

1. *Saint John the Baptist with Saint John the Evangelist (?) and Saint James*



Artist NARDO di Cione (active 1343; died between 1365 and 1366)
(pronounced Chee-oh-nay)

Medium Egg tempera

Support Poplar

Size 159.5 x 147.5 cm

Date About 1365

This painting, which is over 600 years old, is a good example of the use of egg tempera paint and gilding. When it was cleaned in 1981-2, the materials used were analysed, and some of the results are discussed overleaf.

The subject This large painting shows three standing saints, who can be identified as Saint John the Baptist in the centre with, on the left, probably Saint John the Evangelist (in a green and pink robe), and on the right Saint James (with a pilgrim's staff and book). The picture almost certainly was an altarpiece in San Giovanni della Calza (then San Giovanni Gerosolomitano) in Florence, a church which belonged to the **Knights of Malta**, and this would account for the central position of Saint John the Baptist.

The whole picture-making process involved teamwork, with many specialists (such as frame-makers and gilders) and apprentices being involved.

The support, ground and underdrawing

The picture is on poplar, the most commonly used wood for Italian panel paintings. Four samples (from different parts of the painting) examined by **gas chromatography** showed the **medium** to be egg. The picture is of high quality and it is in very good condition. The techniques displayed in this picture are extremely close to those described in **Cennino Cennini's** treatise ***Il Libro dell'Arte*** which was written around 1390, some 30 years after the painting was made. The poplar **support** was covered by a layer of **gesso** which was smoothed to give a uniform white enamel-like surface. This is called the **ground**. Here it consists of a single fairly thin layer of a gesso containing both **gypsum** and **anhydrite**; this was shown by **X-ray diffraction**.



Saint John the Baptist's pink robe showing underdrawing

The design was then drawn on to the gesso. Because paint tends to become more transparent as it ages, quite a lot of the underdrawing is now visible, particularly in the pink robe of Saint John the Baptist. This is also partly due to the fact that the robe is painted largely in **lake pigments** which have faded. (This is because lake pigments are prepared from dyestuffs which are not stable to light). The underdrawing can be seen with the naked eye, though it shows up better when viewed by **infrared reflectography**. Examination of paint samples and infrared reflectography imaging suggest that it was done with a quill pen, using a liquid medium (*ie* black ink) rather than with charcoal.

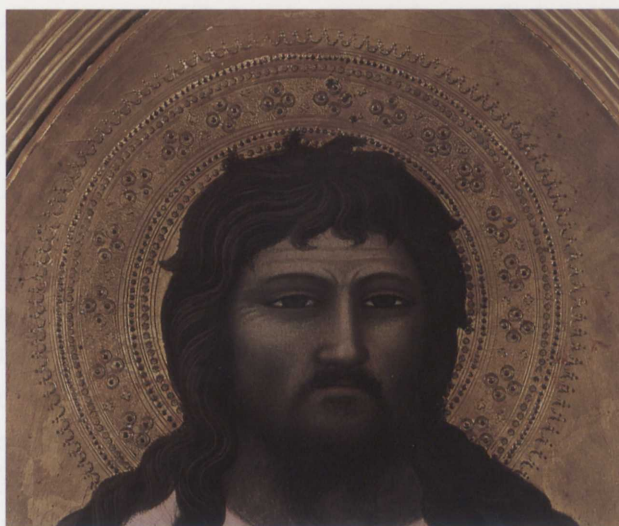
Gilding



A section of the background - reddish-brown bole showing through the gold

The areas to be gilded were given a layer of **bole** (a mixture of smooth, red clay – containing iron(III) oxide – and animal glue or egg white) which was **burnished** (or polished) when it had set hard. **Gold leaf** was then applied using an aqueous adhesive such as glue **size** or egg white, and then burnished with a special tool made from agate or a dog's tooth. A measurement of the thickness of the gold on another painting of about the same date was about 256 nm (that is 0.000256 mm). Here, some of the gold in the background is worn – so the reddish bole can be seen in places.

The haloes are perfectly circular. Dividers would have been used, the central point sometimes being sited in the corner of a saint's eye to prevent detection, and the other point used to incise the circle in the gesso. The gilding of the haloes is **punched**, or indented with a pattern. It was a very skilled job to do this without piercing the gold leaf. These haloes are exceptionally fine. The dating of the picture involved detective work on the punch marks; the set of punches used here was most probably brought to Florence by an artist called Giovanni da Milano in the early 1360s.



Sgraffito

The floor covering was done using a technique known as **sgraffito**. In this painting, gold leaf was laid on bole; this was then painted over completely using **red lead** in **egg tempera**. (shown by X-ray diffraction and **laser microspectral analysis**). Then the pattern was applied. One section would have been drawn on parchment or paper, and used repeatedly to create the repeating pattern. The outline of the pattern was achieved by **pouncing** – dots of powdered charcoal or lead white were dabbed through holes pricked around the outlines of the pattern. **Ultramarine** in egg tempera was added on top of the red lead, for birds and flowers. The paint was then carefully scraped away while still soft (using a bone or wood scraper) to reveal the gold beneath. All over the resulting brocade or 'cloth of gold' the gold was then 'grained' with a rosette – a small multipoint punch.

Examination of the paint edges here show them to be softly curved, so the paint was not fully dry while it was being scraped. This is what you would expect as you cannot scrape paint for sgraffito if it has dried too much.

Once the gilding was completed the picture was painted. The paints were made in the workshop as needed.

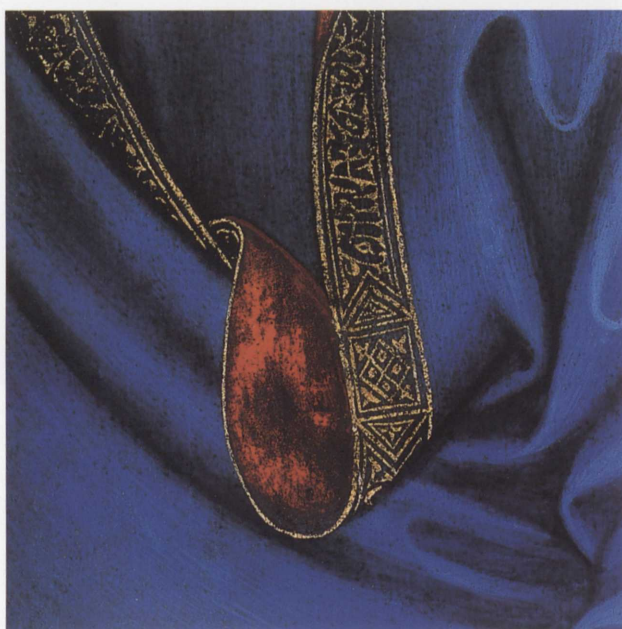
The pigments

Scientific examination of the painting has revealed that the following pigments were used. For Saint John the Baptist's pink robes there is a very thin layer of deep crimson, with opaque pink layers above over the black underdrawing. Nardo probably started painting the deepest shadows of the robe with a crimson lake – followed by two layers of the lake mixed with **lead white**. The red dyestuff in the lake may derive from Polish **cochineal**. The blue lining to the robe is natural ultramarine.

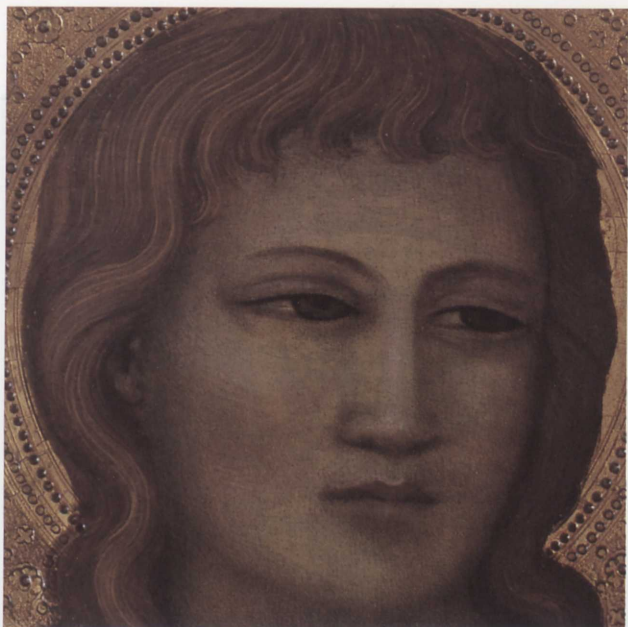
Saint James's blue robes also have the same kind of blackish underdrawing, which can be seen using infrared reflectography. The blue pigment is natural ultramarine; the deepest shadows are of pure ultramarine glaze over ultramarine mixed with lead white. Ultramarine was at that time obtained only from the blue mineral lapis lazuli mined in Afghanistan. It was (and if of good quality still can be) more expensive than gold, and several ounces were needed for this painting, which suggests that Nardo had been given a very important commission. Ultramarine was usually supplied by the patron or was shown as a separate item in the artist's expense account.

Saint John the Evangelist wears a pale green robe of a 'shot' fabric that appears to change between light and shadow. The robe is basically green, but has yellow in the highlights and blue in the shadows. The green colour was expected to be **malachite**, but X-ray powder diffraction showed it was in

fact ultramarine mixed with an artificial yellow pigment *giallolino*, now known as **lead-tin yellow** 'type II'. This combination of pigments is unusual: ultramarine was frequently mixed with red lake and white to make mauve, but it was rarely used to make green. **Azurite**, which is a greener blue, was more commonly used for this.



The scarlet lining of Saint James's cloak and the cover of the Evangelist's book show dark patches on top of the red **vermilion**. This blackening of vermilion was known since Roman times. It is more common in wall-paintings, where the vermilion is not protected by the egg or oil medium or perhaps by varnish.



Both tempera and oil paint become more transparent with age. Also many paintings have become worn and rubbed over the centuries. As a result of one or both of these things, 'white'-skinned people in early Italian paintings sometimes seem to be a rather ghostly green. This is because, for flesh areas, an underpaint of **green earth** was used. In this painting, brown and red **earth pigments** mixed with white were largely used over the green earth for the flesh colour itself.

Marks on the gilded paint surface suggest that vertical columns originally separated the figures. These have not survived.