




Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, visible light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

 TECHNICAL EXAMINATION REPORT

Portrait of Marie de Guise
after 1537

Workshop of Corneille de Lyon
Netherlandish, active in France, 1500/1510–1575

oil on wood panel
4-15/16 × 4 in.
(12.5 × 10.1 cm)

The Clowes Collection
2017.88

Overview

Accession number: 2017.88

Artist: Workshop of Corneille de Lyon

Title: *Portrait of Marie de Guise*

Materials: Oil (untested) on wood panel

Date of creation: About 1537

Previous number/accession number: C10027

Dimensions:

12.5 × 10.1 cm (original panel)

13.5 × 11.6 cm (with edge strips)

Conservator/examiner: [Roxane Sperber](#) with contributions from [Fiona Beckett](#) and [Gregory D. Smith](#)

Examination completed: 2020

DISTINGUISHING MARKS

Front:

None

Back:

None

SUMMARY OF TREATMENT HISTORY

The painting underwent treatment in 2019–2020. This treatment involved removing discolored [varnish](#) and mismatched [retouching](#). A new varnish was applied, and the painting was reintegrated using [inpainting](#). No documentation has been retained from previous conservation interventions, but physical evidence suggests the painting was significantly altered from its original construction before arriving at the IMA on long-term loan in 1972. The painting was thinned, trimmed, and [marouflaged](#) to a new panel that is visible on the back. A [cradle](#) and edge framing additions were also likely attached at this time.

The painting was examined in the Clowes Collection annual survey from 2011 to 2020.

CURRENT CONDITION SUMMARY

Aesthetically, the painting appears to be in good condition. Some distortions relating to previous damage are present, but the 2020 treatment reintegrated losses to minimize their distracting appearance. Structurally, the painting appears to be mostly sound despite extensive previous damage. Past splitting and damage to the wood can be seen with raking light, but these areas are stable.

METHODS OF EXAMINATION, IMAGING, AND ANALYSIS

Examination/Imaging	Analysis (no sample required)	Analysis (sample required)
<input checked="" type="checkbox"/> Unaided eye	<input type="checkbox"/> Dendrochronology	<input type="checkbox"/> Microchemical analysis
<input checked="" type="checkbox"/> Optical microscopy	<input type="checkbox"/> Wood identification	<input type="checkbox"/> Fiber ID
<input checked="" type="checkbox"/> Incident light	<input type="checkbox"/> Microchemical analysis	<input checked="" type="checkbox"/> Cross-section sampling
<input checked="" type="checkbox"/> Raking light	<input type="checkbox"/> Thread count analysis	<input type="checkbox"/> Dispersed pigment sample
<input type="checkbox"/> Reflected/specular light	<input checked="" type="checkbox"/> X-ray fluorescence spectroscopy (XRF)	<input type="checkbox"/> Fourier-transform infrared spectroscopy (FTIR)
<input type="checkbox"/> Transmitted light	<input type="checkbox"/> Macro X-ray fluorescence scanning (MA-XRF)	<input checked="" type="checkbox"/> Raman microspectroscopy
<input checked="" type="checkbox"/> Ultraviolet-induced visible fluorescence (UV)		
<input checked="" type="checkbox"/> Infrared reflectography (IRR)		<input type="checkbox"/> Gas chromatography—mass spectrometry (GC-MS)
<input type="checkbox"/> Infrared transmittography (IRT)		<input checked="" type="checkbox"/> Scanning electron microscope-energy dispersive X-ray spectroscopy (SEM-EDS)
<input type="checkbox"/> Infrared luminescence		<input type="checkbox"/> Other: <input type="checkbox"/>
<input checked="" type="checkbox"/> X-radiography		

Technical Examination

DESCRIPTION OF SUPPORT:

Analyzed Observed



Technical Figure 1: X-radiograph showing horizontal splitting in the support as well as fills. Elvacite 2046 was used to reduce the appearance of the cradle. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

Material Type (fabric, wood, metal, dendrochronology results, fiber ID information, etc.):

The painting was executed on wood panel with a horizontally oriented grain. The grain from the original panel can be seen in the X-radiograph (tech. fig. 1).

Characteristics of Construction/Fabrication (cupping, beveled edges of panels, seams or joins, battens):

The original support was constructed from a single wood panel.

Production/Dealer's marks:

None

Weave (structure, weight, thread thickness, etc.):

N/A

Auxiliary Support:

Original Not original Not able to discern None

The original support has been thinned and marouflaged to a new piece of wood that is 5 mm thick (tech. fig. 3: dark brown) and can be seen from the back. It is unclear if this was a full panel transfer, in which the original panel was completely removed down to the ground layer, or if the original panel was not entirely removed but rather significantly thinned and marouflaged. Due to the additions to the sides of the panel (tech. fig. 3, light brown and purple), the edges of the original panel are no longer visible. However, the thickness of the additions (4 mm), which are glued to the top of the auxiliary panel and are flush with the face of the painting, suggests that some of the original panel is still present.

A cradle with five fixed, horizontal members and three sliding, vertical members is attached to the back of the auxiliary panel (tech. fig. 2). Edge strips are attached to all four sides, with the horizontal strips extending the full width of the auxiliary panel and the vertical strips butt-joined to the top and bottom of the vertical strips. The edge strips are also similar in their grain to the painting and the added panel on the back.



Technical Figure 2: Cradle on back. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

The rationale for this intervention is difficult to determine. It is possible that splits in the panel prompted the addition of the auxiliary support and cradle, but it is also possible that the constraint of the auxiliary support caused the original panel to split. Woodworm damage, although relatively minor, is another possible reason for the intervention. It is also possible that the measure was taken as a preventive intervention or as a matter of course.

Thickness (for panels or boards):



Technical Figure 3: Diagram of the structure of the painting from the left edge, showing the cradle (orange, 7 mm thick), the auxiliary panel support (dark brown, 5 mm thick), the horizontal edge addition (purple, 4 mm thick), and the vertical edge addition (light brown, 4 mm thick). The face of the painting is flush with the top of the edge additions. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

It is unclear exactly how much of the original support remains, but it is likely to be approximately 4 mm given that the edge additions attach to the top of the new panel support and are flush with the face of the painting. The total thickness of the original panel and the new panel is approximately 9 mm. The cradle is 7 mm thick (tech. fig. 3: orange).

CONDITION OF SUPPORT

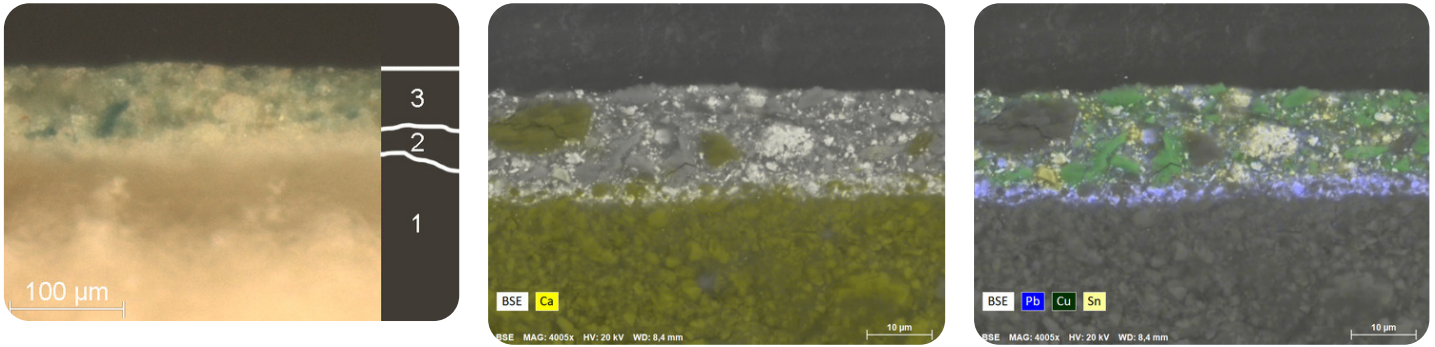
The support is currently in stable condition. The original panel suffered serious damage in the past, including two large splits across the entire width of the support, as well as losses and some insect damage. As seen from the X-radiograph, some boring holes were filled with an X-ray–dense material. Small nicks, dents, and slight wear to the wood are present around the edges. The cradle has not seized, indicating that since it was added the painting has likely been in controlled environments with limited changes in temperature and humidity. The cradle and auxiliary panel support appear to be in good and stable condition.

DESCRIPTION OF GROUND

- Analyzed
- Observed

Materials/Binding Medium:

[Cross section 2](#) shows the ground and [imprimatura](#) layers in an area of green background (tech. fig. 4). A layer of calcium carbonate (tech. fig. 5) ground, likely bound with an animal-skin glue (untested), has been applied to the panel, followed by a thin imprimatura layer composed of lead white (tech. fig. 6).



Technical Figures 4–6: Cross section sample 2 with a BSE showing an elemental map for calcium (yellow) in the ground and blue (lead) in the imprimatura. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

Color:

The ground is off-white (tech. fig. 4).

Application:

The ground was likely applied with a brush after the panel was coated with size. The ground was likely sanded or scraped before the application of the lead-white imprimatura, as the surface of the painting is very smooth.

Thickness:

The ground appears to have been applied in a single, relatively thin layer.

Sizing:

Although not visible in cross section, animal-glue size would have been applied to the panel prior to the ground layer.

Character and Appearance (does texture of support remain detectable/prominent?):

The ground layer is cracked in the manner typical of panel paintings and shows the texture of the wood grain throughout.

CONDITION OF GROUND

Where visible, the ground appears to be structurally stable. Aesthetically, in some areas the ground and overlying paint layers appear distorted due to previous damages. This is enhanced in raking light (tech. fig. 7). Several losses of the ground and paint can be seen in the X-radiograph (tech. fig. 1). An age crackle pattern, consistent with the horizontal wood grain of the panel, exists throughout the ground and paint layer. Additional cracking in the top left and right corners appears as radiating stress cracks. These may be related to the thinning of the panel and the addition of the second support and cradle. There are some small, old losses in the ground around the edges of the panel.



Technical Figure 7: Distortions and splits visible in raking light. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

DESCRIPTION OF COMPOSITION PLANNING

Methods of Analysis:

- Surface observation (unaided or with magnification)

Infrared reflectography (IRR)

X-radiography

Analysis Parameters:

X-radiography equipment	GE Inspection Technologies Type: ERESKO 200MFR 3.I, Tube S/N: MIR 201E 58-2812, EN 12543: 1.0mm, Filter: 0.8mm Be + 2mm Al
KV:	28
mA:	3
Exposure time (s)	90
Distance from X-ray tube:	36"
IRR equipment and wavelength	Opus Instruments Osiris AI infrared camera with InGaAs array detector operating at a wavelength of 0.9–1.7 μ m.



Technical Figure 8: Infrared reflectogram. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 201788.



Technical Figure 9: Detail of infrared reflectogram showing minimal underdrawing in the face. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 201788.

Medium/Technique:

Minimal underdrawing is visible in the infrared reflectogram (tech. figs. 8, 9). A few contours around the facial features can be observed, suggesting a minimal indication of the composition was undertaken before painting commenced. This is visible, for example, in the eyebrows, bridge of the nose, and eyes. The black paint of the sitter's clothing would obscure much of the underdrawing in this area, but it is likely that the lines continued in these areas. The medium used for the underdrawing appears to be a dry, carbon-containing material (such as charcoal or black chalk). The lines have a delicate quality; some are visible to the naked eye, for example, in the nose (tech. fig. 11), although they appear to be somewhat reinforced by light shading with paint.

Pentimenti:

Despite the presence of discernible underdrawing, no pentimenti are obvious. The careful, delicate application of underdrawing does not suggest the artist was working out the composition on the panel. Rather, a drawing or cartoon would have been used to establish the composition. It should be noted that another version of this composition is present in the National Galleries Scotland, confirming that the Clowes painting is one in a series of this composition.

DESCRIPTION OF PAINT

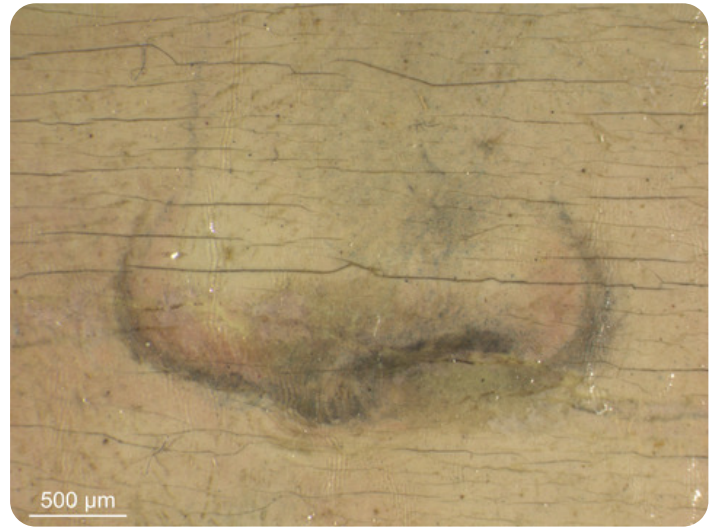
Analyzed Observed

Application and Technique:

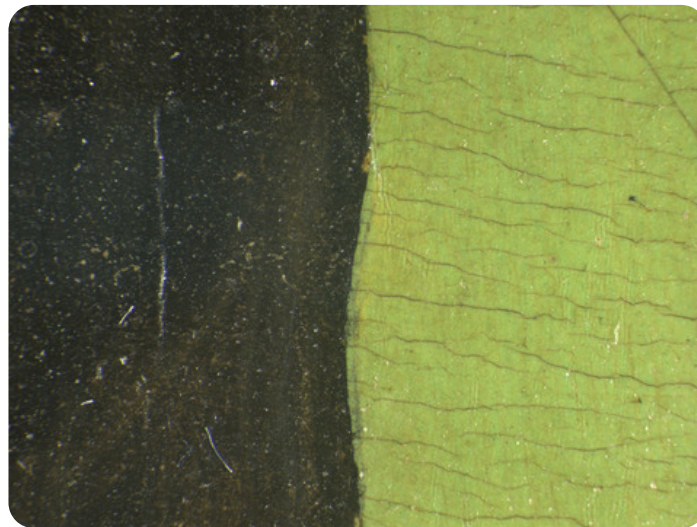
The artist applied the paint in small, careful brushstrokes over a thin ground layer and preliminary underdrawing. The features and details are delicately painted using thinly applied strokes of paint (tech. figs. 10, 11). Hints of blue are used to create subtle shadows in the sitter's face. The green background was painted after the sitter was completed, and green paint can be seen overlapping the black headdress (tech. fig. 12). Flesh paint with a touch of red is used in the woman's rosy cheeks and to articulate the lower eyelid. A light gray paint is used to outline such features as her nose, eyelids, and eyebrows. Gray is also used to reinforce the deepest shadows, such as the line of the woman's chin (tech. fig. 10). A slightly darker gray was used to paint the chain around her neck.



Technical Figure 10: Gray paint used to outline chin. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Technical Figure 11: Gray paint used to outline nose. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Technical Figure 12: Green background paint extending over the black headdress. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

Painting Tools:

Small paint brushes

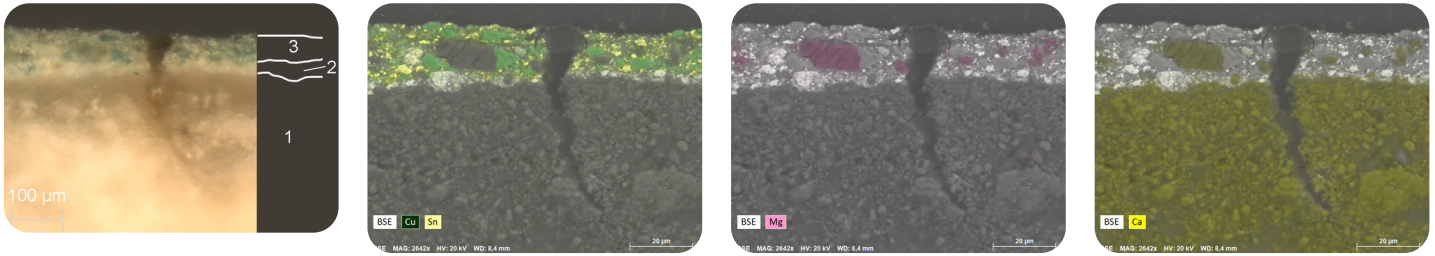
Binding Media:

Oil (untested)

Color Palette:

The palette is composed of white, black, red, brown, vibrant green, and small touches of blue. As with many portraits from the studio of Corneille de Lyon, the background is a light green color with slightly darker shading toward the edges. XRF analysis detected copper as well as tin and lead in the background, suggesting the green is composed of a copper-containing pigment mixed with lead-tin yellow (tech. fig. 17; table 1).

Cross section 2, from an area of light green background, shows the paint composition (tech. fig. 13). The layer is composed of a copper-containing green pigment, likely copper resinate or oleate, mixed with lead-tin yellow type 1 (confirmed with Raman microspectroscopy) (tech. fig. 14). Lead white does not appear to be in the mixture, as all areas of lead in the paint layer correspond to areas of tin. There are also large, transparent particles rich in calcium and magnesium (tech. figs. 15, 16). Raman microspectroscopy confirmed these particles are dolomite, suggesting that marble dust may have been added to the paint, possibly as a filler. Similar pigment compositions can be found in cross sections 1A and 2A from *Portrait of René du Puy du Fou*.



Technical Figures 13–16: Cross section 2 and the BSE showing the elemental distribution of copper (green), tin (light yellow), magnesium (pink), and calcium (dark yellow) in the light green paint layer. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

XRF analysis suggests that the skin tones were created by mixing lead white and iron oxide earth pigments with azurite to achieve the bluish undertones and vermilion to provide the pinkish hues. Not surprisingly, XRF of the red lips shows a stronger peak for mercury, suggesting the use of vermilion. The blue of the eyes yields a strong peak for copper, suggesting the use of azurite in this area.

XRF Analysis:



Technical Figure 17: Locations of XRF analysis. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

Sample	Location	Elements	Possible Pigments
1	Ground layer	Major: Ca Minor: Trace: Pb, Fe, Sr, Cu	Calcium-containing ground, trace of lead white, trace of iron oxide (earth pigments), trace of copper-containing green and/or blue pigment.
2	Green background	Major: Cu, Ca, Pb Minor: Sn, Fe Trace: Sr	Copper-containing green and/or blue pigment, lead-tin yellow, lead white, iron oxide (earth pigments), calcium (from ground layer).
3	Red lips	Major: Pb, Hg, Ca Minor: Fe Trace: Cu, Al	Lead white, vermilion, calcium (from ground layer), iron oxide (earth pigments including traces of umber), trace of copper-containing green and/or blue pigment, trace of aluminum (possibly the mordant for a red lake pigment).
4	Blue eyes	Major: Pb, Cu Minor: Ca Trace: Fe	Lead white, azurite, calcium from ground layer, trace of iron oxide (earth pigments).
5	Skin tone	Major: Pb Minor: Ca Trace: Fe, Cu, Hg	Lead white, calcium from ground layer, trace of iron oxide (earth pigments including traces of umber), trace of vermilion, trace of copper-containing green and/or blue pigment.
6	Skin tone shadow	Major: Pb, Cu Minor: Ca, Fe Trace: Hg	Lead white, azurite, calcium from ground layer, trace of iron oxide (earth pigments including traces of umber), trace of vermilion.
7	Black in headdress	Major: Pb, Ca Minor: Fe Trace: Cu, P, K	Possibly bone black, small amount of bone black, calcium from ground layer, lead white, iron oxide (earth pigments), trace of copper-containing green and/or blue pigment.
8	Gray in headdress	Major: Pb, Ca Minor: Fe Trace: Cu	Likely carbon black (unable to confirm using XRF), calcium from ground layer, lead white, iron oxide (earth pigments), trace of copper-containing green and/or blue pigment.
9	Brown hair	Major: Pb, Fe, Cu, Hg Minor: Ca Trace: Mn	Iron oxide (earth pigments), vermilion, lead white, copper-containing green and/or blue pigment, calcium from ground layer.

Table 1: Results of X-ray fluorescence analysis conducted with a Bruker Artax microfocus XRF with rhodium tube, silicon-drift detector, and polycapillary focusing lens (~100 μm spot).

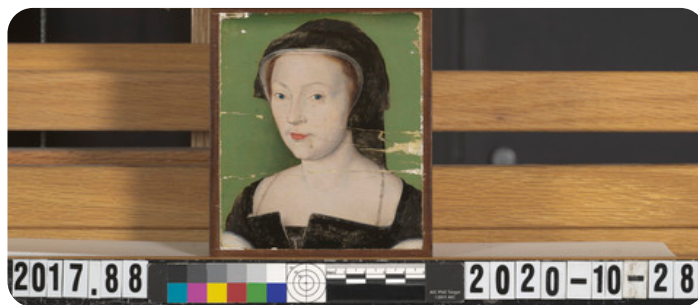
Surface Appearance:

The painting is smoothly painted using very little *impasto*. As seen in raking light, the surface is cracked and uneven due to past interventions and a wrinkled varnish layer (tech. fig. 7).

CONDITION OF PAINT

Following the 2019 treatment, the paint layer is in good condition. During that treatment, areas of lifting were stabilized, although undulations in the paint layer could not be remedied given the painting's physical history. The painting was likely trimmed on the edges, as most works from the Corneille studio fade to a dark green along the top and left edges. This is true of another version of this composition in the [National Galleries Scotland](#), which may be closer to the original composition of the work.

Previous damage to the paint layer is also present along the cracks in the face and neck of the woman, and in losses in the background (tech. fig. 18). It is unclear what caused these losses, but the invasive removal of the painting's original support and its transfer to a new wooden one were likely a contributing factor. A network of age craquelure, related to the wood grain, is present across the painting. The painting has been cleaned several times in the past, and *abrasion* likely removed some of the delicate nuances and shading in the face.



Technical Figure 18: Painting during 2019 treatment, after varnish removal and before inpainting. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

DESCRIPTION OF VARNISH/SURFACE COATING

Analyzed Observed Documented

Type of Varnish**Application** Natural resin Spray applied Synthetic resin/other Brush applied Multiple Layers observed Undetermined No coating detected

Technical Figure 19: Ultraviolet-induced visible fluorescence showing areas of inpainting along losses in the face. The synthetic varnish applied during the 2019 treatment has very little fluorescence. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

During the 2019 treatment, the painting was brush varnished with a 25% solution of Laropal A81 in Shellsol A100. The painting was inpainted with [Gamblin Conservation Colors](#) with Larapol A81 as the [binder](#). A spray varnish of 30% Larapol A81 in Shellsol A100 was applied. Adjustments were made to the [glazes](#), and a second spray coating was applied using the same varnish. Due to the application of a synthetic resin varnish, the painting does not fluoresce under ultraviolet-induced visible fluorescence (tech. fig. 19).

CONDITION OF VARNISH/SURFACE COATING

The varnish and inpainting are well saturated and well matched following the 2019 conservation treatment. The surface layers are in excellent condition.

DESCRIPTION OF FRAME Original/first frame Period frame **Authenticity cannot be determined at this time/ further art historical research necessary** Reproduction frame (fabricated in the style of) Replica frame (copy of an existing period frame) Modern frame



Technical Figure 20: Frame, front. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Technical Figure 21: Frame, verso. Workshop of Corneille de Lyon, *Portrait of Marie de Guise*, about 1537, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.

Frame Dimensions:

Golden liner frame: 19.0 × 17.5 × 2.7cm

Sight size: 12.3 × 10.5 cm

Distinguishing Marks:

No stamps or labels are present on the frame.

Description of Molding/Profile:

The frame is wooden with mitered corners on the front (tech. fig. 20) and butt joints on the back (tech. fig. 21). The front is covered in gold leaf and decorated with a toned brownish-pink paint layer over top of the gilding using the sgraffito method. An orange-red bole layer can be seen through the gilding. The decorative elements include flowers, leaves, and accentuating dots.

CONDITION OF FRAME

The frame is in stable condition. General wear is present throughout, and some abrasions are present. The mitered corners appear to be separating slightly, and cracking is present in these areas.

Additional Images



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, visible light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, back, visible light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



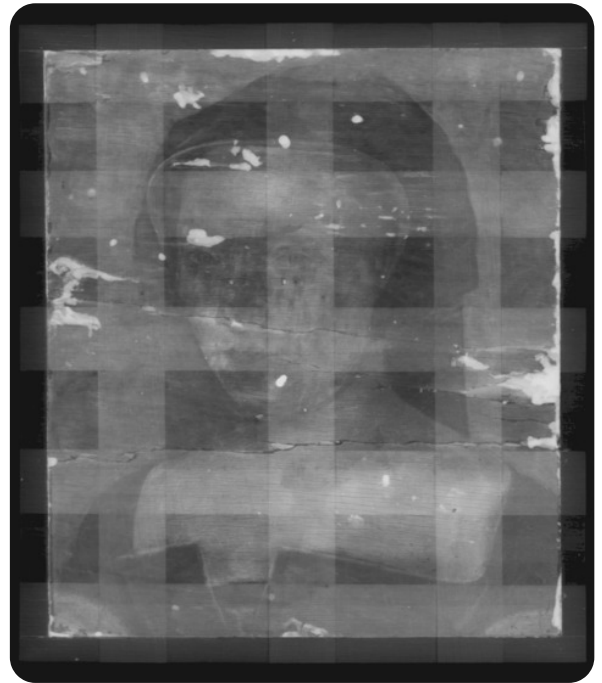
Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, raking light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, ultraviolet-induced visible fluorescence, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, infrared reflectography, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, X-radiography, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Workshop of Corneille de Lyon (Netherlandish, active in France, 1500/1510–1575), *Portrait of Marie de Guise*, after 1537, oil on wood panel, 12.5 × 10.1 cm, front, visible light, during 2019 treatment after varnish removal before inpainting, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Frame for *Portrait of Marie de Guise*, 19 × 17.5 cm, front, visible light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.



Frame for *Portrait of Marie de Guise*, 19 × 17.5 cm, back, visible light, Indianapolis Museum of Art at Newfields, The Clowes Collection, 2017.88.