

Milano, 23/02/2011

Nr. 2AN-7753

**Results of scientific studies on the present painting,  
oil on copper (52 x 41 cm)**



**On the painting were made for compatibility comparison between the age of the materials and the corresponding epoch in which these materials have been used, scientific studies by microscopic IR reflectography, Wood's light, and FT-IR spectroscopy. The customer keeps the painting for a work from the time of the painter Pierre-August Renoir**

**Preamble:**

The painting is by and large in good condition except for one place: in the middle of the right ribs Christ can recognize a restoration.

The picture was painted on a thin copper plate. Over the years, this is hard and image support not subject to the typical movements that occur at a canvas.

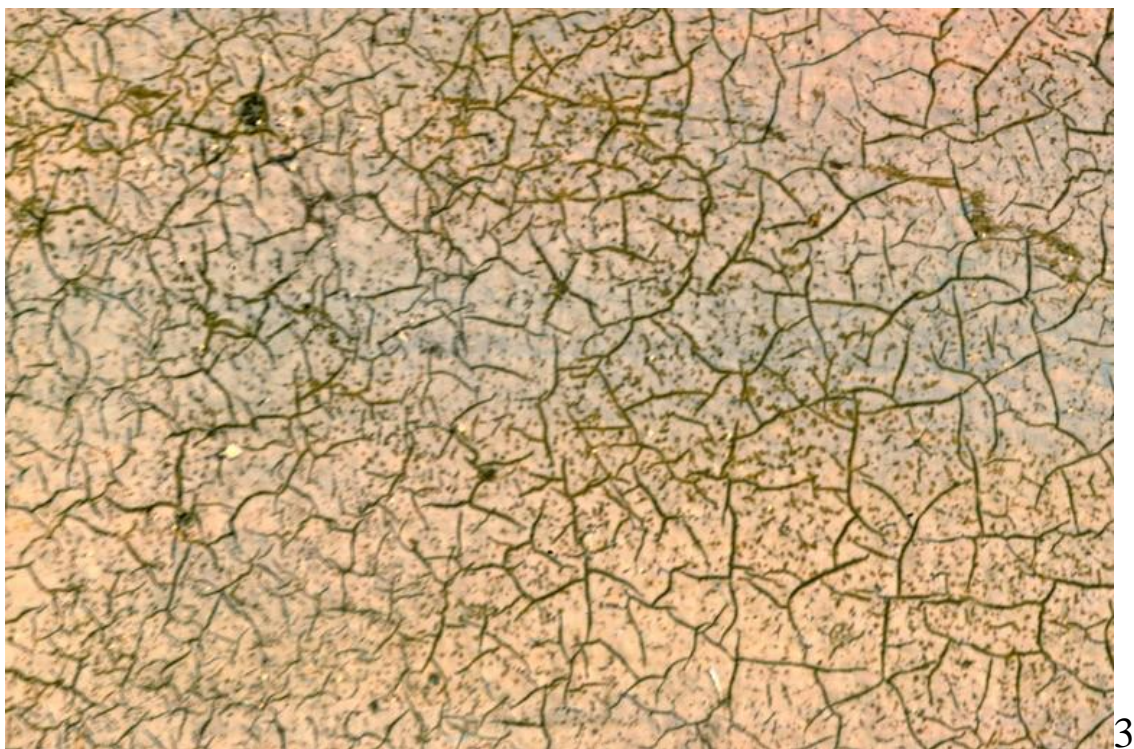
On the back of the photograph can be seen both the metal as well as the above-mentioned restoration in the middle (see arrow).



**The investigation of the paint layer (including a stereo microscope) gave the following results:**

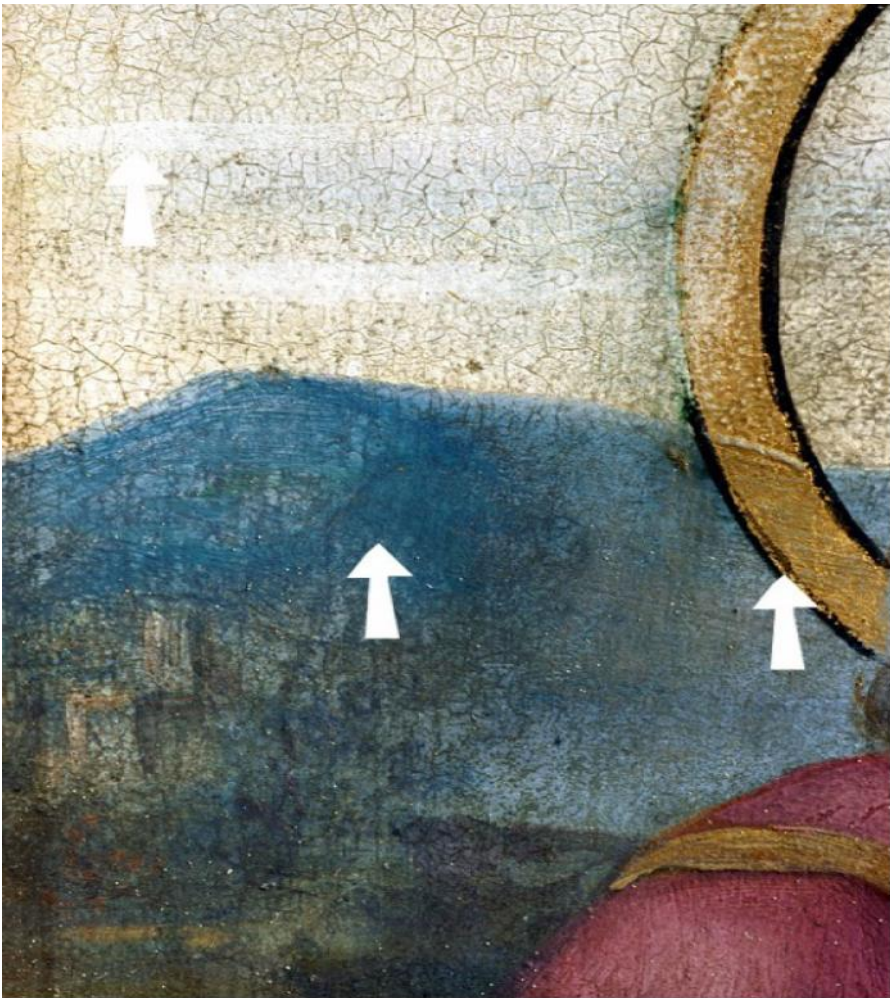
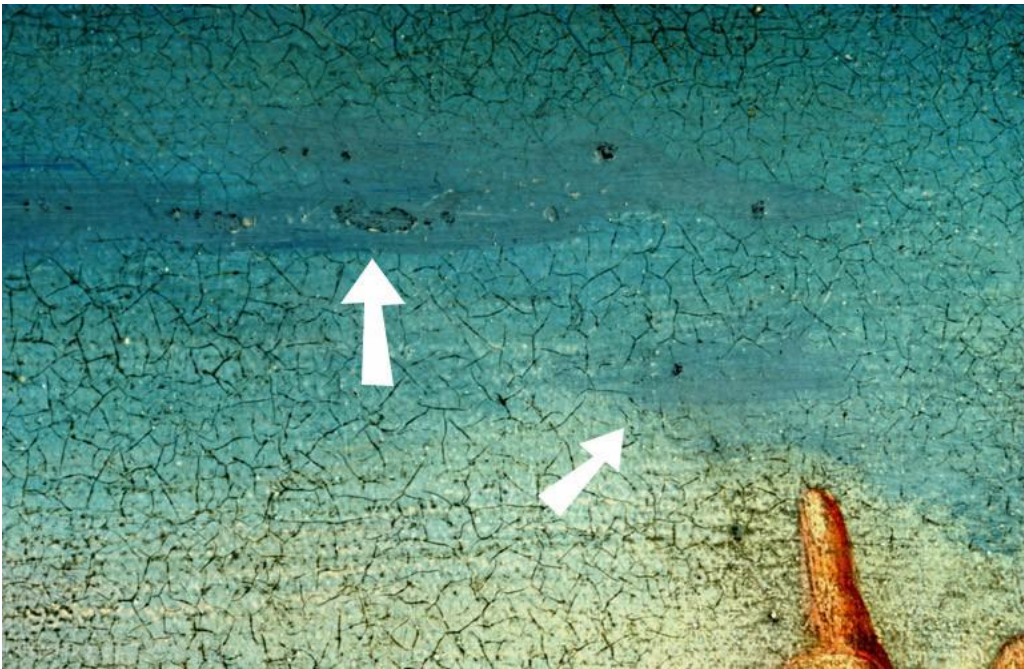
An existing layer of varnish on the image turns out to be very soft and elastic. From this we can conclude that this has been applied recently. Below the layer of varnish the paint layer is hardened as a result of dehydration of the paint binder. In recently pierced with a needle, it tends to crack rather than to deform.

In many areas of the image has consistently branched crackle formed: It is according to the different colors at different depths and appears most evident in the lighter areas, as these are less elastic due to lower concentration of binder and therefore tend to form cracks, as to deform. (Macro photo No. 3).



The characteristic shape of rectangular hardly cracks forming the crackle, is due to the properties of the material of the image carrier. Namely copper tends to vary according to temperature, expand or contract. This then causes the typical for this material crackings.

From the same microscopic analysis are numerous little restorations easy to recognize because they are the ends of the cracks that form the crackle, cover. (Macro photo 4 and 5).



For a closer look and a possible depression in terms of style, we attach some pictures, the characteristic elements of technique and style have (Photo No. 6,7,8,9)



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## Examination with Wood's light

A more detailed analysis of the image with Wood's light recent restorations have come to light that appear as dark spots. They are particularly at the upper right corner (as seen by the observer), in the right rib area of Christ, visible in some parts of the halos of the sky and the background, while both the faces and the majority of the links are intact.

(The photo No.10 was prepared with the help of special filters and digitally remastered)



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**Furthermore, an IR reflectography analysis was carried out, of which we enclose some photos: Photo No. 10 and 11 from the entire image, photo No.12 from a detail of the right foot of Christ and photo No.13, from the lower right corner of the image .**



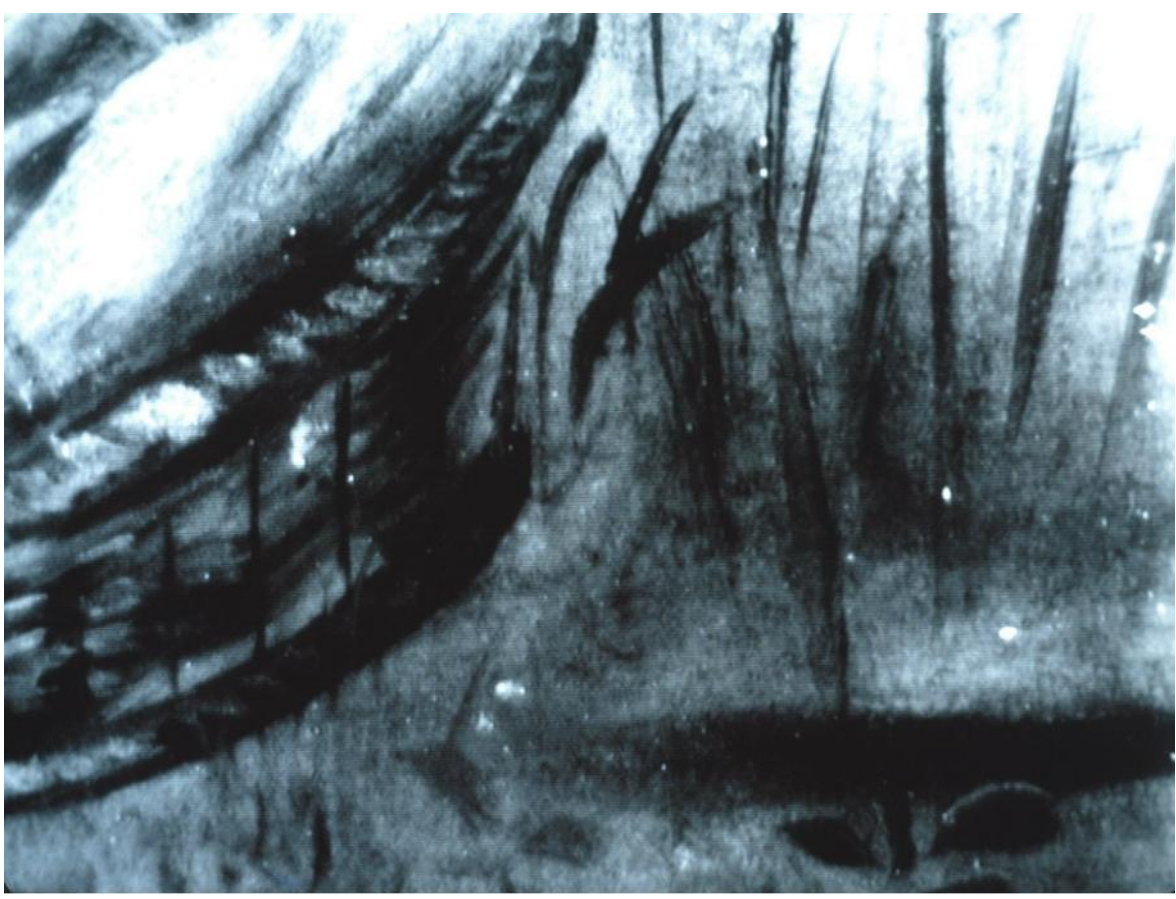
10



11



12



13

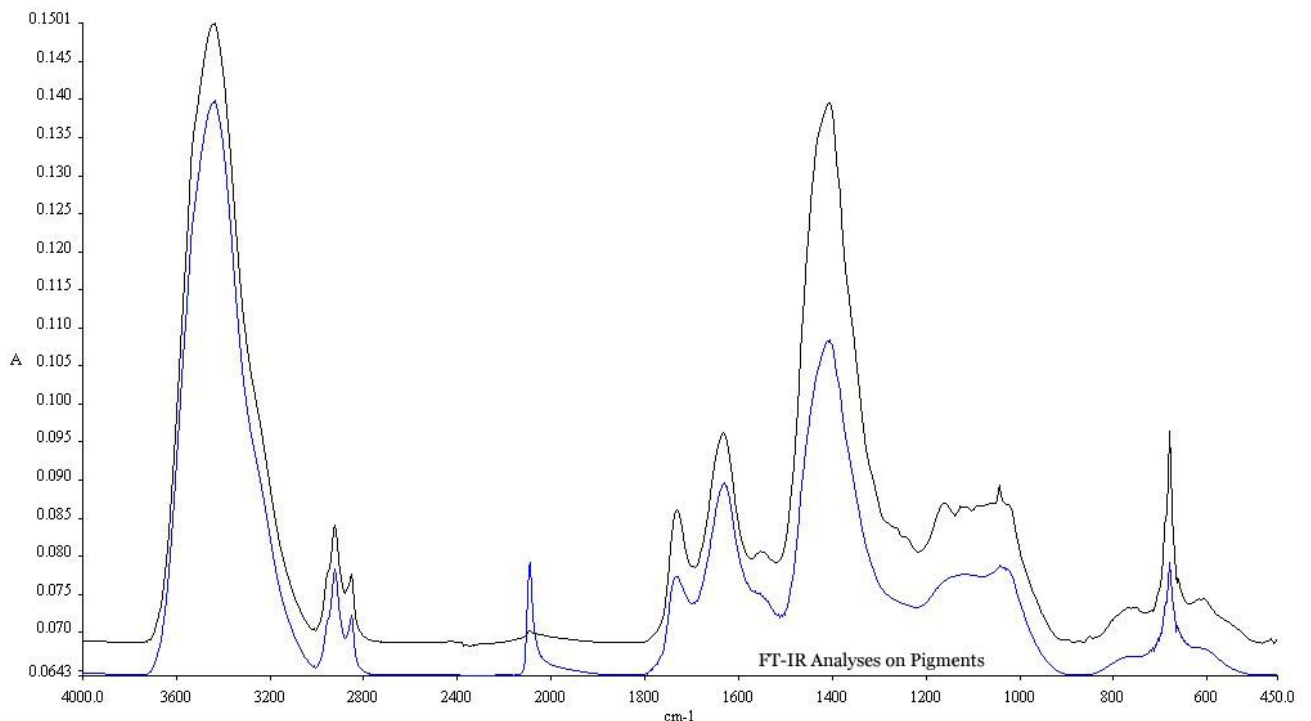


**For determining the pigment composition FT-IR spectroscopic analysis of the different colors have been carried out at several points.**

In particular, the white of the cloth in the basket and the blue on the lower part of the mantle of the Madonna was examined (areas where no restoration work had been carried out).

The investigation revealed that the white of white lead, and zinc white called, exists (it does not Titanium White was found that until 1920 he had in painting use), while the blue, Prussian blue contains' (see attached spectrum).

Furthermore, you could a small amount of paint binder (peak at 1735  $\text{cm}^{-1}$ ) to determine what is confirmed by an advanced dehydration of the oil.

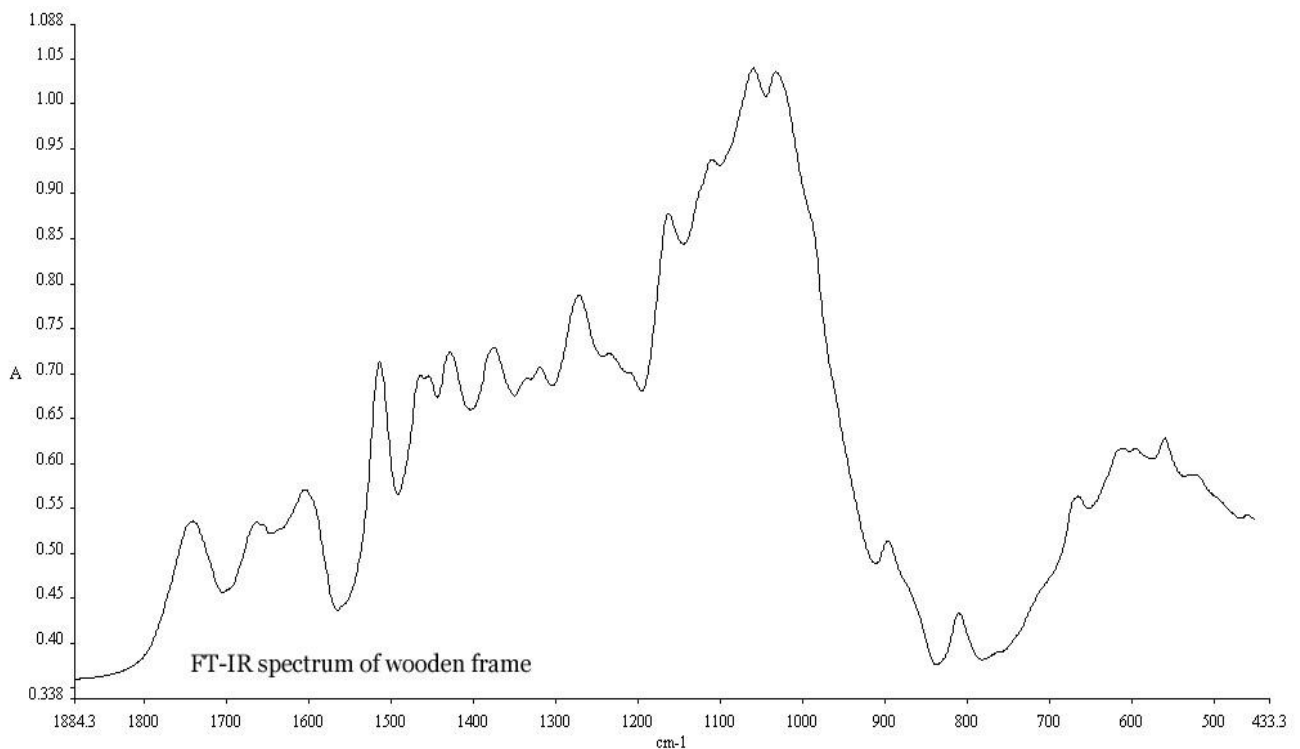


## Dating of the paintings wood frame:

On customer's request the painting wooden frame was dated.  
Spectroscopic dating shows the following results:

Species = conifer  
age of the wood = 60 (+ / - 15 years)  
(spectrum as an attachment)

This result suggests that the painting was part of the image added later and so is of a later period.



## **Final results:**

The above considerations and the results of scientific analyzes suggest a natural aging process of the painting: drying and hardening of the paint, evident crackings individual restorations.

On the pigment performed FT-IR spectroscopy shows that in places some color compositions have advanced drying of the binder.

The aging characteristics are typical for this particular image carrier. As I said, the picture was not painted on canvas or wood, but on a copper plate.

According to the above considerations so you can estimate the age of the image on more than 100 years, which is consistent, therefore, with the presumed age.