8 *Saint Wilgefortis Triptych*

Hieronymus Bosch
c. 1495–1505

Oil (analysed) on oak (analysed) panel, left wing 105.2 × 27.5 cm,
central panel 105.2 × 62.7 cm, right wing 104.7 × 27.9 cm
Gallerie dell'Accademia, Venice

A full conservation treatment of the painting started in 2013, thus after the 2011 BRCP research of the painting on which this report is largely based.
BRCP, *Catalogue Raisonné*, cat. 8; www.boschproject.org no. 8.

Inscriptions and labels
Signed, central panel, bottom left: *Jheronimus bosch* (partly damaged).
RR 21, on cradle, text in pencil: *A Porta (entrando)*;[1] RR 22, on cradle: a Rijksmuseum Amsterdam exhibition label; RR 26, on cradle: a Rijksmuseum Amsterdam exhibition label; a small square label, *Inv. N°. 25. (465)*; a faded text, ending in 39; a text in pencil, *A Sinistra Porte (entrando)*; and on thinned reverse (RR 26), label: *Gemälde Galerie des Allerh. Kaiserhauses N° 1850.*

SUMMARY OF CONCLUSIONS

The Saint Wilgefortis Triptych *in Venice was painted by Hieronymus Bosch. The painting technique and the style and material of the underdrawing can easily be linked with other works in the core of the oeuvre oeuvre, especially on new, during-treatment* IRRs *that show much improved results over the pre-treatment images. Nevertheless, the paint layers remain unusually opaque to* IRR *in several areas.*
It was probably still in the Bosch workshop that the compositions of the wings, which originally depicted large male donor figures, were extensively repainted with the current images. The triptych still has its original dimensions, but the exteriors of the wings were stripped. Traces of a layer build-up indicate that these surfaces were initially painted a monochrome black, which might have served as the base of a dark grisaille. During the 2013–16 restoration treatment, remnants of the saint's original beard were revealed, confirming her identification as Wilgefortis or 'Uncumber'. Its original format of a folding triptych was also restored.
The three panels were first housed in engaged frames, now lost.
Dendrochronology indicates that the triptych could have been painted from 1491 onwards, although a date after 1493 is statistically more probable.
As further explained in BRCP, Catalogue Raisonné, *cat. 8, we date this work to around 1495–1505.*

EXAMINATION DATA

14–25 November 2011 (Luuk Hoogstede, Matthijs Ilsink, Rik Klein Gotink, Jos Koldeweij, Ron Spronk). The triptych was examined in a studio of the Gallerie dell'Accademia. The panels were studied upright on an easel.

- ***Previous research and additional documentation available*** See the illustrated articles and reports published by Giovanna Nepi Scirè, Ottorino Nonfarmale, Raffaella Rossi-Manaresi and Antonella Tucci, and Roger Van Schoute and Hélène Verougstraete-Marcq in Limentani Virdis et al. 1992.

  One IRR detail and a set of ten nearly complete XRS are kept at the offices of the Soprintendenza. Relatively low-resolution scans of the XRS were used for this report. Cross-sections of this painting were



RR 23



RR 24

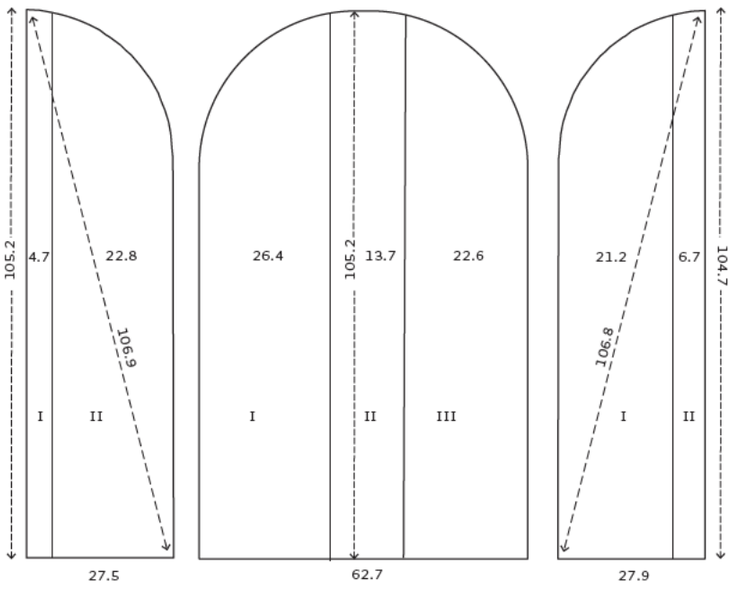


RR 25

analysed with various techniques by the research laboratory Centro Cesare Gnudi in Bologna and published in 1992.[2]

- ***Previous treatments*** The triptych was most likely intensively restored during its stay in Vienna (1838–1919), and the positions of the labels on the reverse suggest that the cradle was applied at that time as well. The 1878 annual report (discussing the *Hermit Saints Triptych*, cat. 2, at the same time) noted that the picture was highly damaged and needed a new cradle. The paintings were documented as being in the conservation studio between 2 July 1894 and 17 August 1895 because of brown varnish. In 1897 and 1898, respectively, the central panel and right wing were treated because of raised paint.[3]

  In 1951 Mauro Pellicioli restored the triptych in Venice, when the painting was in a precarious state of conservation. Pellicioli removed varnish and oil retouchings, and filled and retouched the losses.[4] The panels were treated again from 1990 to 1992 in a specially created studio in the Palazzo Ducale.[5] During that treatment, the older reinforcements on the reverse of the triptych were only cleaned, since the cradle did not cause concern at that time. Large losses and lifting paint were consolidated, and 'all later additions were removed in full', although many non-original remains can still be observed, especially old, discoloured varnish residues. Fills were integrated using *rigatino* retouching, followed by a final matte varnish application on both the front and reverse of the painting. Some surface cleaning and consolidation by Gianfranco Mingardi took place in 2009, in preparation for an exhibition in the Palazzo Grimani.[6]



8.1 Construction diagram (seen from the front; diagonals measured from barb to barb)



8.2 RR 24, VIS



8.3 RR 22, 26 and 21

SUPPORT

- ***Panel*** Dimensions: see construction diagram (fig. 8.1). Thickness, RR 23 and 25: 0.5–0.9 cm (inside to outside edge); RR 24: 0.5 cm.

  The wood species, Baltic oak, was identified through dendrochronology.

  The wings consist of two planks (one broader plank and a narrower strip), the central panel of three planks, quarter-sawn, vertical in grain, and laid vertically. All planks were butt-joined, dowelled and glued.

  The panels were all cradled after being thinned. Remnants of original paint and ground were observed at some edges (see *Coated reverse*). In the top centre of the central panel a dark stain is visible, possibly caused by the tannins in the oak after the splitting of the tree trunk.

- ***Bevelled or half-lap edges*** Bevelling can be observed on all edges except on the two long sides of the wings. On the left wing reverse, the bevel at the bottom measures about 0.3–0.6 cm. At the left edge, the bevel is about 1.0 cm wide and it decreases irregularly on the arch to about 0.4 cm near the top. On the central panel reverse, the bevel at the bottom measures about 0.5–1.1 cm. At the left and right edge, the bevel is on average 0.8 cm wide, and it decreases irregularly on the arch to about 0.4 cm near the top. On the right wing reverse, the bevel at the bottom measures about 0.4–0.6 cm. At the left edge, the bevel is about 0.8 cm wide, and it decreases irregularly on the arch to about 0.4 cm near the top.

- ***Dendrochronology*** The youngest heartwood ring dates from 1480, which, with the added minimum of nine sapwood rings for Baltic oak, implies an earliest possible felling date of 1489 for the tree that produced the wood for that plank.[7] An earliest felling date of 1491 is statistically more probable, however, since that would cover 93 per cent of the range of possibly missing sapwood rings. Assuming at least two more years for drying and transportation, the triptych could have been produced from 1493 onwards, but a production date from 1493 onwards is statistically more probable.

GROUND

- ***Visibility*** The off-white to cream-coloured[8] ground is present overall. As seen in VIS, the surface of the ground layer is fully covered by the paint layers, and the ground is now only evident at the extreme outer edges and in losses. However, it shimmers through the paint surface in several areas – for example, in some of the faces and hands and in the light brocades, where its light tonality was efficiently used (see fig. 8.12). This appears to have been an intended effect, although the transparency of the paint layers will have increased with ageing, especially in the lighter areas.

- ***Barb and edges*** The original barb and ungrounded and unpainted edges have been preserved on all sides of the three panels, which establishes that the panels were originally housed in an engaged frame. These ungrounded and unpainted edges vary in width between 0.4 and 1.1 cm, with an average of around 0.7 cm.

- ***Application*** The ground was applied in two or more coats and worked into a smooth finish. Possible brush marks in the ground application can be observed in the left arm of the man with the brocade headpiece on the left in the central panel.

- ***Composition*** The ground consists of chalk (calcium carbonate – $CaCO_3$), bound in animal glue.[9]



8.4 RR 22, VIS





8.5-6 RR 23, VIS and IRR





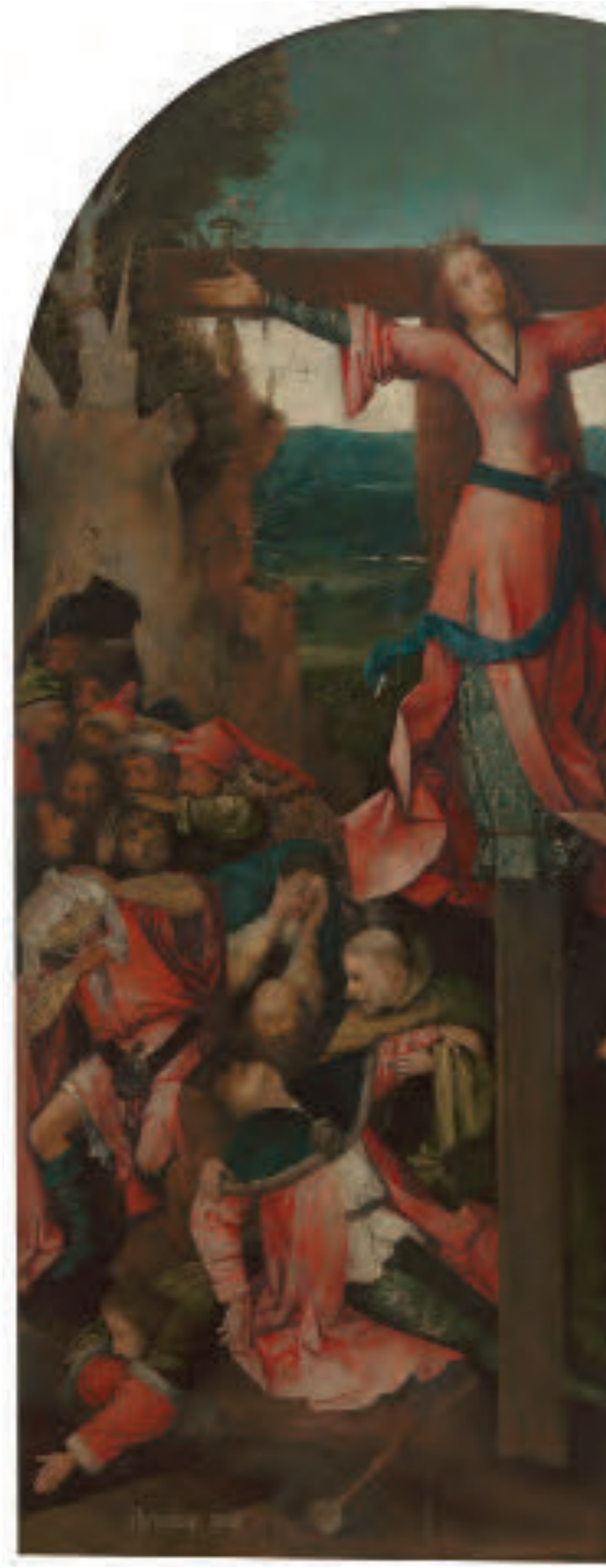
8.7–8 RR 25, VIS and IRR

PREPARATORY LAYERS

- ***Underdrawing*** In some areas, as in the face of Saint Wilgefortis, the underdrawing shimmers through the paint surface and shows in VIS. The current perceptibility of the underdrawing in light areas under VIS is probably caused by the changes in refractive index due to ageing of the paint film, resulting in increased transparency. The paint layers remain remarkably impenetrable with IRR/IRP, revealing very little underdrawing. This is largely the result of remnants of a non-original greyish surface layer. Some underdrawing was revealed beneath paint in a number of locations by using IRR/IRP, mostly in the central panel – for example, in certain faces and in the red cloak of the man who has fainted at the foot of the cross. However, other red areas, such as the robe of the martyr, remain substantially opaque to IRR/IRP. The underdrawing seems to have been used to indicate contours of selected facial features and folds. The hair of a tonsured man was also underdrawn (see fig. 8.9).
- ***Medium and application*** The small amount of underdrawing that was revealed was applied with a brush and executed in a highly fluid liquid medium, perhaps of an aqueous nature, since small puddles and drips are evident. This suggests the use of a diluted medium, perhaps an ink. Interestingly, the underdrawing is generally more opaque and thus better visible in IRP than in IRR, where it appears to become more transparent.
- ***Style*** Too little underdrawing was revealed for an accurate description of its style, although that of the folds in the red robe to the left of the foot of the cross does provide some information. Here we find bold outlines for the major forms, and smaller zones of parallel hatching to indicate shadows. The hatched lines are oriented both diagonally and, in the angle of the cross and the left leg of the fainted man, vertically.
- ***Revisions in underdrawing and differences from painting stage(s)*** Although not enough underdrawing could be revealed to describe this aspect in full, some changes between the underdrawing and the composition in paint have become apparent. The folds in the red robe to the left of the foot of the cross were not painted as underdrawn, and another such case is the position of the proper left hand of the man in the right foreground.
- ***Intermediate layers*** No isolating layer has been observed in VIS, IRR/IRP, XR or the published cross-section analyses.[10] An intermediate layer has been observed in a paint cross-section from the exterior of the left wing (see *Coated reverse*).

8.9 RR 24, IRR, during treatment

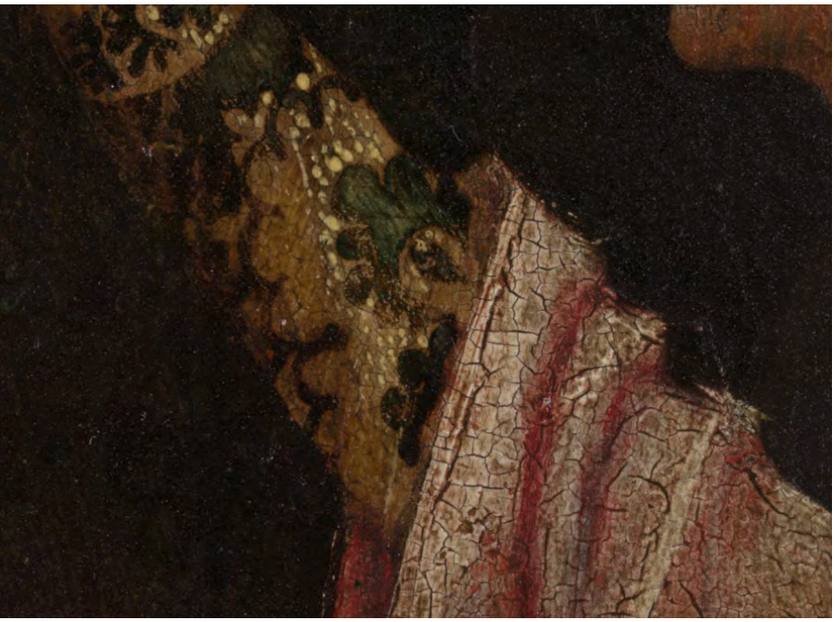




8.10–11 RR 24, VIS and IRR







8.12 RR 24, VIS



8.13 RR 24, VIS

PAINT LAYERS

- ***Paint application and painting technique*** The brush-applied oil paint (analysed)[11] covers almost the entire surface of the panels and extends onto the barbs. The underlying ground is sometimes visible at the interfaces between different colours, as well as in light brocades and in the flesh tones, where it shimmers through the paint (see figs. 8.12 and 8.13). Paint was applied in several stages, mostly wet-on-dry, but also with some wet-in-wet (e.g., the tonsure of the figure below the martyr, and the towers in the right wing). A sharp incision was made in the set paint just above the cross, indicating its top edge (see *Build-up and palette*).

  Paint was mostly applied in thick, opaque layers. In some areas a thin, transparent paint layer was used (e.g., the tree trunk in the central panel). Medium-rich, fluid and glossy paints were applied in opaque as well as semi-transparent layers. Drier paints were used for the lead-white modelling atop many bright red parts, and were typically followed by red glazes, now faded (e.g., in the martyr's robe). Relatively dry paint was also used rather often for impasto (as in the lead-white and lead-tin yellow highlights and floral motifs in the martyr's green garment). The paint was generally built up to a maximum of two layers, with the exception of certain highlights, shadows and additional detailing. The forms were laid in fairly precisely with vivid brushstrokes, using predominantly red and some green glazes. Brushwork was used to render contours and volumes throughout the painting.

  In several faces, modelling was achieved with just a few pinkish highlights (e.g., on forehead, cheek, chin and nose) and some dark accents, using the underlying layer or the light tonality of the ground. The overpainted areas show a different build-up, since the light base layer was not available for use there and a more opaque covering of the surface was required (see *Changes*). In the central panel, some contours (for example, between fingers) are strengthened by delineation with a dark brown paint containing carbon black. These brown lines occasionally serve a dual purpose in indicating a fingernail without any additional highlights. In the central panel, the tree trunk at left and the rock at right act as coulisses, giving the landscape more depth. The tree trunk was painted thinly, though, whereas the rock may have a local, greenish underlayer followed by a more opaque, yellowish paint.

- ***Texture*** Most passages do not have a smooth finish, and textured brushstrokes are often visible. Besides impastoed highlights, texture is used for modelling. For instance, dry, lead-white brushstrokes are used atop several red areas and in the face of the martyr.

- ***Build-up and palette*** The paint was applied mostly from light to dark. Dark-to-light application is visible where a darker base paint precedes lighter touches of detailing and highlights. The paint application appears to have been largely planned, but was executed in both 'back-to-front' (the sky being painted before the cross and the martyr) and 'front-to-back' (the landscape at left being painted after the martyr was completed). Several areas were left in reserve. As seen in the XRS, the cross and the martyr were left in reserve from the lead-white (under) painting of the sky area and from the middleground landscape. XR also shows that the horizon continues in all three panels at approximately the same height. The top layer of lead-white paint in the sky (already containing a small amount of high-quality azurite pigment particles)[12] seems to have been gradually mixed in to produce a gradation from deep blue. Azurite was used quite thickly for the upper part of the sky and landscape. The white (remnants of) clouds visible at the tops of the central panel and the right wing may belong to the final compositional phase of the triptych.

  The white and blue of the sky in the central panel were painted before the incision above the cross was made. The cross had been left



8.14 **XR, during treatment** (images Davide Bussolari)

in reserve at that point, so the incision only indicated more accurately the upper limit for the application of its brown paint, which partially overlaps the sky. The upper part of the tree and the foliage to the left of the martyr were painted over the finished sky at a later stage (see *Changes*). In the right wing, the boat and the central tower were not left in reserve from the water. At right, possibly a different building was left in reserve, wider and lower, but not executed in paint. The right tower was then added, with its top painted over the lead white of the sky. The darker blue-green of the landscape was applied afterwards, up to the towers but atop the existing landscape at the horizon.

In the central panel, the blue-green paint of the landscape was laid on after the figure of the martyr was nearly complete. The blue-green overlaps the vermilion robe, blue sash (which was left in reserve from the red) and brown hair, but was applied before the hair was extended to the left and the highlights were added there. The lower part of the cross was left in reserve and painted after the saint's richly decorated robe was executed. The lighter areas of this robe consist of a mixture of copper-green glaze with lead-tin yellow.[13] The white robe of the figure at lower right was partially painted atop the red of the one behind him and was followed by the blue sleeve slightly overlapping the white. The white dots around

his waist were followed by dabs of dark paint, slightly overlapping or adjacent to the highlights. In most red clothes in the central panel, whitish modelling (consisting mainly of lead white and a little red lake pigment) was applied onto a bright red base of vermilion mixed with red lead.[14] A red lake glaze (now faded somewhat; see below, *Discoloration and increased transparency*) was usually applied afterward, and more thickly in shadowed areas of folds, which were often reinforced with dark (black) paint. The final contours were determined with black paint for the unpainted shadow areas.

The saint's crown was painted in lead-tin yellow, using small dashes of a pinkish red for the shadow areas. The sword hilt and scabbard fittings as well as the shield rim of the left-hand figure lower right in the central panel are decorated in a similar way. Part of that figure's robe consists of a greenish grey followed by a reddish, glazelike paint, imitating a shot colour (*changeant*) effect. In some areas, a purple paint appears as well. Black was used both in paint mixtures (e.g., for dark red, brown or grey) and in its pure state (as in the sword in the central panel and certain details such as eyes).

The signature was applied between thin, possibly incised lines at its top and bottom. It was painted over the fully set paint of the background, perhaps using a mixture of lead white and lead-tin yellow. The signature's appearance, craquelure, state of degradation and adhesion are consistent with those of the rest of the painting.

- ***Changes*** At least three painting phases can be distinguished in the triptych. In the first one, large donor figures were depicted in both wings (see figs. 8.5–8 and 8.14). These are revealed in IRR/IRP and XR, and are also detectable in VIS, shimmering through the paint surface. They were left in reserve from the original background, which was also altered. The first phase appears unfinished, lacking overall detailing and perhaps some background features. In a second phase, adjustments were made and the painting was completed. Pentimenti can be seen, for example, at the donor figures, in the left wing apparently adding a hat and in the right wing altering the round cap – in both cases a flat-topped biretta with raised sides. In the third phase, the donors were painted out, the landscape of the wings was largely changed, and areas of the central panel were overpainted as well.

  On the left wing, the background was completely overpainted, while the imitation stone base or wall was part of the original composition.[15] Originally the donor was set in a green landscape, extending approximately to the same position as in the current composition. There seemingly was an initial form of the gate building to the left, a bridge and water below it extending to the top right, where it blended in with land nearer the right edge. At the horizon, the underlying landscape is more bluish in tone, with buildings in front of it, followed by a sky in gradations of white to blue. The donor is dressed in a dark blue robe lined with brownish fur. Since it is fully opaque in IRR/IRP, the robe must have been underpainted or mixed with black. This figure wears a reddish shirt, and a cross-section from the area showed atop the ground a thick, pink layer (200 µm) containing lead white and vermilion, followed by a red-lake glaze.[16] In the second phase, the donor's hat was apparently added and his shoulders were painted as less sloping, which also made the open fold of the fur-lined coat stand out more conspicuously. The donor and the entire background were overpainted in the third stage, and the figure of Saint Anthony, sitting on a bench, was added. His brown robe is partially resting on the imitation stone base or wall.

  In the central panel, the neck of the martyr was altered, probably at an early stage. Her gown originally had a roundish neck or collar executed in an impastoed lead-white paint, which was later covered with a red lake, with a black reinforcement of the current V-shaped neck. In the third phase, the branches and foliage were added to the hollow tree on the left, covering the already-painted sky. The white-to-grey clouds may also have been put in at this time. In the shadowy area just below the martyr, a stone formation and a small plant are discernible in the IRR/IRP image, although a dark brown paint covers them. A similarly deep brown paint was used to cover the green foliage in the central middleground to the right of the saint, behind her sash, but this was not applied to her left. These elements might have been painted out during the third phase, perhaps to create a better transition to the dark, overpainted left wing.

  Of the right wing, roughly the bottom half (excluding the parapet) was altered. In the first phase, the donor was set in a green background with sloping hills at the height of his shoulders. He was wearing a black robe, and his green shirt and sleeves had a red-brown, glaze-like paint, probably imitating a shot colour effect. His straight shirt-collar was decorated with an embroidered motif. A comparison of the IRR/IRP and the XR seems to show that behind him and the hills, a seashore and water were painted, with a tongue of land at left and a higher shoreline, which ended roughly at the tip of the mast of the sinking ship at right. A bay or perhaps a tree, extending roughly up to the area of the tower, may have been painted at the right edge. In the second phase, the water was painted more towards the foreground.[17] The XR shows that the upper part of the water has longer, more horizontal brushstrokes, whereas the lower part (slightly overlapping the upper) is somewhat more radio-opaque, with shorter brushstrokes in several directions. This alteration included the whale with the figures and the sinking ships. In this second phase, too, the hills around the donor were revised to a kind of plateau with green lake paint on top. The foliage on the left was added and the donor's hat was modified. In the third phase, the donor was painted out. At this time, the dark brown paint was added around his head, as well as the rock formation and the tree on the right, and everything below, to the parapet.

  It is not entirely clear when the third-phase changes occurred. There are similarities and discrepancies in build-up and technique of elements from this phase when compared to earlier phases of the wings and the central panel. In general, the central panel is painted more precisely, with more assurance and virtuosity, utilizing large-scale features, yet with refined detailing. The wings include many smaller components that were painted skilfully, but with less detail and precision. In the right wing, for instance, the cords of the sword of the figure at the lower right do not meet up properly at the sword-hanger, and the lead-tin yellow and lead-white highlights are placed more crudely than the lead-tin yellow and red (lead?) detailing of the sword in the central panel. The spiked club is painted less accurately, and the oval rings of the chain mail are positioned more randomly than those of a similar motif in the lower right figure in the central panel.

  The build-up of the red sleeve consists of a grey layer (covering the black of the donor), followed by a red layer, and wet-in-wet lead white for highlights. Some additional modelling was done with red lake. Since it was impossible to use the ground layer in this location, a different build-up technique was required for the skin tones. In such areas, there are some similarities with the central panel – mainly the pinkish highlights for the faces and the impastoed paint for the fingers, although the applied dark brown outline is not present. Previous cross-section research had revealed an intermediate resinous layer that fluoresces under UV. This could be a varnish or perhaps a saturating adhesive layer, suggesting that the extensive repainting of the wings was executed some time after its initial completion. We may assume that the figures of donors and other overpainted areas have become more visible over time because of the ageing of the paint and damage to the later overpainting.

FRAME

The panels are currently unframed. At the top right edge of the central panel, some red material was found on top of the ground but under the original paint layers (24MICGBM001). This could be a remnant of

a red bole, which would suggest that the original, engaged frame, now lost, was gilded.

A modern metal framework consisting of T and L profiles rigidly connects the three panels. Messing clamps are screwed onto the cradle members, blocking the movement of some of them. The auxiliary mounting frame does not extend above and below the painting. (Both the metal mounting frame and the cradles were removed during the 2013–16 treatment.)

CONDITION

The painting was restored in 2013–16, thus after the 2011 BRCP technical examination of the painting on which this text is largely based.

Support

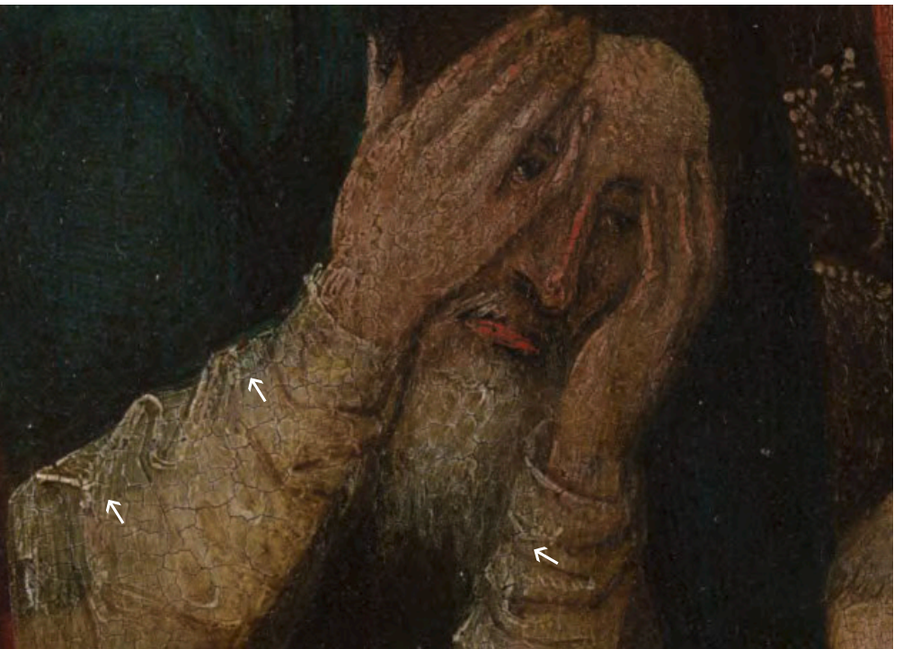
- ***Altered dimensions*** The central panel was thinned considerably, leaving most dowels intact, presumably to enable the flattening of the warped panel and the application of the cradle. The wings were thinned and cradled as well, but there the dowels have been exposed. The inner sides of the open wings currently have a thickness of about 0.5 cm, whereas the outer sides are about 0.9 cm thick. Several of the panel edges have been damaged to some extent (left wing: bottom left and right; central panel: bottom left; right wing: bottom left and right, and top centre). There are several nail holes in the unpainted edges of the panels. There are no signs of the fire damage that was suggested by some authors.[18]
- ***Additions*** A cradle was attached to the three panels, presumably in Vienna, and was later followed by an auxiliary metal mounting frame (see *Previous treatments*).
- ***Cracks*** In the left wing, a crack running the entire length of the panel can be distinguished (about 16.2 cm from the left side, seen from the front). In the central panel there are three cracks: one in the top centre, a longer crack in the bottom centre, and a smaller one at the bottom right. In the right wing, two small cracks with a difference in level are visible at the top and bottom right (seen from the front). On the reverse of the panels, as revealed by XR, the vertical cradle members cover the cracks.
- ***Deformations*** Over time, the attached cradle (and possibly also the metal framework) has resulted in an undulating surface of the panels.
- ***Joins*** The join in the left wing is partially open (mostly at the top). The XR examination of the central panel shows paint losses along the entire length of the join between the left and centre planks, indicating that the left plank was separated and readhered at some point. This is further supported by the presence of an empty dowel hole in this join (just above the centre), and by the fact that the lowest dowel hole contains half a dowel in the left plank, while the hole in the right plank is empty. The left join is only slightly open (top and bottom), but there are differences in levels, further confirming that the left plank had indeed come apart from the central one at some point. The right join remains mostly closed except at the top, where there are also level disparities.
- ***Coated reverse*** A spray coat of slightly matte varnish had been applied to the reverse of the thinned panels.[19] There are also some traces of ground and black paint near the bevels on the upper parts of the wings, which appear to be original (fig. 8.4). A cross-section from a paint sample of the left wing reverse has been analysed.[20] It has: (1) a chalk (calcium carbonate – $CaCO_3$) and animal glue ground; (2) an oil isolating layer (possibly part of layer RR 3); (3) a pigmented isolating layer consisting of lead white and some chalk and ochre pigments; (4) a bluish-black layer with carbon black and some chalk and aluminium-silicate. A non-original residue atop this build-up is similar to that found on the open triptych panels.
- ***Biological damage*** Old woodworm damage is evident on the reverses of the central panel and the left wing. On the front of these two panels some small exit holes spread over the painted surfaces can also be made out.

Ground and paint layers

- ***Stability*** The cradle is actively causing damage to the triptych. All three support panels are undulating. Paint is damaged and raised along cracks and joins. An overall rippling of the paint surface can be seen, and some slight cupping is visible, especially in the sky area of the right wing (see fig. 8.17).[21] In general, the adhesion of paint and ground is relatively good, with the exception of some blisters and raised paint. These areas are predominantly located in the left wing and the central panel, where they are spread over the surface but more concentrated around the martyr's left hand. Most craquelure is caused by natural dimensional changes of the panels. Where thick azurite with more binding medium was used, slightly broader cracks have formed in drying. In some parts where lead-white paint was applied on top of red, youth cracks – drying cracks caused by the application of medium-poor over medium-rich paint – are also visible.

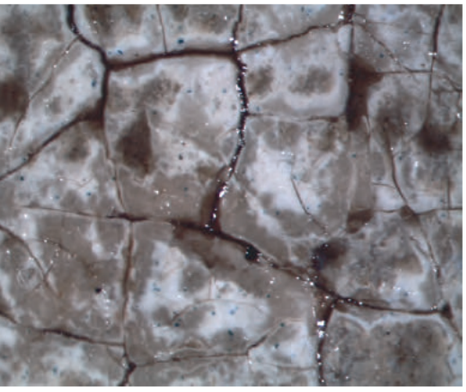
  Although lead-soap aggregate formation was observed in paint cross-sections and as opaque points in XRS in a number of areas spread over the surface of the painting, disturbing surface defects

8.15 **RR 24, VIS**

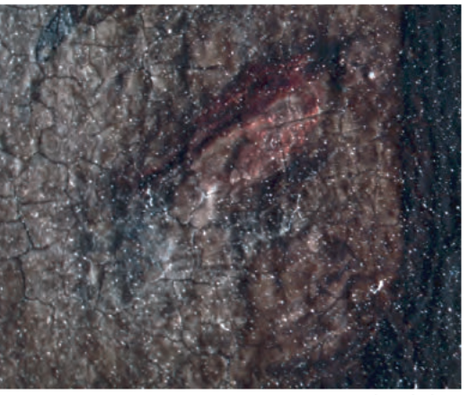


8.16 **RR 25, VIS**

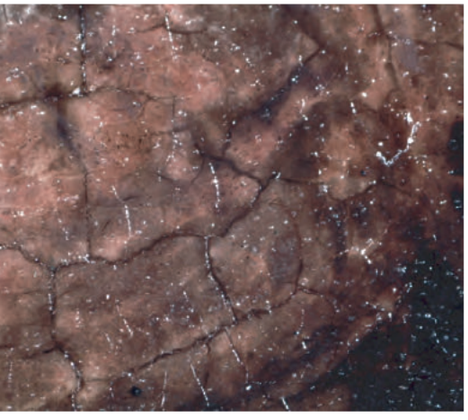




8.17 25MICGBM001



8.18 24MICGBM003, raking light



8.19 24MICGBM004



8.20 Mapping of micrographs reproduced here (8.17–19)

other than increases in transparency were hardly observed. 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 such 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. Such holes are visible to a limited extent, for example in the clothing of the man at the bottom right of the central panel.

- ***Losses*** There are many smaller losses to ground and paint that can be disturbing; for instance, in the white surface layer over the red robe of the martyr. Larger filled and inpainted losses are present in both wings, where they are mostly restricted to areas of landscape, especially around the large boat and the tower in the right wing.
- ***Abrasion*** The paint surfaces are severely abraded overall. The rippling and slight cupping of the paint have worsened this. In the central panel, the whitish modelling and red lake top layer covering many red areas has lost much of its originally subtle toning effects, and a similar issue is evident in several of the faces. Portions of the wings are abraded even more, which might well be related to the overpainting of the donor figures and large parts of the landscape there. Locally the barbs are slightly abraded as well.
- ***Discoloration and increased transparency*** The green glazes seem to have held up fairly well. Red glazes have faded somewhat, especially where applied thinly (e.g., on lead-white modelling of red clothes). Some paints containing lead white (including the skin tones) appear to have increased in transparency, causing greater visibility of the underlayers and/or ground layer and an unintended change of appearance. Especially in the sky area of the right wing, this effect may have been worsened by abrasion of raised paint (previous cupping; see fig. 8.17). A good example is in a sleeve (see fig. 8.15) that was left in reserve but subsequently enlarged with white paint, and which has now become largely transparent. The greenish appearance of the upper sky area is in part caused by discoloration of the ample oil binding medium of the azurite paint (see also below, *Varnish*).

- ***Filling, retouching and overpainting*** Extensive *rigatino*-style retouching is fairly easily discernible on all panels, even at some distance. These retouchings have a tempera base (in either watercolour or egg yolk), followed by a pigmented resin glaze.[22] The modern synthetic pigments chrome green (chromium oxide) and titanium white (titanium dioxide) have been identified in the retouches.[23] Losses were filled and inpainted, but most retouching was done on abraded areas. These retouchings have discoloured somewhat, but, in addition, they often do not match the original colours very well. They were mostly applied in separate dabs or strokes which, together with many remaining spots of old and severely discoloured varnish residues, result in an inappropriate and disturbingly vibrant effect. The uniformly whitish sky, for example, currently appears distractingly uneven. Furthermore, the retouchings regularly cover parts of the original paint. Many areas have not been inpainted properly (see fig. 8.16), further increasing the unbalanced impression of the surface.

  At some point in time, an infrared-absorbing greyish surface layer has been applied to predominantly lighter areas of the paint surface.[24] The greyish surface layer seems distinct from the more transparent, resinous or glue-like brownish residues that are present in many other areas of the painting. It seems that these are part of a pigmented toning layer, possibly applied during the 1951 Pellicioli treatment.[25]

  Questions have been raised in the past as to whether or not the female martyr portrayed here had a beard, which would make her identification as Saint Wilgefortis indisputable. The condition of the painting in 2011 did not allow for a definite answer in this regard, but the saint's chin and jaw are clearly abraded and appear to have been worked on and inpainted multiple times in the past. The raking-light micrograph indeed shows an irregular feature on her chin that is dissimilar to the surrounding paint (fig. 8.18), and the visible-light micrograph reveals a thick, resinous feature there (fig. 8.19). After removal of the discoloured varnishes, retouchings and non-original residues in this area in 2014, remnants of a subtle beard have become visible, confirming the identification of the saint (fig. 8.27).

Surface finish

- ***Varnish*** The appearance of the modern, brush-applied varnish is somewhat uneven, and the surface is speckled by a spray application of a slightly matte varnish. The thick varnish has yellowed, but the severely discoloured varnish residues of an underlying older layer are generally more disturbing, since they contribute to the greenish appearance of the blue sky, for example.
- ***Surface dirt*** There is only a small amount of surface dirt on the painting, and there are some remaining brush hairs from varnish application.
- ***Visibility of the original surface*** The saturation of the paint surface is relatively good, but darker areas are difficult to read. The yellowed, degraded varnish layers, especially the highly yellowed older varnish residues, have reduced legibility of the original paint surface, leading to a distorted perception, especially of the sky area. Some bright blue paint has been exposed near the top edge, which is now covered by discoloured oil medium and a thick oxalate-crust and have resulted in a green appearance. The combination of the inadequate retouches and the old overpaintings that have discoloured over time strongly distracts from the original surfaces.

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1 The text in parentheses could not be deciphered with certainty.

2 See Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 200–01.

3 The BRCP is very grateful to Alice Hoppe-Harnoncourt for archival research at the Kunsthistorisches Museum in Vienna.

4 See Nepi Scirè in Limentani Virdis et al. 1992, 176.

5 See Nonfarmale in Limentani Virdis et al. 1992, 187, who discusses the treatment of the three ensembles attributed to Bosch in the collection as a single work, without referring to specific paintings and panels.

6 Paintings conservator Giulio Bono and head of conservation Maria Chiara Maida, oral communication.

7 Klein 2001, 126. The youngest or last-preserved rings on the three planks of the central panel date from 1477, 1467 and 1480, respectively.

8 Possibly yellowed from excess glue.

9 Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 184, 200–01.

10 Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 184.

11 Rossi-Manaresi and Tucci in Limentani Virdis 1992, 183–86, 200–01.

12 For the water area in the right wing, a lower-quality, less pure azurite was mixed with lead white. Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 184.

13 According to Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 184, 200, and fig. 42, Type 1 lead-tin yellow was probably used here.

14 Analyses by Enrico Fiorin, chemist at the Soprintendenza di Venezia, identified both cinnabar (or vermilion) and red lead (or minium) in a cross-section made from a sample taken from the red robe of the figure bottom right of the central panel. The red lake appears to be of insect origin (carmine of either cochineal or kermes lake, based on its UV fluorescence). It was precipitated on an aluminium hydroxide base (determined by energy-dispersive X-ray spectroscopy [EDS]). The red lake glaze contains grains of silica, probably ground quartz, used to alter the working and drying properties of the paint. The cross-section also revealed lead-soap formation processes occurring (see *Stability*).

  It is quite possible that this fast-drying lead-white layer on top of a more slowly drying vermilion could account for the broader youth cracks. See Van Schoute and Verougstraete-Marcq in Limentani Virdis et al. 1992, 181.

15 Modern retouchings are also present, however, in brown and titanium white. The original parapet consists of a greyish layer (30 µm thick), containing lead white and some brown pigments. Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 200 fig. 40.

16 Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 200 fig. 39.

17 A cross-section was taken from the water area, revealing lead-tin yellow, verdigris and lead-white pigments in a layer underlying a mixture of lead white and azurite paint. Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 186, 200 fig. 42.

18 Baldass 1959, 237; Marijnissen 1987, 260.

19 Nonfarmale in Limentani Virdis et al. 1992, 187.

20 Analytical report by Enrico Fiorin, 11 April 2015.

21 Issues with raised paint were treated extensively during the last treatment. Nonfarmale in Limentani Virdis et al. 1992, 187.

22 See Nonfarmale in Limentani Virdis et al. 1992, 187.

23 Rossi-Manaresi and Tucci in Limentani Virdis et al. 1992, 186.

24 The exact nature and composition of this layer have yet to be determined, but it was applied onto old fills as well. The greyish layer seems similar to the one found in the *Hermit Saints Triptych* (see cat. 2, RR 27–31, 40).

25 Mauro Pellicioli often used glue as a patina and a medium for retouching. (Paintings conservator Giulio Bono and head of conservation Maria Chiara Maida, oral communication.)



8.21–23 VIS, after treatment





8.24–26 VIS, reverses after treatment (photos Matteo De Fina, Venice)



8.27 VIS, after treatment