

CARAVAGGIO

Judith and Holofernes

By Claudio FALCUCCI, scientist specialized in the analysis and diagnostics of works of art

Translated from the original Italian text, which is to be considered the legal version

The painting is executed on two canvases – an upper canvas and a lower one – that have been sewn together horizontally along the line of Holofernes' left ear, approximately 100 cm down from the upper edge of the painting and approximately 44 cm above the lower edge.

An X-Radiograph reveals, all along the perimeter of the painting, deformations to the canvas that are created when an artist stretches the canvas prior to priming and painting, as well as a darker colored contour (less radiopaque) produced by the thickness of the ground where it corresponds to the placement of the stretcher. One can deduce that the canvas was originally on a simple stretcher that lacked horizontal and vertical bars – which would have otherwise shown up under the x-rays as darker lines similar to those created by the stretcher bars along the perimeter – and that the ground was applied to the canvas once it was stretched in this manner. We can also confirm that the painting has retained its original dimensions and has not been subject to any important trimming.

The painting is not on its original stretcher. It is currently on a key stretcher that follows the models widely used in the beginning of the 19th century (that enables the tension of the canvas to be adjusted in two different directions, with dovetail joints and beveling at a 45° angle on the outside edges). This particular stretcher is likely to have been placed on the painting at the time that the canvas was relined. That said, it is also possible that at that moment in the early 19th century, the painting would no longer have been on its original stretcher either but on one that would have resembled the present one in terms of size

(although the horizontal and vertical bars would not have been as wide as the current one).

The poor job of re-stretching that was done on this intermediary support, the principal cause of the canvas resting against the wooden bars of the stretcher, is responsible for the minute bits of paint loss that can be found in the servant's left hand that lies at the level of the horizontal bar and in the face of Holofernes which lies along the vertical one. The painting has recently been re-stretched and strip lining has been used on the lower and left margins of the canvas.

The X-Radiograph shows that the two canvases that comprise the painting do not have the same weave. However, the X-Radiograph did not allow for a more precise description of the differing characteristics of the two canvases because of a radiopaque substance on the back of the canvas that prevented a clear reading. This substance was either applied when the painting was relined or it may have already been present on the original canvas, in which case it would have been applied as a way of protecting the canvas while it was being prepared by using the same mixture as the ground itself, a practice which was widely used in Naples at the beginning of the 17th century.

The X-Radiograph does, however, allow one to distinguish between the weave of the two canvases, specifically in terms of density (approximately 7 x 10 threads/cm² for the lower canvas and 8 x 11 for the upper one). Because of this difference, the two sections absorbed the primer coat differently and are more or less radiopaque. An in-depth analysis show that the upper canvas is a twill weave and the lower one a plain weave.

The ground has been applied in a single coat; it is of a brownish color and principally made up of earth pigments, a small amount of lead-white and carbon black; it is heavily enriched with a granular calcium carbonate, which has given a certain roughness to the surface. X-Ray Fluorescence analysis has also found traces of copper based pigment in almost all of the samples that were taken. The composition has been traced out onto the ground by using different techniques.

Infrared Reflectography reveals underlying traces of brushstrokes that delineate the faces of Judith and the servant, the fingers and arms of Holofernes and Judith's left hand. In the figure of the servant, these brushstrokes concentrate on the position of the nose, the eyes and the mouth in order to fully define the structure of her face. Subsequent retouching of

these contours on the final paint layer has henceforth complicated the reading of this preparatory design of the servant's face.

A detailed analysis of the surface of the painting reveals some incised lines: a minor line is drawn along the back of Judith's left hand, parallel to the shadow that leads to the junction between the wrist and the hand. A second line, running perpendicular to that one, continues towards the fingers, specifically the digits of the little finger and the ring finger. A short etched line seems to define the hairline, on the left eye another etched line can be found under the eyebrow of the same eye and a longer one, almost invisible under raking light but visible in the X-Radiograph, can be found the length of the outer contours of Holofernes' right arm. In certain areas, the final painting does not respect these brushstroke "sketches" that were done when the artist was first laying out the composition. Looking closely at the servant's left hand, one can make out preparatory brushstrokes in red for the thumb (which was longer) and probably for another finger, the position of which leads one to think that the original intention was to represent the hand differently (this particular brushstroke goes from the first digit of the ring finger towards the little finger). Similarly, close observation of the canvas, the X-Radiograph and the Infrared Reflectography, all indicate an earlier version of the index finger of Holofernes' left hand, which originally was intended to extend to his right forearm but was ultimately resized. The contour of Holofernes' mouth is also traced in red, along the left side of his face, down to his beard. This sort of red sketch is likely to be found in more than one detail of the composition; as witnessed by the cheeks and the ear of Holofernes. The artist has used a preparatory brushstroke that is quite light to correspond to the shadow between Judith's left eye and eyebrow, perhaps to avoid creating too great a contrast with the colder flesh tones of her face.

The Infrared Reflectography shows a final preparatory element, executed before the painting itself: the figures of Holofernes and the servant are surrounded by a dark halo the trace of which is only visible under infrared light. A comparison of the X-Radiograph and the micrographic images show how this dark halo is the result of two distinct lines: a first one drawn on the ground – before the rendering of the curtain – and a second one painted on the red fabric itself. The first line is irregular; wider and lighter in tone when viewed under the infrared light compared to the second one; the line painted on the red of the curtain is, instead a true outline, approximately 2 cm wide, made using an earth pigment, brownish in color and clearly visible in the micrographic images.

It is reasonable to assume that the role of these two layers is decidedly different: the first was probably intended to define the chiaroscuro of the curtain, in outlining on the ground the profiles of Holofernes and the servant who are the two figures closest to it. This does not apply to the figure of Judith, given that she is positioned farther away from the curtain, as well as the fact that she is illuminated by a vertical light source which means she doesn't seem to create any shadows. The second line seems to be there to intensify the contrast between the figures in the light and the red of the curtain in order to give the scene an important three-dimensional feel. The painter was not looking to include Judith in this construction as that figure finds itself in a completely different relationship - in regards to chiaroscuro - with the curtain in the background.

The Infrared Reflectography and the X-Radiograph show numerous modifications between the preparatory composition, the different stages of the painting of the composition and the final pictorial layer. We have already mentioned the pentimenti apparent behind the servant's left hand as well as those behind the left hand and the mouth of Holofernes but the X-Radiograph shows that modifications were also made to the servant's other hand and to Holofernes' index and middle finger. The expression on Holofernes' face has also been modified: the left eyebrow has been extended towards the nose - this gives the face a mournful cast; the nose, slightly enlarged, thus conceals a part of the face that contracts even further. The figure of Judith has numerous pentimenti, in the face as well as in the clothes: Judith was initially depicted as looking towards Holofernes but she now looks out towards the spectator; before her expression would have seemed more intent on the act of violence she is committing - as witnessed by the images taken with Infrared Reflectography which show her half-closed eyes with pupils directed down and to the right (visible in the X-Radiographs of the eyes). Her left sleeve, currently fastened around her bracelet, was originally opened all the way up to the forearm (see the IR Reflexology) leaving visible a circular element - a bracelet? - that has been repeated to create the folds of the sleeve.

The figure of the servant cannot be dissociated from the complex elaboration of the drapery and the X-Radiograph shows the technique used by the artist who constructed the veil with the superimposition of successive coats of paint. In this way, certain portions of the veil disappear completely (i.e.: the detail of the veil which previously ran from the head down to the right shoulder, now eclipsed by the extending of the red curtain). The

cloth sack has been painted in this same manner and the folds produced by the servant's grip have been modified as visible under X-Radiograph.

The most significant modification in the figure of the servant, clearly visible in the X-Radiograph, are the eyes: they were originally wide-open, almost bulging – a logical side effect of the goiter indicated by the depiction of an enlarged thyroid – whereas now the servant's expression is a more reassuring one directed towards Judith.

Other modifications of note are: the overlapping veil which descends from the right of Judith's head down towards her breast, which hides part of the old servant's shoulder, the retouching of the black sleeve worn by Judith which partially covers Abra's arm and yellow robe. Furthermore, the X-Radiograph shows that the folds of the servant's dress were completed before disappearing under Judith's right sleeve once it was extended.

This layering of paint is not, however, proof that the figure of the servant was executed before that of Judith: the dress worn by Abra seems to stop abruptly along the line initially used to delineate the space for Judith, whose black dress was progressively made bigger – effectively redefining the figure of the servant by the enlargement of the sleeve and the addition of the veil. Stratigraphic Analysis of a colored paint fragment taken near an area of paint loss in the black veil worn by Judith, at the level of her breast, reinforces the hypothesis that the veil was painted after the figure itself. Under the veil's coat of black paint one finds a thinner white paint, probably related to a blouse (partially visible in the fabric that covers Judith's breast).

The painting's palette, analyzed in a non-invasive fashion by X-Ray Fluorescence, is composed of cinnabar and red lacquers for the curtain and the blood spatter (respectively lighter and darker) on Holofernes' neck, lead white used practically pure for the drapery and ochre for the servant's dress. Judith's dress, which is currently black, contains a copper-based pigment, probably light blue (apparent when observing the paint surface with a microscope) which would have given the velvet of her dress a color closer to night blue rather than the black we see now which is likely to be due to the alteration of the pigment over time. In the same fashion, the cloth sack held by the servant has undergone a similar alteration of color. It is currently brown but was probably originally a greenish color as it contains a green, copper-based pigment (probably copper acetate). There are also traces of gold, used in the decoration of the hilt of Judith's sword.

The under drawing has been executed with lead white and earth pigments, allowing the brownish ground to show through. In the face of Judith, for example, the preparation has been left visible in order to better accentuate the shadows between the mouth and the chin and the one under the nose. As for the more heavily accentuated shadows, the eyes for example, the painter has applied a light coat of highly transparent glazes of a darker color, almost black. The ground has also been left uncovered in areas that include the back of the hand that is pulling Holofernes' hair and for the figure of Holofernes itself, in the shadow of the right hand that is projected onto the drapery, the beard and the moustache. This is also the case in the background, where the ground has been left exposed between Judith's breast and the white veil, and in Holofernes' forearm.

This is not the case in the rendering of the servant, which appears to have been painted quite differently. Although the top of the turban shows an outline similar to the one around Judith's breast or around Holofernes' forearm, the complexion of the face appears radically different. Instead of leaving the ground visible, the painter has applied different paint glazes either directly onto the preparation or to areas already covered with paint of a lighter color. On top of these lighter colored areas as well as over the aforementioned paint glazes placed directly on the ground, brushstrokes have been used in a rather abrupt fashion to render the wrinkles on the face. A color sample was taken from one of these wrinkles (c17/017) and the stratigraphy shows that the composition of the uppermost paint layer here is slightly different from the one underneath: both comprise lead white and earth pigments but the fluorescence - from the ultraviolet light - of the uppermost paint layer is less intense compared to the one just underneath and of an orange color. This is proof that from one coat to another a different binder was used, or that there was a different quantity of binder to pigment and that the uppermost paint layer contains red pigment that is absent in the one underneath.

These observations, coupled with the fact that during the taking of the sample, the fragment came apart along the line separating the initial paint layer from the final paint layer that corresponds to the wrinkle (thus demonstrating a lack of cohesion between the two paint layers) could support the hypothesis that the face of the servant was modified. In the X-Radiography we see a face characterized by the bulging eyes brought on by hypothyroidism and a primal and disturbing expression, later changed to depict a wrinkled old woman.