The Technical Examination and Treatment of Saint John the Baptist, Attributed to a follower of Pietro Lorenzetti

Sophie Scully
The Conservation Center, Institute of Fine Arts, New York University
Abstract

This deeply moving portrayal of John the Baptist, with John the Evangelist in the pinnacle above, has attributed to a follower of Pietro Lorenzetti, possibly Niccolo di ser Sozzo Tegliacci, on stylistic grounds\(^1\). The intensity of the Baptist’s expression is particularly striking, accentuated by his deeply furrowed brows as he gazes towards the left, to where a Madonna and Child panel would likely have been located in the altarpiece’s original format. But when the painting first came to the Conservation Center in September 2011, the emotional tenor and the sensitivity of the rendering was not immediately evident. Removing the discolored varnish and restoring the picture allowed the painting to be appreciated anew, while affording an opportunity to study the painting technique and to learn more about the subsequent history of the picture. Among the technical findings, a peculiar component in the modeling of the drapery was discovered alongside other conventional approaches to painting in Trecento Tuscany. Technical examination of the punchwork supported the attribution to an artist who had access to punches used by both Pietro and Ambrogio Lorenzetti. Finally, the damages and changes which are the natural result of its centuries as a devotional object required creative approaches to the restoration treatment.

\(^1\) Fern Rusk Shapley, *Paintings from the Samuel H. Kress Collection: Italian Schools XII-IV century* (London: Phaidon, 1966), 53. Most notable are the similarities to the Baptist in an altarpiece in the Siena Pinacoteca signed by Tegliacci and Luca di Tomme.
This deeply moving portrayal of John the Baptist, with John the Evangelist in the pinnacle above, has been attributed to a follower of Pietro Lorenzetti, possibly Niccolo di ser Sozzo Tegliacci, on stylistic grounds.

The intensity of the Baptist's expression is particularly striking, accentuated by his deeply furrowed brows as he gazes towards the left, to where a Madonna and Child panel would likely have been located in the altarpiece's original format. But when the painting first came to the Conservation Center in September 2011, the emotional tenor and the sensitivity of the rendering was not immediately evident. Removing the discolored varnish and restoring the picture allowed the painting to be appreciated anew, while affording an opportunity to study the painting technique and to learn more about the subsequent history of the picture. Among the technical findings, a peculiar component in the modeling of the drapery was discovered alongside other conventional approaches to painting in Trecento Tuscany. Technical examination of the punchwork supported the attribution to an artist who had access to punches used by both Pietro and Ambrogio Lorenzetti. Finally, the damages and changes which are the natural result of its centuries as a devotional object required creative approaches to the restoration treatment.

1 Fern Rusk Shapley, Paintings from the Samuel H. Kress Collection: Italian Schools XII-IV century (London: Phaidon, 1966), 53. Most notable are the similarities to the Baptist in an altarpiece in the Siena Pinacoteca signed by Tegliacci and Luca di Tommè.

Figure 1. Saint John the Baptist, after treatment
The Technical Investigation

The Support
The painting was executed on a wood panel, likely poplar, with the grain oriented vertically. The panel was originally part of a larger altarpiece, in which it would have been situated to the proper left of the central panel--likely a depiction of the Virgin and Child--with Saint John the Baptist gazing towards the central figures. A carved tri-lobed arch, with two spandrels, divides the main panel from the upper pinnacle.

At some point the Baptist panel was detached from the rest of the altarpiece for sale as an individual painting. During the 1940 treatment, panel was thinned to 1.2 cm and a cradle was added. The cradle is of very high quality with fixed vertical members and horizontal members that still move freely. The panel remains planar and structurally sound.

The Ground
The panel was prepared with a white ground, likely a traditional gesso, though not analyzed. Through wide cracks in the painted surface, particularly in the red robe of the Baptist, there is evidence that the gesso was toned brown in preparation for painting. The contours of the figures were demarcated with incised lines in the ground prior to gilding. The entire body of Saint John the Baptist was incised, including his locks of hair and outstretched fingers, as well as the top edge of the marble plinth upon which he stands. The head and proper left side of Saint John the Evangelist were also incised, however his wings were not incised nor were they left in relief when the gold was applied, but were painted atop the gold ground. Perhaps this “rare iconographical feature” as noted by Fern Shapley in the Kress catalogue was not part of the original design. The white ground was built up into pastiglia decoration in the spandrels of the arched molding, where it was to be silver leafed.

Underdrawing
Examination with infrared reflectography revealed underdrawing in the Baptist’s robe, (Figure 2), limited to sketchy lines establishing the folds of the robe. The underdrawn lines appear faint in infrared and are difficult to discern.

Figure 2. Infrared reflectogram, detail of drawing in Baptist's robe

---

2 Treatment report located in the files of the Kress Foundation.
4 Flir InGaAs camera FLIR SC2500-NIR, 0.9-1.7um spectral range.
The Gilding and Punchwork

The background of both the main panel and the upper pinnacle were prepared with a dark red bole prior to water gilding. The bole was applied in two layers, with the upper layer slightly darker in tone. The backgrounds of both figures were entirely water gilded, while the spandrels of the arch were silver leafed. Intricate punchwork borders frame both the main panel and the upper pinnacle, while a different system of punchwork embellishes each halo. (Figure 3) A variety of punches were used to create these designs as well as single punches combined in elaborate ways. When these punches are compared with Erling Skaug’s record of Sienese and Florentine workshop punches, there are overlaps with tools attributed to both Pietro and Ambrogio’s studios.⁵ (Figure 4)

Before drawing conclusions about these similarities, it is important to consider the validity of applying the study of punchwork to the attribution of a painting. In the Trecento both the gilding and the painting of panels was executed by painters; the specialization of gilding as a profession only emerged later, during the Renaissance.⁶ And empirical study has shown that iron punch tools were precious objects, passed down from one painter to the next over several generations.⁷ The identification of punchmarks in the Baptist with those documented in paintings by both Pietro and Ambrogio Lorenzetti does not necessarily point to joint authorship, as the Lorenzetti brothers seem to have shared these precious tools between their workshops. More likely, the identification of the punchmarks in the Kress Baptist indicates that this painting was made by a follower of one of the Lorenzetti brothers, who may have had access to both of these workshops’ punches.

---

⁵ Erling S. Skaug, *Punch marks from Giotto to Fra Angelico: attribution, chronology, and workshop relationships in Tuscan panel painting: with particular consideration to Florence, c. 1330-1430*. Oslo: IIC, Nordic Group, 1994, 224-5. Skaug questions the notion that the brothers operated a joint shop, instead he posits a mutual exchanging of tools between the workshops.


The hem of the Baptist’s robe was decorated with a weaving pattern of mordant gilding. There is mordant gilding at the hem of the Evangelist’s robe as well.

**Condition**

There are several large losses and repairs to the gilding, including a large region at the lower right of the panel and much of the left edge. The gilding in the lower right region of the main panel has a different sheen and is slightly cooler in tone. Moreover, the region is intersected with fine, predominantly vertical cracks, markedly different from the wide horizontal cracks seen elsewhere, which suggest that the original bole and gesso were scraped down in preparation for this re-gilding campaign and that the newer gesso, bole and gilding cracked differentially. Cross sections taken from both the restoration and original gold show that a traditional technique of water gilding was used here, including a two-part application of a lighter followed by a slightly darker bole, as observed in the original gilding.

---

The punchwork border on the left edge has been entirely restored, excluding the inner line of spade-like punches. The punches used for the restoration did not match the original and were irregularly spaced, resulting in an uneven appearance, which is visually incongruous with the intact right edge. This restoration was likely done when the panel was cut from the altarpiece, due to damage resulting from the process of disengaging the panel from the rest of the altarpiece. In addition, there were at least two later campaigns of restoration along this left border of varying levels of skill and care; the most recent campaign used a bright red paint followed by gold paint.

The silver leaf is tarnished and abraded. Much of the mordant gilding in the Baptist’s robe is now lost, although traces of the gold and the mordant remain. At some point this partial gold was painted over with a shell gold, but in a crude fashion that was not entirely faithful to the original. The mordant gilding of the Evangelist’s robe is intact.

**Painting materials and technique**

The figures of John the Baptist and the Evangelist were painted with tempera using a technique characteristic of Trecento Tuscan painters. In general the brushstrokes are thin and vertical, but there is some variety in the handling, with slightly wider and looser strokes in the hair and the ends of the Baptist’s hair shirt. The flesh tones were executed using the technique recommended by Cennino Cennini, in which the flesh is underpainted with terre verte and brown earths.\(^9\)\(^10\)

The modeling of the Baptist’s red robe indicates a possible divergence from traditional technique. One would expect to find the up-modeling recommended by Cennini for painting drapery, in which lead white is mixed with the main color to create the highlights and the pure color creates the shadows.\(^11\) Yet when the red was analyzed using X-ray fluorescence (XRF), peaks for copper, in addition to the mercury and lead expected of a vermilion and lead white mixture, were found.\(^12\)

(Figure 5) A second XRF spectrum, taken from a passage of what appeared to be pure red, also included peaks for copper, mercury and lead. Cross-sections revealed a layer of blue, identified to be the copper-containing pigment azurite, mixed with white, lay beneath the red.\(^13\)

It was possible to then visualize the steps through which the paint was built up in the red robe through the study of three cross sections, in conjunction with the examination of the paint surface under a binocular microscope. (Figures 6, 7, 8) First, a light red underlayer of vermilion and lead white was applied throughout the red robe, possibly in two layers. Then the drapery was modeled with mixtures of azurite, lead white and a scattering of black particles in the shadows. This monotone modeling seems to have been comparable to a grisaille underpainting, but in shades of blue. Finally, the drapery was modeled with mixtures of vermilion and white, as is evident on the surface. The deepest reds received a second layer of pure vermilion, followed by a final glaze of a translucent red, likely a red lake.

---

10. Dispersed pigment samples were identified using polarized light microscopy.
12. Bruker Tracer Handheld XRF.
13. A dispersed sample of the azurite was identified using polarized light microscopy.
Figure 5. X-ray fluorescence spectrum taken from red robe, showing peaks for mercury, lead and copper.

Cross section from greyish shadow:

Stratigraphy from top down:
Red layer, partially abraded
Blue and white layer
Red and white, appears to be two layers
Geasso

Figure 6. Cross section sampled from a grey shadow of the Baptist's robe.
Figure 7. Cross section sampled from a light red highlight of the Baptist’s robe

Stratigraphy from top down:
Red layer
Blue and white layer
Red and white layer, possibly two layers
Gesso

Figure 8. Cross section sampled from a deep red shadow of the Baptist’s robe

Stratigraphy from top down:
Red glaze
Red and white layer
Red and white layer
Red and white layer
Blue and white layer, with a few black particles
Fragment of light red underlayer
A technique of under-modeling red with blue is extremely unusual, if not unique. The deep blue underlayer may have been an attempt to produce an even richer red, but comparable examples of this chromatic approach are not known. Alternatively, a change in composition to a different standing figure attired in a blue robe, could explain the presence of this layer of blue modeling sandwiched between two layers of red.

The marble plinth upon which the Baptist stands has been painted with thin, translucent glazes of red and green, likely a red lake and a copper-containing green. These thin washes, loosely applied with a very large brush and subtly layered, effectively give the appearance of marbling.

**Condition**
The paint layers are in varying states of preservation, with some overall abrasion and some small, scattered losses. The upper layer of red paint on the Baptist’s robe is somewhat abraded and the blue underlayer is slightly apparent at the cracks, resulting in a greyish appearance there. However, the vermilion has not darkened, but remains in very good condition, possibly due to the addition of lead white. The flesh tones are also somewhat abraded, and the terre verte underlayer is slightly visible. There are scattered losses in the Evangelist’s wings, where paint was applied atop the gold ground. It is likely that the light pink robe of the Evangelist was also executed with a red lake that has now faded. There are also two large losses: one in the lower right of the Baptist’s hair shirt and a second to the right of his foot in the marble plinth. The loss in the Baptist’s shirt is at a height and a size consistent with a candle burning too close to the altarpiece. There is some lifting paint in the hair shirt.

**Surface coating and Restoration**
The painting has a thick, discolored and slightly cloudy varnish, which the conservation file in the Kress archives identifies as a “French varnish.” The French varnish, a varnish often used by Kress conservator Stephen Pichetto, was a layered system of shellac followed by dammar. Examination with ultraviolet light helped in visualizing previous campaigns of retouching and indicated that some retouching extended beyond the boundaries of the losses. The old retouching in both major losses is discolored and flaking along the edges. The loss in the marble plinth has a wrinkled texture, indicating a high oil content in the fill material. Cracks throughout the painting have been retouched, which are now discolored. The Baptist’s robe also appears to have been strengthened along the edges, likely where the paint extended slightly over the gold ground and was susceptible to flaking.

---

14 David Bomford et al., *Art in the Making: Italian Painting Before 1400*, London: National Gallery, 1989, 150. It has also been suggested that the blackening of vermilion occurs when the particles are not sufficiently protected, such as in a medium-poor layer.
Treatment

Cleaning
Prior to cleaning, flaking paint was consolidated with Lascaux adhesive. The painting was first surface cleaned with a mild enzymatic solution to remove the accumulated dirt and grime. Solvent testing indicated that a solution of acetone and mineral spirits was the most effective system for removing the shellac component of the varnish. The varnish was removed with pure acetone in the gilded regions, but the varnish layer was much thicker atop the paint passages and required the addition of mineral spirits, to allow the shellac to swell in the solvent so that it could be removed mechanically. The most disturbing passages of retouching were also removed with this solution, including the shell gold that covered the traces of original mordant gilding along the hem of the Baptist’s robe.

The extensive overpaint surrounding the loss in the hair shirt, thickly applied with wide strokes and now darkened, was judged to be oil paint and was only soluble in pure ammonia, cleared with mineral spirits. The original paint beneath was in surprisingly good condition and not stained by the oil. After removing the twentieth century varnish, it became clear that there was a very old, reddish-brown coating locally applied around the large loss in the marble plinth. It was not possible to remove this coating with solvents and so it was removed mechanically, under the microscope.

The residual varnish and grime in the punchwork was cleaned under the microscope using a solution of methylene chloride, methanol, toluene and acetone, cleared with mineral spirits. (Figures 9 and 10)

Figure 9. During cleaning of punchwork
Figure 10. During cleaning of punchwork
Fills
In general, the old fills were removed only if they were structurally weak, including the large fills in the hair shirt and the marble plinth. Several old fills along the lower edge of the painting had extended over part of the original paint and, when removed, a partial inscription was revealed. The inscription was executed in mordant gilding, and while only traces of the original gilding remains, the residual mordant can be read as “Jo[h]es Batis.”

![Figure 11. Detail of partial inscription, during treatment](image)

![Figure 12. Inscription with red overlay tracing letters](image)

Before applying new fills, a very thin layer of Talens Retouching Varnish was rubbed onto the painted passages with silk. New gesso fills were made with calcium carbonate, china chalk and rabbit skin glue. A few drops of stand oil were added to give necessary strength to the very deep fills that had to be replaced in the hair shirt and the marble plinth.

The old fills in the punchwork were removed so that new, more accurate punchwork could be made along the left edge. The new fills were made using wax-resin fills, with pigment added to approximate the color of the original bole. The fills were then punched and carved to resemble the neighboring punchwork.

Compensation
The new wax-resin fills were gilded 24-karat gold leaf. The old fills were re-gilded with a wax mordant. The gilding was slightly distressed and toned with pigments in Mowolith 20 AYAB to match the original gilding. (Figures 13 and 14) The large region of re-gilding was deemed disturbing to the harmony of the compensation, and so horizontal cracks, imitating the crack pattern elsewhere on the panel, were painted onto the gilding using watercolors. (Figure 15 and 16) Losses to the paint layer were inpainted with watercolors followed by pigments in Mowilith 20 AYAB. (Figures 17-20)

---

15 Laropal K80 in white spirit.
16 A polyvinyl acetate emulsion
Figure 13. Red wax fills with punchwork

Figure 14. Punchwork after gilding
Figure 15. Lower right before restoration

Figure 16. Lower right after restoration
Figure 17. Marble plinth before inpainting

Figure 18. Plinth after inpainting
Figure 19. Hair shirt before inpainting

Figure 20. Hair shirt after inpainting