



MUSEI VATICANI

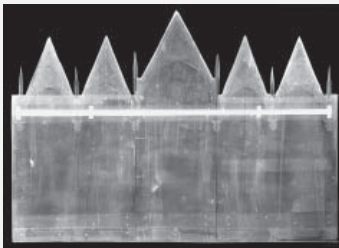


MADONNA AND CHILD WITH THE SAINTS ONUPHRIUS, NICHOLAS OF BARI, BARTHOLOMEW AND JOHN THE EVANGELIST, by Giovanni Bonsi (doc. 1366-1371)

LABORATORY OF DIAGNOSTICS FOR CONSERVATION AND RESTORATION

SCIENTIFIC INVESTIGATIONS

The polyptych has been studied with multispectral investigations utilising the technique of digital radiography (RX), induced ultraviolet fluorescence (IUVF), fluorescence X (XRF) and infrared reflectography IR. Utilising these techniques allowed the opportunity to study the painting in sequence from the deepest layers to those on the surface.



WOODEN SUPPORT

Study of the wooden support of a work is fundamental for knowledge of technical execution, as well as its state of conservation, and here it was carried out through RX analysis (fig. 1). The artist seems to have respected the preparatory drawing;

there are not, in fact, volumetric movements and, or, pentimentos of any sorts. The wooden support of the polyptych is made of nine wood panels of varying dimensions, assembled with wooden pins between them. Today, some of these do not perform their function any more, as they are broken, to the point of being held together by a further five horizontal crossbars. The presence of canvas (*camottatura*) is evident upon almost the entire surface of the board.



PICTORIAL SURFACE

Using induced ultraviolet fluorescence (fig. 2 and 3) the first layers of colour can be studied, in particular the organic substances that respond to the phenomenon of fluorescence in the visible.



A reddish fluorescence is present, in correspondence with the areas of red colour tones, typi-

cal of organic colorants (lacquers). The study of the painting skin through FCIR, false colour infrared reflectography (fig. 4), gave clearer indication of the state of conservation of the surface. The blue colours appearing as red in the FCIR (the mantle of the Virgin, highlights of the Child's dress, the throne decoration, the robes of the figure of Christ) result as been obtained from *smaltino* (enamel). The green pigments, such as the dress of St Bartholomew, which show up as dark in colour, are made up of copper and, or, iron based compounds (confirmed by the XRF analysis).



XRF analyses (measuring points shown in fig. 5) reveal the preparation layer, from pigments of a lead base (white lead primer). Considering the metamerism resulting from FCIR of the dresses of Saints John and Nicholas, the additional presence of indigo cannot be ruled out; to be verified in further studies. Indigo could also be present in the blue



decoration of the Madonna's throne, in the highlighting of St John's dress and in the blue decorations on the robe of St Bartholomew (dots which have a metamerism in FCIR appear as an intense red colour).

Finally, the dagger blade of St Bartholomew was found to have the presence of silver in addition to lead- (white lead) and iron- (ochre) based components, and cobalt (royal blue) pigments. With reflectography IR (fig. 5), the preparatory drawing of the artist is clearly visible, particularly so on the flesh tones and on the red drapery, such as the robe of St Nicholas and the Virgin, since these are transparent to infrared radiation. On the throne, the geometric underdrawing aiming at its construction is evident.