulted in a localized increase in visibility of the underdrawing and underlying layers.
- ***Filling, retouching and overpainting*** After the addition of the wooden strips at the bottom, losses were filled and an extended, unpainted edge was reconstructed. Using pencil lines, some craquelure was imitated there, as well as in the smaller bone in the foreground. Many of the old losses have been filled and inpainted, most extensively in the sky and cross, around the donor, and in the landscape. These retouchings seem to have discoloured slightly, but are often also not precisely colour-matching. There remain numerous smaller losses and areas of abrasion (especially around craquelure and more impastoed paint) that have not been retouched.

  During the 1966–67 treatment, the remains of an overpainted figure were found just to the left of the donor.[9] This figure may have represented Mary Magdalene.[10] She was painted atop the background, indicating a later addition. Several small pinkish, brown, bluish and greyish residues still remain. The XR reveals that this figure at least partly overlapped the donor, and a hand and arm are still discernible in front of the cross (fig. 15.8). It seems quite possible that this figure was painted in order to cover up the donor. The letters *inri* were originally done in black over an already-dry white underlayer. Largely due to abrasion, these letters were retouched and the white area surrounding them was in part overpainted with white. The small rod supporting the *titulus* has been completely retouched, leaving no trace of the original rod visible (fig. 15.7).

Surface finish

- ***Varnish*** There seem to be multiple varnish layers present. These are modern and glossy, and show very little discoloration. The varnish layers seem to have been thinly and evenly applied by brush over the entire surface.

  Although the varnish application is even and glossy, there are many small matte spots from retouchings. These are insufficiently saturated, but the original paint surface has adequate saturation from the varnish.
- ***Surface dirt*** There is some surface dirt on the painting. This greyish matte dirt layer does, however, even out the matte spots of retouching. The numerous tiny spots present on the surface are the result of metal soap aggregate losses (see above, *Stability*). Over time, dirt, varnish and retouching material have accumulated in these 'craters', resulting in the darker spots we see now.
- ***Visibility of the original surface*** The saturation of the original paint surface is adequate. The matte spots from inpainting, however, cause a reduced visibility of the original paint surface. Furthermore, the countless darker spots and the numerous partial, not precisely colour-matching and/or discoloured retouches strongly distract from the original surface.

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[1] The XRS date from before the 1966–67 treatment of the painting, since the added wooden strip at the bottom edge is not discernible.

[2] Stroo et al. 2001, 71.

[3] Stroo et al. 2001, 71–72.

[4] Stroo et al. 2001, 72.

[5] The three dowel holes that taper at both ends are original, but the two larger, round-ended dowels are later additions. The original dowel holes measure 5.5 × 0.5 cm. The non-original dowels measure 6.5 × 0.8 cm and 7.0 × 0.7 cm. Stroo et al. 2001, 82 nn. 1 and 7.

[6] Analysis done by Pascale Fraiture (November 2000). See also Stroo et al. 2001, 72, 78.

[7] The brushmarks that visibly underlie the paint, as seen in XR, are from the pigmented isolating layer.

[8] The XRS that were taken before that treatment do not show a barb, but reveal a previously carved, unpainted edge and damages. Marijnissen mentions that this unpainted edge needed to be reinforced and completed. Marijnissen 1987, 346.

[9] Where this figure was removed, there is more damage to the original paint. Additionally, old black-and-white photographs from KIK-IRPA show the donor with a moustache and other small alterations. These, however, were clearly later additions, as the paint continued over the craquelure; they have been removed since, reportedly during the 1966–67 treatment.

[10] Marijnissen 1987, 346.