Examination and Treatment of *Madonna and Child* by Agostino da Lodi

Annika Finne

The Conservation Center of Institute of Fine Arts, New York University
**Kress Number:** K1217

**Artist:** Giovanni Agostino da Lodi (Pseudo-Boccaccino)

**Title:** Madonna and Child

**School/Period:** ca. 1520, Milan/Venice

**Support/Medium:** Wood/oil (based on visual appearance; no media analyses)

**Dimensions:** 20.5 x 15 inches (52.1 x 38.1 cm)

**Owner:** Vanderbilt University

**Frame:** Dark wooden frame with gilt interior edge in floral pattern mimicking the gilt floral pattern on the red cloth hanging behind the Madonna and Child figures.

**Date of Treatment:** Fall 2013-Spring 2015

**Conservator:** Annika Finne, Masters Candidate, Conservation Center, Institute of Fine Arts, New York University (Under the supervision of Dianne Dwyer Modestini, Senior Conservator for the Kress Program in Paintings Conservation, Nica Gutman Rieppi, Associate Conservator for the Kress Program in Paintings Conservation, Margarita Berg, Kress Fellow in Paintings Conservation)

**Documentation:** Before treatment, during treatment, after treatment, (normal light recto, verso, overall, and details, raking, specular, ultraviolet, photomicrographs) x-radiography, infrared reflectography

**Analytical Techniques Performed:** PLM, Cross sections (K1217 x3; K1217 x5; K1217 x6)

**Signature, Marks, Labels or Notations:** Metal label on frame reads “Pseudo Boccaccino, Milanese school, circa 1520, Kress Study Collection. Numerous labels have been applied to the back of the frame including three labels applied by the Peabody College and Vanderbilt University, a black stamp reading “1217”, dimensions written in black felt-tip pen, and assorted writing in white chalk, which reads “Guest B/R” in one location, perhaps an indication of the painting’s original placement in Samuel H. Kress’ apartment.
Treatement and examination report

Provenance:
The provenance of the Madonna and Child begins with Don Jaime de Bourbon, Duke of Madrid, who kept the painting in the East Austrian castle known as Schloss Frohsdorf. From Austria, the painting moved to the collection of a “Kelly” in Paris, and subsequently to the collection of Count Alessandro Contini-Bonacossi in Florence. Samuel H. Kress purchased the painting from Contini-Bonacossi on the first of September, 1939, for 4000 dollars. In 1961, the Madonna and Child entered the collection of the then-Peabody College in Nashville, Tennessee.

Context:
The Madonna and Child is attributed by catalog entry and inscribed frame label to “Pseudo-Boccaccino”. The attribution is more a piece of art historical shorthand than a positive identification. In 1890, Wilhelm Bode coined the term “Pseudo-Boccaccino” to individuate an oeuvre of paintings previously attributed to Boccaccio Boccaccini. Since Bode, art historians have used signatures on works firmly within the Pseudo-Boccaccino oeuvre to identify this painter as Giovanni Agostino da Lodi. Francesco Malaguzzi Valeri first linked Lodi to Pseudo-Boccaccino in 1912; research in the last quarter of the twentieth century has confirmed the connection.

The attribution history of the Madonna and Child reflects this uncertainty about the identity of the painter. In 1939 Giuseppe Fiocco attributed the painting to an unknown “half Lombard and half Venetian” painter; in the same year Roberto Longhi attributed it to Pseudo-Boccaccino, an artist “sometimes identified with Agostino da Lodi”; in 1940 William Suida attributed it to Nicola Appiani, and at an unknown date F.M. Perkins attributed it tentatively to Giovanni Agostino. Lionello Venturi is the only scholar in the Kress files to firmly state that Giovanni Agostino created the painting. Given recent research linking signed works by Giovanni Agostino with Pseudo-Boccaccino and stylistic consistency with firmly attributed paintings, it seems likely that Venturi is correct.

Giovanni Agostino da Lodi painted actively in Lombardy from 1467, in Venice after 1500, and finally in Milan until 1524/25. Both his paintings and his drawings survive.

---

1 Samuel H. Kress Collection History and Conservation Database, Gallery Archives, National Gallery of Art.
2 Peabody College became Vanderbilt University in 1979.
5 Ibid., 29.
6 Photocopy of document, Kress Foundation Archives.
7 Bambach 28.
Other paintings attributed to Giovanni Agostino in the Kress collection include the *Adoration of the Shepherds*, c. 1505 in the Allentown Art Museum, *Saint John the Evangelist*, c. 1500-1510 in the El Paso Museum of Art, and *Saint Matthew the Evangelist*, c. 1500-1510, also in the El Paso Museum of Art. Amongst these general comparanda the *Madonna and Child* particularly resembles the *Adoration of the Shepherds*; similar small figural pairs populate the background landscapes.

Within early 16th century painting, the *Madonna and Child* falls in the specific category of half-length Madonna portrait before a parapet. This compositional format served a devotional purpose, acting as a focal point for prayer.8

The pose and surroundings of Giovanni Agostino’s Madonna correspond to such a devotional purpose. She glances downwards, towards the Child and the Child echoes her downward glance—though he looks in the opposite direction, towards the apple. Such a combination of gaze directions was common in late Quattrocento half-length Madonna portraits; the complementary orientations of the Madonna and Child would act to “embrace” the praying individual kneeling below the painting.9

The Madonna’s surroundings are laden with symbolism intended to prompt meditation during prayer. The apple placed atop the middle of the lower parapet and the pears hanging in the upper left corner refer to Christ as the Second Adam and Mary as the Second Eve; both pears and apples were orchard fruits associated with the Fall.10

The parapet and bas relief likewise hold symbolic connotations. Rona Goffen describes parapets in fifteenth century Madonna paintings as the “symbolic equivalent of the altar, the tomb, and the Virgin Mary, because Christ is contained in and emerges from each.”11 The bare tree in the classicizing bas relief, which implausibly grows from what appears to be a wall, is a “favorite motif in Veneto-Paduan devotional art of the 1450s” used to evoke the Crucifixion.12

Giovanni Agostino painted a number of other half-length devotional Madonna portraits which echo the Vanderbilt Madonna in composition, symbolically deployed fruit, and color scheme.

Amongst these comparanda, one remains in its original triptych format within the oratorio of St. Nicolas in Sedico. Here the central Madonna is flanked by two saints standing before a low horizon line, providing a possible illustration of how the Vanderbilt Madonna was once presented (Figures 3, 4, 5). Two saints by Giovanni Agostino in the El Paso branch of the Kress Collection echo the St. Nicolas saints in symmetrical format and low horizon line. The possibility that the two El Paso saints and the Vanderbilt Madonna were part of the same triptych

9 Ibid. 261.
10 Ibid. 21
12 Lightbown 261.
merits further investigation, though the Kress saints are slightly smaller than the Kress Madonna while the St. Nicolas saints are larger than the St. Nicolas Madonna.  

**Treatment history:**
The Madonna and Child carries a long history of restoration. Past treatments aimed to correct perceived faults in the painting’s structure—the warping of its panel—and the painting’s aesthetics—the odd proportions of the Madonna, the surprisingly vibrant color palette, the understated halo.

The restoration history can be divided into three phases based on surviving documentation and the stratigraphy of material on the painting’s surface. First, undocumented treatments prior to 1940, second, the 1940 treatment by Stephen Pichetto, and third, partially documented treatments after 1940. The following will discuss the actions of each phase and the apparent intentions of those actions.

**Treatments prior to 1940:**
The painting support, its panel, received a flattening treatment to address concave warping. The painting was laid face down, cuts were made in alignment with the grain direction on the verso side of the panel, pressure was applied to flatten the panel and open the cuts, and V-shaped sections of lighter-colored wood were inserted into the opened cuts to fix the panel in a flat shape (Figures 6-8).

These sections are visible through the interstices of the subsequently-applied cradle (Figure 7). Their current appearance implies that the painting was thinned at a later date, perhaps in association with the cradling—their width fluctuates, appearing thicker where the thinning cut remained shallow and narrower where the thinning cut ran deep.

The symmetrical, roughly equidistant positioning of the surviving sections also implies that a section in the center of the painting was entirely removed by the thinning process. The slight angle of the sections implies that the grain of the panel is not precisely vertical but also runs at a slight angle (Figures 7, 8).

The practice of panel-flattening by cutting grooves and inserting wooden sections, known in Italy as *sverzatura*, was described as early as 1866 by Giovanni Secco-Suardo and continues in the present day. The technique was also employed in Germany, Austria, and Switzerland in the 19th and 20th centuries. The shallow depth of the V-shaped cuts on the Madonna panel supports the dating of the restoration as relatively early intervention; in the postwar era it was

---

13 The Kress Madonna is 52 x 38 cm; the Kress saints in El Paso are 50 x 20 cm. The St. Nicolas Madonna is 64 x 44 cm; the St. Nicolas saints are the significantly larger 133 x 49 cm.
more common for restorers to cut “as close as possible to the original gesso” since, paradoxically, the more aggressive cut forms fewer cracks.16

The surface of the painting received fills and retouching. The aim of these interventions was twofold: first, compensatory, to soften and integrate areas of damage, likely in part caused by the warping panel. Second, aesthetic, to better align the look of the painting with contemporary taste.

The compensatory restorations were a response to extensive damage, illustrated by comparing a 1939 x-radiograph taken by Alan Burroughs with a 1939 photograph of the painting (Figures 19, 21). Burrough’s interpretation of the x-ray includes a vivid description: “Flesh heavily chipped and abraded....especially in the Madonna’s face, where so much paint is missing that it is impossible to determine the style.”17

The pre-1939 retouching can be distinguished from later campaigns by its character and by its appearance under ultraviolet light. While the later retouching appears applied via gestural dabs and darkens under ultraviolet light, the early retouching appears more subtly applied—often its perimeters blend with the surrounding paint. Under ultraviolet light its fluorescence is masked by the fluorescence of the coating varnish (Figure 20).

The aesthetic restorations seem aimed to make the painting fit into an expected type. Retouching removes perceived oddities, corrects perceived faults in draftsmanship, and cultivates a sense of the painting’s age. As these interventions appear in the 1939 photograph, they occurred prior to this date and, by extension, prior to the painting’s arrival in the United States.

The restorations targeted in particular the Madonna, altering her proportions, the fruit she holds, her halo, and the color of her robe. The proportional alterations shrank the Madonna’s forehead and her right hand. Retouches extending the Madonna’s veil slightly downwards over her hairline created the impression of a slightly larger veil and a slightly smaller head (Figure 9). Retouches completely covering the Madonna’s pinky finger—and slimming her ring and index fingers—created the impression of a daintier hand (Figure 10).

The fruit offered by the Madonna to the Child was repainted in what appears an effort to resolve its ambiguous identity (Figure 14). The original fruit resists definition: its color resembles that of a pomegranate and its flecks of painted gold could suggest pomegranate innards, but it is nearer to the size of a cherry. The retouching lightens the fruit to an orange-yellow tone and covers the flecks of gold, causing it to match the larger orchard fruit sitting on the parapet directly below the Child.

Large flecks of gold leaf and brown/green pigments were added to the Madonna’s halo (Figures 12-13). Prior to restoration, the original halo seems to have been a painterly cross-hatch of  

16 Rothe 193.
17 Photocopy of document, Kress Foundation Archives.
powdered gold, reminiscent of the halos in Giovanni Agostino’s Entombment (Figure 11). The gold leaf adds heft and brilliance to the halo, transforming it from a subtle translucent element floating before the dossal to a bright opaque element obscuring the dossal. The brown and green pigments seem intended to give the gold leaf an appropriate a sense of age.

Pigments applied in a toning varnish layer changed the color of the Madonna’s robe from a bright, saturated blue to a darker green-blue (Figures 15-16). X-ray fluorescence spectroscopy (XRF) and polarized light microscopy (PLM) analysis suggest that the pigment can be identified as emerald green. A stronger copper peak appears in the XRF reading of an uncleaned area of the robe relative to a cleaned area, and rosette-shaped pigment particles can be seen in a dispersed sample (Figures 17-18).18

The identity of the toning pigment offers a possible date range for these early restorations. Emerald green was used in a discrete window of time, extending from its commercial availability in 1814 until the early 1900s as it was extremely toxic.19

A nineteenth-century date is also consistent with the general character of the aesthetic interventions. The intentions guiding the interventions seem to range amongst correcting perceived faults in draftsmanship, cultivating a sense of the painting’s age, and increasing the painting’s tonal harmony by reducing sharp color contrasts. Documented nineteenth-century treatments often reflect similar changes, while contemporary writing promotes and provides conceptual justification for these interventions.20

It is possible that the Giovanni Agostino Madonna passed through the studio of the restorer Luigi Cavenaghi. Cavenaghi’s teacher, the prominent Milanese restorer Molteni, often used the toning varnish technique.21 Cavenaghi also treated another Madonna and Child painting by Giovanni Agostino and was closely associated with Bernard Berenson, who was in turn associated with Samuel H. Kress.22

**Pichetto treatment:**

---


19 Ibid.


21 Ibid. 24.


consists of alternating layers of dammar in turpentine and shellac in alcohol. Mario Modestini describes the process as:

“...trickier than it sounds; the shellac had to be applied quickly without picking up the varnish underneath. Small, flat, soft haired brushes were used for applying the shellac, which was brushed on in short strokes in one direction. Sometimes Picchetto built up a sort of dam around the picture onto which he poured varnish.”23

At the time, the painting condition was noted as poor and “abraded throughout”.

The cradle appearance corresponds exactly to Mario Modestini’s description of cradles applied by Steven Pichetto: “The Pichetto cradles are instantly recognizable: fixed vertical members of varnished mahogany and sliding members of clear pine, lightly waxed, each approx. 3/4 inch thick...”.24

In addition to applying the cradle, Pichetto likely removed a rectangular section of wood from the lower left hand corner of the panel and inserted a replacement section of darker wood. Though this is not mentioned in the treatment report, the wood resembles the vertical crossbars of the cradle.

Before and after treatment images offer a more specific description of how Pichetto altered the surface of the Madonna and Child (Figure 19). In addition to compensating for loss, the retouching simplifies the painting’s aesthetics: Pichetto evened variations by smoothing the tone of the background dossal, eliminating the star-shaped emanation from the halo, and removed the cast shadow behind the Madonna.

In smoothing the image presented by the painting, Pichetto’s retouching works in tandem with his application of French varnish, which smoothed in turn the physical surface of the painting. The thickness of this varnish—vividly suggested by Modestini’s description of a ‘dam’ around the picture—would allow it to settle into an even film atop the uneven painting surface.

**Post-1940 partially documented treatment, presumably by Gustav Berger:**
The Madonna and Child was treated at least one additional time between the Pichetto treatment and the present day. In the spring of 1971, Lucius B. Dubose, curator of the Fine Arts Museum at the Peabody College, wrote to Mary M. Davis, then vice-president of the Kress Foundation, to express his concern about the condition of Kress paintings in the Peabody collection.25 Davis recommended that Dubose monitor the environmental conditions of the paintings to keep the temperature between 70 and 74 degrees and relative humidity between 47 and 50 percent. She

---

24 Ibid. 46.
requested photographs, which he presumably provided, as in a subsequent letter she recommends he send the Madonna and Child (along with the Kress painting of Saint Sebastian) to Gustave Berger in New York for treatment. Dubose’s photographs and documentation of Berger’s treatment do not survive.

Large, discolored resinous drips on the face of the painting are likely from the 1971 treatment; these drips resemble drips on the Saint Sebastian also mentioned by Dubose. The position of the drips above particularly raised, blistering areas suggests that they are the byproduct of a consolidation attempt (Figures 46-49).

**Examination and Condition Report**

**Support:**
Based on the painting’s 16th century date and northern Italian point of origin, poplar was most likely used to construct the panel.

The panel consists of a single piece of wood with grain running in the vertical direction. No visible join lines run across the top or bottom of the panel and the sides show a relatively tight, vertically oriented, pattern of wood grain.

The panel was trimmed to its current dimensions at some point after Giovanni Agostino completed the painting. Exposed insect channels, visible on the left and right sides, indicate that the wood has been cut—an untampered piece of wood will show only the exit holes of insect larvae. The ground layer also does not drip over the panel sides.

The current thickness of the original panel is 1/2”. As described in Treatment History, the panel has been thinned, flattened and cradled.

The cradle is composed of 11 vertical members with beveled top and bottom edges and 13 horizontal crossbars. The two external vertical members are thicker than their fellows and all vertical members are made of a darker wood than the horizontal crossbars. The vertical members are fixed while the horizontal crossbars are theoretically free to move with the movement of the panel, though most are now wedged into position.

**Condition of support:**
The substance of the support appears stable; the wood does not appear to have lost structural integrity from insect damage.

The panel may benefit from removal of its cradle. The cradling—and previous insertion of wooden sections—flattened the panel, placing the paint layers into compression, raising blisters and lines of tented paint. Though much of the paint along and around these raised areas is already damaged from subsequent consolidation and fills, removing the cradle may allow the
panel to re-warp and give the raised paint room to relax back onto the panel surface. However, it is also possible that the wooden sections would have to be removed along with the cradle in order to allow any re-warping. Should the cradle be removed, the panel appears sufficiently thick to not require a new auxiliary support.

**Ground and preparatory layers:**
A white ground was applied to the panel, presumably after the wood was sized with rabbit skin glue. The ground can be seen through losses in the paint layer on the upper and right edges of the painting. In cross-sections the texture of the ground appears quite fine, with no large inclusions (Figures 38,40).

The light tonality of intact paint in the x-radiograph, particularly relative to areas of loss, and the presence of lead peaks in x-ray fluorescence spectroscopy readings of multiple colors within the painting suggest that an *imprimitura* containing lead white was applied over the ground layer.

No raised lip of ground runs along the perimeter of the panel, indicating that an engaged frame may not have been part of the original design.

**Design:**
The design of the painting was established through underdrawing, tool-guided incisions, and freehand incisions.

The infrared reflectogram image of the Madonna and Child shows two different types of underdrawing. The first articulates the folds in the lower portion of the Madonna’s robe with relatively thick, angular painted lines (Figure 25). The second articulates the folds of the Madonna’s veil and searches for the edges of the figures, running in concentric arcs around the Christ child’s right shoulder and the Madonna’s right cheek (Figures 26-27). It appears lighter and more curvilinear than the first drawing campaign, aiming to refine forms rather than roughly establish forms.

Tool-guided incisions both help establish the rough composition and act as a freestanding decorative feature. Ruler-drawn incisions run vertically along the intersection of the sky with red dossal and horizontally along the edges of the foreground ledge and the molding above and below the relief frieze (Figure 23). These appear preparatory, they cut through the initial paint layer but lie beneath subsequent layers of paint. In contrast, the compass-drawn incision delineating the exterior of the Madonna’s halo appears not preparatory but part of the final image: it is wider than the ruler-drawn incisions, possibly established through multiple passes, and cuts through the top paint layer to leave a two raised ridges along its borders (Figure 22). A moment where the compass jumped and was re-started can be seen directly above the Madonna’s head.

Freehand incisions outline the piece of fruit placed on the center of the ledge below the Christ child; they are wider and more wobbly than the tool-guided incisions (Figure 24). Possibly a
sketch of the central fruit was transferred to the panel by tracing a pre-existing drawing with a stylus; the incisions may be a consequence of this transfer process. Similar incisions do not sketch the hanging fruits in the upper left corner.

**Edits to the painting:**
Two edits altered the folds of the Madonna’s garments. One elaborated on a simple set of folds in the Madonna’s veil, adding angled creases; the other simplified and softened an angular set of folds in the front of the Madonna’s red dress.

The first occurred in the drawing stage. The infrared reflectogram shows a rejected curvilinear shape to the veil as it folds over the Madonna’s shoulder alongside the angular set of folds subsequently realized in the final painting (Figure 28). The second occurred in the painting stage. The x-radiograph shows an additional angled crease—likely modeled in lead white—in the center of the Madonna’s red dress. This crease is only faintly visible in the finalized painting (Figure 29). These edits differentiate the fabric of the red dress from the fabric of the purple veil, the former feels softer and lighter; the latter feels stiffer and heavier.

The paint is applied with firm correspondence to the basic outlines of figural forms and clothing, and looser, more gestural correspondence within the figures and areas of expressive detail and highlight. Examples of firm correspondence can be seen in the divide between the orange interior portion of Mary’s robe and the exterior blue portion--the network of cracks specific to the orange cloth does not extend into the blue cloth in any location. Similarly sharp edges can be seen where the Madonna meets the red cloth and background frieze.

Both the crosshatched lines of powdered gold inside the Madonna’s halo and the crosshatched lines in the background of the sculptural frieze appear applied freehand, without the help of a ruler.

**Gilding:**
Gilding is used both as a representational tool, articulating the Madonna’s halo and the pattern on the red background cloth, and as an accentuating tool, highlighting the folds of drapery worn by the Madonna, the Christ Child, and the small figures in the landscape (Figures 30-31).

A motif of alternating gilt stars and flowers arranged in a grid pattern extends across the red background cloth. The linearity of the design indicates use of mordant gilding, where gold leaf is laid over an oil binder, or mordant, painted in the intended design pattern. The straightness and regularity of the star motif and the central cross axis of the floral motif indicate that a ruler was used to paint the oil binder. The petals of the floral motif were added freehand to the central cross axis; they vary slightly in size and shape.

Abraded gilding is visible on the orange cloth of Madonna’s robes. This gold appears over the light to mid-tones of the orange but not over the shadow areas; possibly the orange cloth was intended to read as golden cloth.
There are faint traces of gilding on the Madonna’s red gown (Illustration 1).

Illustration 1: Traces of gilding on red gown.

Condition of gilding:
The gilding is abraded in the Madonna’s halo and robe lining. It is better preserved on the Christ Child garment and in the pattern on the background cloth.

Paint and pigments:
The translucent, saturated glazes in the Madonna’s robe and the painting’s 16th century, northern Italian context suggest Giovanni Agostino used an oil medium, possibly atop or in combination with egg tempera for certain details.26 No binding analysis was conducted.

In creating the painting, Giovanni Agostino left certain features in reserve. The bright red dossal—applied with a relatively wide brush and energetic strokes—encircles the Madonna and her cast shadow; it does not run beneath the two forms (Figure 29). Likewise, the similarly energetically-applied paint beneath the background frieze encircles the Madonna; the smoother

---

paint of the sky encircles the mountains. In contrast, the figures of the sculptural frieze were painted atop this energetic lower layer; the hanging fruits were painted atop the sky, and the distant figures were painted atop the mountain.

Texture separates different features within the painting. The sky and the Madonna’s veil are smooth; the dossal and the Madonna’s robe show brushstrokes with light, even ridges. The Madonna’s fingers are smooth, the background frieze shows brushstrokes with pronounced, stiff ridges. The blue background mountains are smooth; the bushes before them are filled with small rough peaks, likely from a brush dotted onto—rather than stroked across—the panel (Figure 34).

Glazes also accentuate and differentiate between certain features. On the background dossal, a glaze was applied specifically to the area surrounding the Madonna’s halo; the halo interior was left un glazed. Though the visual difference is subtle due to the degradation of the glaze layer—and x-ray fluorescence spectroscopy produces readings consistent with vermillion for both areas—ultraviolet light and cross-sections illustrate the difference between the two. Inside the halo, the dossal absorbs ultraviolet light to appear dark in a manner consistent with pure vermillion; outside of the halo, the dossal does not appear dark, suggesting that a layer lies atop the vermillion layer (Figure 35).

This additional layer can be seen by comparing cross-sections taken inside and outside the halo—the former has just a layer of red paint; the latter a layer of dark red material atop a layer of red paint (Figures 35-40). Under ultraviolet light, this dark red material partially fluoresces a light pink, suggesting that the glaze layer contains red lake pigment (Figure 40).27

Evidence of another specifically applied glaze can be seen on the Madonna’s veil. Here, many regularly-dispersed small dots—with a darker, more blue-purple color than their surroundings—pattern the veil surface. In this regular patterning, the dots resemble those observed on the mantle of the Virgin in Garofalo’s The Vision of St. Augustine (Figure 33). Here Garofalo first applied an ultramarine glaze and second blotted it with a piece of fabric, likely in order to even his glaze.28 Such patterning does not appear elsewhere in the painting; Giovanni Agostino appears to have used this technique exclusively for the Madonna’s veil.

Pigments:
Blue is present in four locations: the Madonna’s robe, the Madonna’s veil, the background sky, and the background mountains. The pigment used is likely ultramarine. Its appearance in normal light—vivid and translucent—and its appearance in a false-color infrared image—slightly reddish—are both consistent with ultramarine (Figure 41). Given the date and context of the painting, the other likely candidate for a blue pigment would be azurite, but x-ray fluorescence readings of robe and sky did not show the peak for copper characteristic of azurite.

Mercury peaks in x-ray fluorescence readings of red areas suggest the use of vermilion; copper peaks in green areas suggest the use of a copper-derived green, arsenic peaks in readings of the yellow-orange interior lining of the Madonna’s robe suggest the use of orpiment or realgar.

**Condition of paint and pigments:**
Losses to the paint layer are extensive. Two large, vertically oriented, oblong losses to paint and ground layers, with associated fills, run through the body of the Christ Child, the right side of the Virgin’s mantle lining, and the background sky/landscape. Discrete, ovoid losses to the paint layer, possibly caused by isolated blisters and exacerbated by treatments intending to flatten them, occur in the sculptural frieze and the lower right portion of the Virgin’s robe. The particular concentration of paint loss in the face of the Virgin and Christ Child suggests the flesh tones did not adhere as strongly to the ground layer as other areas. The blue of the robe, for example, does not show the same number of flaked losses (Figure 43).

The patchy appearance of the likely red lake glaze on the dossal suggests it was partially abraded or removed by a past cleaning. A similarly patchy appearance on certain areas of the Madonna’s robe, particularly where it covers her knees, suggests a similar loss to a blue glaze layer.

Two different types of cracking occur in the paint layer: linear cracks and crack networks. Linear cracks, oriented vertically and caused by wood movement perpendicular to the vertical grain direction, appear with particular prominence to the right of the Madonna’s PL eye, to the right of the figures in the background, and bisecting the forearm of the Christ Child. Paint in these areas appears compressed from past consolidation efforts but not lifting (Figure 42).

A clearly articulated network of cracks appears specifically in the orange interior lining of the Madonna’s robe. The islands formed by the cracks are polygons of roughly equal height and width. The network does not extend into adjacent areas of red and blue.

**Varnish:**
A thick, multi-layer coat of varnish covers the painting. Under ultraviolet light, the varnish fluoresces a warm, yellowish-blue green, indicating that it is at least in part a natural resin.

Drips of a soft, resinous material, located over the background frieze and the red hanging cloth to the PL of the Madonna, lie on top of this layer (Figures 46-49). The varnish is wrinkled along the perimeter of these drips and they appear slightly darker than their surroundings under ultraviolet light. FTIR analysis shows a reading consistent with that of aged amber varnish and Ethomeen C/25, a surfactant now known as the basic component added to Carbopol polymers to aid in the formation of solvent-containing gels (Figure 44).

The topmost layer of varnish appears to have been sprayed onto the painting. In raking light, a stippled pattern resembling the peel of an orange can be seen on the hanging cloth and in areas of the Madonna’s robe (Figure 45).
**Treatment**

**Structural treatment**
The crossbars of the cradle were removed to lessen the rigidity of the cradle. The lowest crossbar proved to be jammed. The painting was sent to George Bisacca, conservator at the Metropolitan Museum of Art, to ensure its safe removal.

**Consolidation:**
The painting was locally consolidated with Rhoplex AC-33\(^{29}\) in two areas that sounded hollow when tapped. First, the background frieze, and second, the leaves of the upper rightmost plant (see Illustration). An acupuncture needle was used to create a small entry hole for the consolidant in both locations.

Illustration 2: Consolidated areas.

**Cleaning:**
Accumulated dirt and dust were first removed from the surface of the varnish with a mild enzymatic solution.

Removing the varnish layer involved several techniques. Its thickness, and its grip on highly textured areas of the painting, prompted the use of both solvents and mechanical action—the varnish was first swelled by the application of ethanol and subsequently removed with a blunt knife. Acetone was used to swell the majority of the varnish atop the dossal; its faster evaporation rate helped to prevent swelling of the remaining glaze layer. A solution of acetone and benzyl alcohol (at a ratio of 94:6) was used to swell varnish atop the more highly textured sky area.

---

\(^{29}\) Aqueous acrylic emulsion manufactured by Rohm & Haas and distributed by Conservation Resources. See [http://cameo.mfa.org/wiki/Rhoplex_AC-33](http://cameo.mfa.org/wiki/Rhoplex_AC-33).
The majority of the old retouching was easily soluble in ethanol and was removed in the course of removing the varnish.

Past retouching in the sky area was not readily soluble. The retouching was reduced mechanically by applying methylene chloride in a wax emulsion\textsuperscript{30} beneath the microscope.

**Compensation:**
A putty, comprised of China clay and bologna chalk mixed with 10% rabbit skin glue, was used to fill particularly wide cracks and losses and to bring existing fills to level.

A brush coat of Talen’s varnish was applied prior to retouching.\textsuperscript{31}

Four media were used for retouching: dry pigments in Mowolith 20 medium, diluted with ethanol and extended with ethylene glycol; Maimeri resin colors—for losses to deep, saturated colors—diluted with turpentine; gouache—for adding body to textured losses—diluted with water and oxgall to cut surface tension, and watercolor for final glazes, diluted with water (Figures 54, 58, 59).\textsuperscript{32}

After-cleaning detail photographs helped to guide retouching of the Madonna and Christ Child faces. In these areas of extensive loss, the photographs provided a clarifying reminder of where islands of original paint survive, helping to prevent inventive reconstruction.

**Retouching of particularly damaged areas:**
Reference photos of other paintings by Giovanni Agostino and paintings by contemporary painters have helped the reconstruction of particularly damaged features.

A mirrored and tilted detail image of the Christ Child foot from Giovanni Agostino’s 1505 *Adoration of the Shepherds*—held within the Kress Collection of the Allentown Art Museum—provided a model for the damaged right foot of the *Madonna* Christ Child (Figures 60-62).

A clear model for the damaged collar of the Madonna is not available. X-radiography suggests that no original paint remains in the semicircular section of the collar; the area appears markedly

---

\textsuperscript{30} Creamy emulsion, pH 7, with a beeswax base. Manufacturer: Zecchi, Florence, Italy. Approx. 3 drops methylene chloride in 20 ml creamy emulsion.

\textsuperscript{31} Talen’s Retouching varnish 004. Cyclohexanone resin and white spirit. Manufactured by Royal Talens, Apeldoorn, the Netherlands.


Maimeri Restoration Colors consist of pigments ground in mastic resin (see “Materials Database,” Museum of Fine Arts, Boston. Manufactured by Industria Maimeri, Bettolini di Mediglia, Italy.

Gouache and watercolors manufactured by H. Schmincke & Co.-GmbH & Co. KG. Erkrath, Germany.
darker than its surroundings (Figure 65). The existing triangular decoration also does not resemble the decoration of other collars painted by Giovanni Agostino.

A Madonna by Bramantino in the Metropolitan Museum of Art collection has several features that match the Giovanni Agostino Madonna. She wears a robe with similar pleats, holds a similar fruit, and has similarly large hands. Her veil-like collar has an inscription reading “Ave Regina Cella”. After “Cella” there are several vague, letter-like triangles that recall the triangles on the collar of the Giovanni Agostino Madonna (Figure 66).

Perhaps a similar inscription once decorated the collar of the Giovanni Agostino Madonna and the current triangular shapes are a generalized reference to the original lettering. However, the possibility is too speculative to guide any reconstruction.

Retouching was locally varnished with Mowilith 20 in ethanol and Talens Retouching to render a gloss similar to that of the surrounding original. The surface was given a final varnish of mastic in turpentine containing a small amount of beeswax.
Before treatment

Figure 1: Before treatment, overall
Figure 2: During retouching
Posited reconstruction of original format


Figure 3, right: Posited reconstructed format of Kress Madonna based on similarity to Oratorio di San Nicolo panel.

Figure 4: Color detail, *Madonna and Child with St. Nicholas and St. Rocco*.

Figure 5: Color detail, posited reconstructed format.
Restoration history: structural treatment

Figure 6: Diagram illustrating panel-flattening technique of cutting grooves and inserting wooden sections.

Figure 7: Top: X-radiograph detail showing section locations; bottom: verso detail showing remaining V-shaped sections of lighter-colored wood.

Figure 8: Locations of remaining sections superimposed on image of painting.
Restoration history: edits to proportions of Madonna

Figure 9: Left, before treatment image showing shrunken forehead size; center, before and after cleaning image overlay to illustrate size of alteration; right, after cleaning image showing unaltered forehead size.

Figure 10: Left, before treatment image showing shrunken and overpainted fingers; center, during cleaning image to illustrate size of alteration; right, after cleaning image showing unaltered fingers.
Restoration history: edits to halo and fruit


Figure 12: During cleaning detail of halo showing gold leaf and brown/green pigments applied over painted gold halo.

Figure 13: During cleaning detail illustrating character of halo alterations.

Figure 14: Above, detail of retouched fruit; below, detail of fruit without retouching.
Figure 15: Before treatment detail of blue mantle, showing green tone from pigmented varnish.

Figure 16: After cleaning image showing brighter, saturated blue.


Figure 18: Overlay of elemental peaks generated by x-ray fluorescence spectroscopy. The blue line shows a reading of the toned varnish over the mantle; the red colored line shows a reading of the cleaned mantle.

See difference in copper peak suggesting presence of emerald green.

Restoration history: edits to color scheme
Restoration history: 1939 treatment

Figure 20: Left, ultraviolet detail; right, normal light detail showing two different retouching campaigns: one (black arrow) recent and visible under UV; the second older and not visible under UV (white arrow).

Figure 19: Left, 1939 image before restoration; right, 1940 image after restoration.

Figure 21: 1939 x-radiograph taken by Alan Burroughs.
Painting technique: use of incisions

Figure 22: Normal light and x radiograph detail of incised lines in Madonna’s halo.

Figure 23: Normal light and x radiograph detail of incised lines in architectural molding.

Figure 24: Normal light and x radiograph detail of freehand incisions in foreground fruit.
Painting technique: underdrawing

Figure 25: Left, infrared reflectogram detail showing angular underdrawing beneath robe; right, normal light detail.

Figure 26: Left, infrared reflectogram detail showing light lines searching for exterior edge of the Christ Child shoulder; right, normal light detail.

Figure 27: Left, infrared reflectogram detail showing light lines around cheek of Madonna; right, normal light detail.
Painting technique: edits

Figure 28: Infrared reflectogram detail and normal light detail showing edit to Madonna’s veil.

Figure 29: X radiograph detail and normal light detail showing edit to front folds of Madonna’s red interior garment.
Painting technique: gilding, character of paint application

Figure 30: Left, detail of gilding on Christ Child garments; right, detail of gilding on the small figures in the landscape.

Figure 31: Detail of two gilt stars showing ruler-drawn cross and freehand petals.

Figure 32: Left, detail of veil of Madonna showing dotted pattern

Figure 33: Detail of virgin's mantle in Garofalo, "The Vision of Saint Augustine," Dunkerton et. al. 31.

Figure 34: Details illustrating differential texture.
Figure 35: Detail of partially cleaned halo demonstrating differential fluorescence inside versus outside halo.

Figure 36: Location of cross-sections on painting.

Figure 37: Photomicrograph of cross-section location.

Figure 39: Photomicrograph of cross section location.

Painting technique: glazes

Figure 38: Cross section X5 under normal and ultraviolet light, objective 20x.

Figure 40: Cross section X6 under normal and ultraviolet light, objective 20x; white arrow indicates pink fluorescence.
Figure 41: Infrared false-color image of painting; the red tint to the blue in the sky and in the robe suggests the use of ultramarine blue.
Condition of paint layer

Figure 42: Raking light details illustrating paint layers compressed into blistering lines of raised paint, likely caused by flattening treatments.

Figure 43: After cleaning details showing paint loss associated with blistering paint; previously covered by retouching.
Condition of varnish layers

Figure 44: FTIR reading of varnish layer showing rough peak correspondence to Ethomeen C-25.

Figure 45: Photomicrograph showing stippled texture to varnish.

Figure 46: Photomicrograph of resinous drip on dossal.

Figure 47: Specular light detail of drips, right side of painting.

Figure 48: Photomicrograph of drip on relief frieze.

Figure 49: Detail of resinous drip, left side of painting.
Surface, before treatment, specular light

Figure 50: Before treatment, specular light.
During cleaning

Figure 51: During cleaning, overall.
During cleaning

Figure 52: During cleaning, overall.
After cleaning

Figure 53: After cleaning, overall
During retouching

Figure 54: During retouching, overall
Before and during treatment details of painting texture

Figure 55: Left, before treatment, right, after treatment.

Figure 56: Left, before treatment, right, after treatment.

Figure 57: During treatment detail.
During treatment details

Figure 58: Top, after cleaning, below, during retouching.

Figure 59: Top, after cleaning, below, during retouching.
Reconstruction of damaged Christ child foot

Figure 60: Top, after cleaning, below, during retouching.


Figure 62: Detail of Christ child legs from *Adoration of the Shepherds*, mirrored and rotated.
Options for retouching the Madonna’s damaged collar

Figure 63: After cleaning detail, collar of Madonna.

Figure 64: Top, current retouching of collar; below, before treatment retouching of collar.

Figure 65: Detail of x-radiograph showing complete loss of collar paint area.

Figure 66: Top, detail; below, overall, of Bramantino, *Madonna and Child*, before 1508. Metropolitan Museum of Art, New York.