

# NIR Reflectography Applied to the Study of Marcello Venusti's Three Panels

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## Introduction

Near Infra-Red (NIR) reflectography is a well known non-destructive technique fine-tuned, around 1960, by the physicist J. R. J. Van Asperen de Boer for application in paintings analysis and studies [1], [2]. This technique allows, respecting specific conditions, to reveal underdrawing (preparatory drawing), *pentimenti*, retouchings, signatures, dates, writings and other signs or symbols [3] invisible to the naked eye. So art historians can study and understand the technique employed by the artist to realize a specific painting [4], [5]. With this aim three panels painted by Marcello Venusti (1510-1579), based on Michelangelo Buonarroti's graphic drawings [6], have been investigated.

## Experimental – Materials and Methods

The investigation has been performed using a camera equipped with a Charge Coupled Device (CCD) detector, having sensibility in the range of 0.7-1.2  $\mu\text{m}$  (Model NIR Digi1, manufactured by the Opto-lab s.r.l., Milano). During the shooting, the panels have been lighted up by two incandescent lamps in tungsten (Nitraphot-S, 250W, Osram), placed about 50 cm far from the panels. The images acquired (reflectograms) in high resolution (1600 x 1200 pixels) have been studied and combined together to form a singular image (i.e. the whole image of each panel, figures 1, 2 and 3) using the software Photoshop 7.1. This technology has been applied to three ancient artworks (pictorial technique: oil on panel) painted by Marcello Venusti: 1) *Pietà*, exposed in Galleria Borghese (Rome), size: 59,2 x 42,5 cm; 2) *Crocifissione*, exhibited in Galleria Doria Pamphilj (Rome), size: 51,6 x 33 cm; 3) *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, kept in Casa Buonarroti (Florence), size: 50 x 32,5 cm.



Fig. 1 M. Venusti, *Pietà*, NIR image



Fig. 2 M. Venusti, *Crocifissione*, NIR image



Fig. 3 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, NIR image



M. Venusti, *Pietà*



M. Venusti, *Crocifissione*



M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*

## Result and Discussion

The study of the reflectograms pointed out the *spolvero* used to realize the preparatory drawing on the panel. *Spolvero*, an ancient technique employed to copy and transfer a drawing from a cartoon to the support, is recognizable by the presence of many little marks linked together to form the lines composing the drawing. These dots, then reinforced using ink applied with a brush or charcoal, are well visible in the underdrawing of all three panels, for example on the Madonna's dress (figures 4 and 5) and on Christ's body (figure 6). The lines, used to reinforce the initial image, have occasionally been applied more than one time (e.g. figures 4 and 6) and in different thicknesses; in some cases the direction given to the brush strokes can be identified. In the three panels the underdrawing does not show the use of free-hand drawing, except for the lines on Christ's body that emphasize the muscles (seen only in the Florentine *Crocifissione*).



Fig. 4 M. Venusti, *Pietà*, detail of Madonna's dress, NIR image



Fig. 5 M. Venusti, *Crocifissione*, detail of Madonna's dress, NIR image



Fig. 6 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, detail of Christ's body, NIR image

Fig. 7 M. Venusti, *Crocifissione*, detail of Christ's body with the well visible lines used to draw the Cross, NIR image



Regarding the two *Crocifissione* panels, which apparently seem to be the same, NIR image analysis revealed a considerable amount of details very useful to understand the creative procedure used by the painter (due to limited space, only a selection of reflectograms will be shown below):

- the distances among the different characters are not the same (there is not a perfect overlap of the two underdrawings) (figures 2 and 3);
- the underdrawing on the painting in Florence is realized with a sure hand, the lines are continuous; brush strokes are thin and realized by a more confident artist than the underdrawing completed for the *Crocifissione* housed in Rome (figure 7 and 8);
- the preparatory vertical lines used to paint the Cross, well visible also on Christ's body (figures 7 and 8), in the *Crocifissione* start from the beginning of the Cross and arrive to the end of the panel (figure 9), while in the *Crocifisso con la Madonna, San Giovanni e due angeli dolenti* these lines only arrive to the end of the Cross (figure 10);
- in both the panels the Madonna's underdrawing is extraordinary refined, with an anatomic leg structure well sketched under the cloth. The superior rendering of the underdrawing in the Florentine panel compared to the Roman panel is also evident in this case (figures 11 and 12);
- there is a slight *pentimento* on the right side of the Cross in both panels: initially it was drawn a bit shorter than in the final version (figures 13 and 14);
- on the Florentine painting, in the area concerning the two angels (mostly in the right part), NIR images revealed the signs of the removal (like a peeling) of the brown outer layer applied on the preparatory layer (figures 15 and 16);
- on the Roman *Crocifissione*, reflectograms of Christ's body revealed some touch-ups probably due to a restoration (figure 8).



Fig. 8 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, detail of Christ's body with the well visible lines used to draw the Cross, NIR image



Fig. 9 M. Venusti, *Crocifissione*, detail of the well visible lines used to draw the Cross and the skull, at the bottom of the panel, NIR image

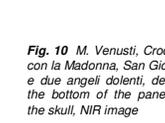


Fig. 10 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, detail of the bottom of the panel with the skull, NIR image

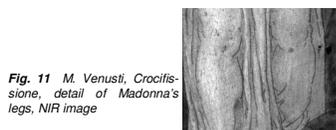


Fig. 11 M. Venusti, *Crocifissione*, detail of Madonna's legs, NIR image



Fig. 12 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, detail of Madonna's legs, NIR image



Fig. 13 M. Venusti, *Crocifissione*, detail of the right arm of the Cross: *pentimento*, NIR image



Fig. 15 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, angel on the left side of the Cross, NIR image

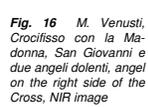


Fig. 16 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, angel on the right side of the Cross, NIR image



Fig. 14 M. Venusti, *Crocifisso con la Madonna, San Giovanni e due angeli dolenti*, detail of the right arm of the Cross: *pentimento*, NIR image

## Conclusions

NIR application on three paintings attributed to Marcello Venusti has been very useful to comprehend procedure and technique used to realize the preparatory drawing. The existence of some Michelangelo's drawings, housed in different museums in the world (Isabella Stewart Gardner Museum - Boston, Louvre - Paris, British Museum - London) with the same characters present on the three panels studied here, shows that Venusti gained access to Michelangelo drawings [7]. As for the *Pietà*, Christ's face is different from the original drawing, but the whole composition is the same. Concerning the two *Crocifissione*, there aren't any Michelangelo's drawings with all the five figures together, but there are only drawings representing the singles character. Future investigations using NIR will be useful to study other paintings realized using Michelangelo's drawings and comparing the different methods and ability to transfer preparatory image onto the final support.

## References

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