

# Vincenzo Foppa's *Adoration of the Kings*

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THE *Adoration of the Kings* by Vincenzo Foppa (NG 729; PLATE 1) is the largest and most impressive of the National Gallery's exceptional and wide-ranging holding of fifteenth- and sixteenth-century paintings of the Lombard School. Acquired in 1863 as by Bramantino, and restored by Raffaele Pinti (a private restorer, based in London, who frequently worked on acquisitions made by Sir Charles Eastlake, Director of the Gallery from 1855 to 1865), it was recognised as a work of Foppa by Crowe and Cavalcaselle in 1871.<sup>1</sup> This attribution has been generally accepted in the literature on the artist, with one exception, in which it is suggested that it may be the product of the late workshop of the painter.<sup>2</sup> As will be demonstrated, technical examination has disclosed a flexibility of approach that seems uncharacteristic of a workshop product.

Nothing is known of the destination of this grand altarpiece, which is first recorded as late as 1839 in the posthumous inventory of the collection of Cardinal Joseph Fesch (1763–1839), although the work probably entered Fesch's possession early on, before his move from France to Rome in 1815.<sup>3</sup> No trace of the painting's presence has emerged in Brescia, where Foppa was based, but he is known to have worked on important commissions for churches elsewhere in Lombardy, and also in neighbouring Liguria, and it is possible that the altarpiece was made for a more remote location. The *Adoration* is always described as a late work,<sup>4</sup> sometimes dated as late as the first decade of the sixteenth century, though, since there are relatively few fixed dates in Foppa's chronology, it is perfectly possible that the National Gallery altarpiece is a work of the 1480s or 90s. The dating of a painting such as this is made more difficult by the tendency to conservative taste among patrons in Lombardy and north-west Italy during this period, above all in the enduring predilection for large areas of decorative gilding. Furthermore, in common with many other works by Foppa, the *Adoration of the Kings* seems to reflect, both in its design and in its sumptuous decoration, celebrated wall paintings and panels by Gentile da

Fabriano and Jacopo Bellini that were then to be seen in Brescia.<sup>5</sup>

It is possible that Gentile da Fabriano's murals in the Chapel of the Broletto, Brescia, painted for Pandolfo Malatesta in 1414–19, included a scene showing the Adoration of the Kings<sup>6</sup> and that this, rather than a putative journey to Florence, may account for elements of Foppa's *Adoration* that appear to reflect Gentile's altarpiece of the same subject painted for Palla Strozzi in Florence and dated 1423, now in the Uffizi. Details such as the motif of the page kneeling to adjust the spur of the standing king, Balthazar, and the general design, with the Virgin and Child on the left and the vertical accumulation of the exotic retinue winding its way through the hilly landscape from the walled city of Jerusalem, appear to suggest a Gentile prototype. Although common in Lombard painting, the lavish use of gilded *pastiglia* and the wide variety of different patterned textiles can also be associated with Gentile. The young page riding one of the Magi's horses (with his feet resting in the leathers, his legs being too short to reach the stirrup irons) brandishes a stick to strike at the horse behind, who nips the rump of his mount. Similar anecdotal detail appears in the Gentile altarpiece, but also in drawings of the same subject by Jacopo Bellini, whose influence can be detected especially in Foppa's earliest works.<sup>7</sup>

Remarkably, given its dimensions, the panel of the National Gallery altarpiece appears to be constructed from only four vertical planks of poplar, three of exceptional width and a narrower one at the right edge (as seen from the front). The panel has been planed down to a considerable extent and a cradle applied to the back. The wide spacing between its members is characteristic of a cradle of the first half of the nineteenth century, and the application of two Roman customs stamps to one of the cradle bars confirms that the reinforcement was applied before the panel left Italy in 1845. In spite of this treatment, the panel has remained in a stable condition. The front surface was prepared in the usual way, with layers of gesso consisting of the slaked dihydrate form



PLATE I Vincenzo Foppa, *The Adoration of the Kings* (NG 729), 1480s or 1490s. Poplar, 241 × 212.8cm.



FIG. 1 *The Adoration of the Kings*, infra-red photograph detail.

of calcium sulphate bound with glue.<sup>8</sup> A border about one cm wide was left ungessoed around all four sides, confirming that the picture retains its original dimensions. The presence of a raised barbe at the edge of these borders indicates that some form of moulding (possibly temporary) was in place when

the gesso was applied. Cross-sections reveal that a thin and rather translucent *imprimitura*, mainly consisting of lead white and colourless mineral particles (very slightly tinted with particles of black), was applied to the areas to be painted, presumably to reduce the absorbency of the gesso.<sup>9</sup>

The underdrawing revealed by infra-red photography<sup>10</sup> shows a varied approach to establishing the design on the panel. Some figures, for example the Virgin and Child (FIG. 1), and the page boy buckling on Balthazar's spur (FIG. 2), are drawn with a brush in a fluid medium, often with long confident strokes. This is most evident in the drawing of the kneeling page's lower left leg, somewhat to the right of its painted position. Here, the drawing is used to establish contours alone and there is no evidence of the hatched shading observed particularly on Foppa's earlier works.<sup>11</sup> Panels from the Fornari polyptych of 1489 in the Pinacoteca Comunale, Savona, and from the Della Rovere polyptych, completed in collaboration with Ludovico Brea in 1490 (now in the oratory of Santa Maria di Castello, also in Savona), include passages of underdrawing with a fluid outlining of forms and drapery folds similar to that detected on the *Adoration*.<sup>12</sup>

In complete contrast to the relatively free underdrawing present in the National Gallery altarpiece is the use of carefully pounced cartoons for some of the heads, most clearly visible in the figures of Joseph and Balthazar (FIG. 3) (the technique may have been used on some of the other heads but their abraded condition makes recognition of the characteristic dots more difficult). The pounce marks in Balthazar's head are so clear and well-defined as to suggest that they might have been made with a liquid medium, perhaps dotted through the holes of the cartoon with a brush instead of the usual powdered charcoal or black chalk.<sup>13</sup> The dots – so closely spaced that it was unnecessary to join them up into continuous lines – define the eyes, nose, cheek bones, and furrows of the brow in formulaic curves reminiscent of the simplified forms of fresco cartoons. *Spolvero* of precisely this character can be observed on some of the heads in Foppa's wall paintings in the Portinari Chapel in the Church of Sant' Eustorgio, Milan, probably completed in 1468.<sup>14</sup> The fact that pounced cartoons were used so selectively in this altarpiece raises the possibility that the designs were being reused from a previous project, although there is no evidence from surviving works that this is the case. In generic terms, Foppa's male heads are all quite similar and it would have been easy for him to re-use cartoons in this way. Another possible explanation for the selective use of cartoons is that the design of figures such as Balthazar and Joseph had to be established with greater certainty than the more freely delineated Virgin and Child group because they were to incorporate areas of gilding and *pastiglia* and therefore could not be modified during



FIG. 2 *The Adoration of the Kings*, infra-red photograph detail.

the course of painting.

There is no visible evidence for Foppa's method of constructing the perspective of the setting – perhaps the receding orthogonals were snapped with string and powdered charcoal as in mural painting – but the basic structure of the ruins must have been indicated at an early stage. As always seems to be the case in Foppa's panel paintings, the architectural elements are extensively incised (FIG. 4), but in this altarpiece the incised lines consistently stop short of the drawn contours of the figures and animals, which must therefore already have been in place. The ruled incisions for architectural details such as the mouldings of the cornice often extend further than necessary, a tendency that can be traced as far back as Foppa's early *Crucifixion*, signed and dated 1456 (Bergamo, Accademia Carrara). Surprisingly for a painting of this date, some drapery folds were also incised, including those of the Virgin's blue mantle.<sup>15</sup> This technique is more often associated with earlier painting, when the dark underlayers often employed for blue pigments would have obscured any drawing.

The use of incision is also found in areas that were to be gilded: for example, the overlapping scales on the collar of the kneeling king (FIG. 5) were first



FIG. 3 *The Adoration of the Kings*, infra-red photograph detail.

incised before the *pastiglia* decoration was built up in liquid gesso (of the same dihydrate form as that used for the ground). The relief of the collar is graduated from flat scales marked only by incisions at the left through to the highest relief at the point nearest to the viewer, an adaptation of the traditional technique of *pastiglia* for illusionistic effect. A similar attempt to suggest recession can be seen in the *pastiglia* composing the braid along the edge of the collar. The mounts in the jewelled border of the collar were also built up in gesso and, once the bole and gold leaf had been laid, the gems could be indicated in different coloured glazes.<sup>16</sup> The same technique was used for Balthazar's collar, buttons, crown and the enormous jewel in his turban (PLATE 2). *Pastiglia* is associated only with the Three Kings, being used also to ornament the crown of the central king and all three of their gifts. Further back into the picture however, golden objects such as the crown on the kneeling king's headdress, held by his page, and the bit and studded harness of the horse on the right, are depicted in yellow paint (identified on the crown as lead-tin yellow).

Since the tunic of Balthazar, the prominently positioned intercessor figure, was to be executed with the technique of *sgraffito*, gold leaf had first to be laid under the whole area (PLATE 3). It is applied

over a fairly substantial layer of orange-red bole (the *imprimitura* used elsewhere on the picture is absent). To avoid losing the lines of underdrawing, the outline of the sleeve and the principal folds of the tunic were scored into the ground before the application of the bole. The appearance of the painting suggests that it was painted principally with an oil medium, and analysis of a sample of light-coloured paint from the stone of the ruin identified heat-bodied walnut oil as the main component.<sup>17</sup> For *sgraffito*, however, egg tempera is a more suitable medium, making a paint which can be scratched cleanly away from the underlying gold leaf if allowed to dry to the point where it remains slightly soft and cheesy, before it becomes too hard and brittle; and analysis of a sample from the tunic has confirmed that Foppa did indeed employ an egg medium for these areas. The gold threads of the tunic were exposed by short horizontal marks, and for the cone of Balthazar's headdress a chequered pattern was scratched through the red paint. The original richness of effect has been diminished as a result of the loss of intensity of the purple colour of the tunic, on account of the fading of the red lake and the possible discoloration of the azurite, which, mixed with lead white and a little carbon black, made up the colour.<sup>18</sup> The red lake of the Virgin's dress is also likely to have faded to some extent. It now appears somewhat desaturated in comparison with the rich and well-preserved reds elsewhere on the picture.

The Virgin's mantle too is no longer in its original condition. When the painting was cleaned in 1935–6, nearly all of the many nineteenth-century and earlier repaints were removed, but it was found that the Virgin's robe was 'mostly reduced to the underpaint and partly made up with the addition of painted folds at some remote period'.<sup>19</sup> It was decided to leave these old reconstructions. This underpaint consists of azurite and lead white, hence the green appearance of this area of blue when compared with those elsewhere on the picture (although the various overpaints and retouchings also contribute to the uneven effect). The original upper layer of ultramarine and white has survived in only a few places – a few particles of lapis are visible at the right end of the cross-section illustrated (PLATE 4). It can be seen from the areas of blue elsewhere on the painting that the ultramarine pigment has deteriorated, resulting in a blanched and chalky effect, suggesting the possibility that an early restorer may have scraped the degraded pigment off the Virgin's mantle to reveal the brighter and better preserved azurite beneath. A sample from the blue tunic of the mounted page behind the mid-

dle king shows that here the ultramarine was applied over a thick underlayer of black (PLATE 5). Perhaps Foppa originally intended to underpaint the Virgin's mantle in this way, which might explain the incision of the folds. A black underpainting also occurs in a sample of green paint from the bush behind the horse on the right (PLATE 6). A few particles of verdigris are mixed with the black, perhaps added as much to improve the drying of the pigment (carbon black pigments do not dry particularly well, especially when used in walnut oil) as to colour it. Over this is a rich dark green layer of verdigris and then a lighter green consisting of verdigris and lead-tin yellow, used to depict a leaf.<sup>20</sup>

Foppa's method for painting the darker-complexioned male faces is now apparent because some have been much damaged by abrasion, notably the turbaned attendant behind Balthazar, and the heads of Joseph and the kneeling king.<sup>21</sup> They appear to have been painted directly over the *imprimitura* using reddish-brown mixtures.<sup>22</sup> For the paler flesh tints of the Virgin and Child, however, Foppa employed a more complex layer structure (PLATE 7). Adapting the traditional technique of underpainting areas of flesh with green earth or *verdaccio*, he first undermodelled



FIG. 4 *The Adoration of the Kings*, detail photographed in raking light.



FIG. 5 *The Adoration of the Kings*, detail photographed in raking light.



PLATE 2 *The Adoration of the Kings*, detail.

these areas with a slightly translucent greenish-brown mixture of lead white, carbon black, red and Cassel earths and a small amount of green earth.<sup>23</sup> The appearance of these areas in infra-red indicates that the underpaint was modelled rather than having been applied as a flat unmodulated layer as in tempera techniques. Furthermore, in the sample from the Child's knee (PLATE 8), an alteration results in four layers of paint being present, with the underpainting repeated over the first thin layer of pale



PLATE 3 *The Adoration of the Kings*. Cross-section of a sample from Balthazar's purple tunic. The lowest layer is the gesso ground, followed by the bole and gold leaf and then the paint layer consisting of lead white, azurite, red lake and a little carbon black. Original magnification 320 $\times$ , actual magnification 275 $\times$ .

pink, confirming that the underlayer was part of the process of constructing the volumes.

The upper layer consists mainly of lead white, with only an occasional particle of vermilion and yellow earth. However, when the sample is viewed under ultra-violet illumination a few very faintly coloured particles of red lake can also be discerned (the presence of aluminium from the substrate has been confirmed by EDX). The red lake has evidently faded and this, combined with an increase of transparency with age of the upper paint layers, must be responsible for the silvery-grey cast so often noted in the flesh tints of paintings by Foppa. This cannot have been intentional: the complexions of female figures in his frescoes in the Portinari Chapel are notably healthy and rosy in colour. Originally, the scumbled flesh tints of the panel paintings must have had a luminous, almost opalescent appearance; and a similar sensitivity to effects of translucency can be seen in the beautifully painted and better preserved soft yellow fabric with veiled white highlights that drapes the Child, and is also worn by the figure behind Balthazar.

Given the care with which the composition was drawn out on the panel, the general increase in transparency of the paint layers has made evident a surprising number of pentimenti.<sup>24</sup> Some are no more than minor adjustments made in the course of painting, such as, for example, the alteration to the right hand of the mounted page dressed in blue. Others occur where the painter decided not to follow precisely the underdrawing, as in the repositioning of

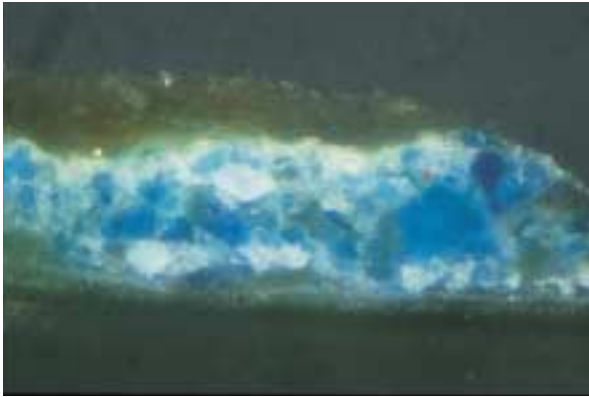


PLATE 4 *The Adoration of the Kings*. Cross-section of a sample from the Virgin's blue mantle, showing the gesso, *imprimatura* and the underpainting with azurite and lead white. The surface has clearly been eroded. At the right end of the sample there are the remains of a layer of ultramarine and lead white. Some retouching and slightly discoloured varnish are also visible at the surface. Original magnification 450 $\times$ , actual magnification 390 $\times$ .

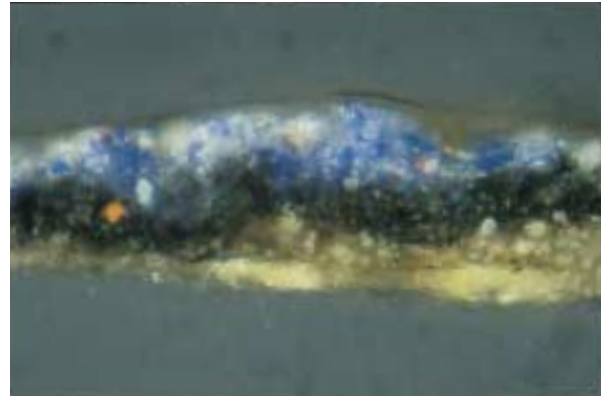


PLATE 5 *The Adoration of the Kings*. Cross-section of a sample from the tunic of the mounted page behind the middle king, showing the gesso, a few particles of carbon from the underdrawing, the *imprimatura*, the black underpainting and the final layer of ultramarine and lead white. Some of the particles of ultramarine at the upper surface have lost their colour. Original magnification 450 $\times$ , actual magnification 390 $\times$ .

the left leg of the page strapping on Balthazar's spur (FIG. 2). A pentimento made in the course of painting can also be seen in the adjustment to this page's right hand; and his right knee, presumably originally conceived as being behind the king's leg, has had to be painted over the sand-coloured paint of the foreground already brushed boldly around the more definitely established forms. All these changes show the artist grappling with the complex pose of this bending figure around the necessarily fixed position of Balthazar's legs.<sup>25</sup>

A more significant alteration, in terms of the narrative of the picture, is that made to the head of the Christ Child (FIG. 1), originally drawn tilted back but later painted in a more upright pose in order for the Child to engage with the king who kneels at his feet. In addition, some adjustments seem to have been made to his lower legs and feet. The Virgin's left hand appears to have been painted, without any reserve, on top of the baby's legs, which may also constitute a pentimento, although no alternative in the underdrawn position can be detected.<sup>26</sup> Her head was first drawn further to the right and some underpaint may have been applied to the mantle in this position before the decision was made to shift the head slightly to the left (however, damage to this area makes the exact sequence difficult to determine). Later, a further adjustment was made to reduce her head in size by painting more of the background colour over the blue at the back of her mantle.

The most radical revision in the altarpiece is the artist's repositioning of the ox and ass. Infra-red

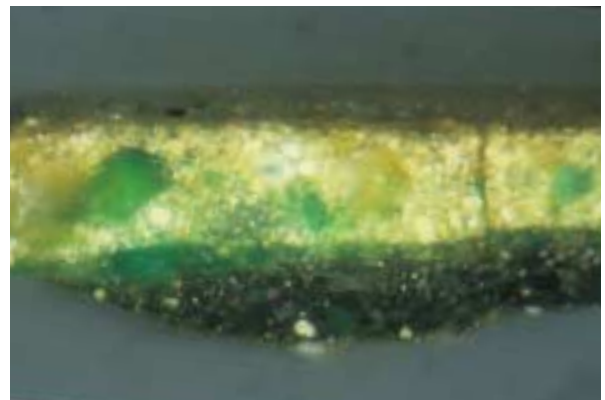


PLATE 6 *The Adoration of the Kings*. Cross-section of a sample from the bush behind the horse on the right, showing the black underpainting, with the inclusion of a few particles of verdigris, followed by a layer of almost pure verdigris and finally a layer of verdigris and lead-tin yellow. The gesso and *imprimatura* are not present. Original magnification 320 $\times$ , actual magnification 275 $\times$ .

photography shows that originally both animals were considerably higher up, with the back of the ox drawn approximately level with the bottom of the window. Immediately below the ox's prominent withers can be discerned traces of the sketching-in of the animal's left horn and ear, and to the right of this, the neck and mane of the ass. Further down, the original position of its muzzle can also be seen. When Foppa came to paint the animals, he moved them down to their present position, but even then he made another late adjustment, now visible on the surface of the painting, reducing the height of the



PLATE 7 *The Adoration of the Kings*, detail.



FIG. 6 *The Adoration of the Kings*, infra-red photograph detail.

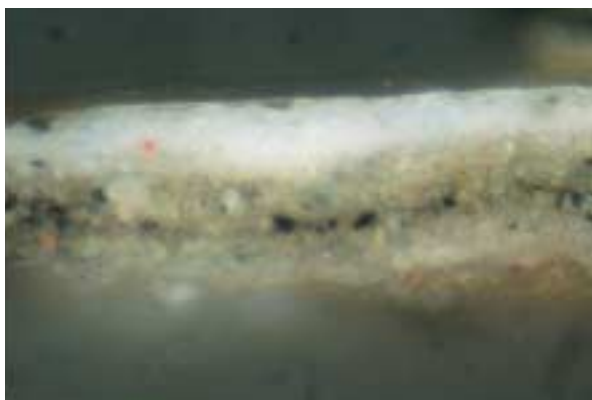


PLATE 8 *The Adoration of the Kings*. Cross-section of a sample from the knee of the Child. The lowest layer is the undermodelling containing lead white, carbon black, red earth, Cassel earth and green earth. This is followed by a thin pale pink layer, and then a more substantial layer of the same undermodelling mixture. The final layer consists of lead white with a few particles of vermilion, yellow earth and red lake (now faded). Original magnification 450X, actual magnification 390X.

ox's back. The animals' poses echo exactly those in a smaller panel showing the Nativity (PLATE 9) now in the Chiesanuova, Brescia (but probably the central panel of the former high altarpiece of the church of SS. Nazaro e Celso, where it was replaced by Titian's celebrated polyptych), except with the ox and the ass reversed to take account of the different positioning of the Child.

While scholars have noted the influence of Northern painting in the Chiesanuova Nativity, and in two panels depicting *Saint John the Baptist* and

*Saint Apollonia* (Brescia, Pinacoteca Tosio Martinengo) believed to be from the same altarpiece,<sup>27</sup> many features which have their origins in Netherlandish painting are also evident in the National Gallery altarpiece, especially in the landscape. Both the *Nativity* and the *Adoration* have paths winding into the distance, with the recession suggested by the diminishing hill-top buildings and the increasingly faint and feathery trees. In the *Adoration* the three horsemen coming over the brow of the hill on the right are thinly painted over the sky, creating a sense of aerial perspective (albeit exaggerated by the increased transparency of the paint over time). Carefully observed details such as the swallows in the eaves of the ruin, and the reflections of the bushes in the water – even if not consistently applied – and above all the assorted plants in the foreground demonstrate Foppa's experience of painting from the other side of the Alps, at that time much in vogue in the Ligurian cities for which he executed so many important commissions.

In technique as well as style, the *Adoration of the Kings* is a fascinating synthesis of all that was most up-to-date in Italian painting of the last two decades of the fifteenth century with methods associated with much older traditions of tempera painting. Foppa's experiments with Northern naturalism and his accomplished use of the oil medium, as well as his command of perspective in the complex architecture of the ruins, all point to a discerning awareness of recent developments in contemporary painting. However, his continued use of incision for drapery folds, black underpaints for areas of green and blue,



and ornamental gilding in the form of *pastiglia* and *sgraffito*, locate the origins of his style and technique in painting of the earlier part of the century. This substantial commission for an as yet unidentified patron permitted Foppa to combine material splendour and painterly skill in equal measure, resulting in one of the most sumptuous of his surviving altarpieces.<sup>28</sup>

### Acknowledgements

We are grateful to Ashok Roy and Emily Gore for their work on the preparation, analysis and explanation of the paint samples and cross-sections; to Catherine Higgitt for the examination and analysis of the gesso and paint media; and to Luke Syson for his observations at the initial stage of investigation.

### Notes and references

- 1 J.A. Crowe and G.B. Cavacaselle, *A History of Painting in North Italy*, II, London 1871, pp. 7–8; ed. T. Borenius, II, 1912, p. 324.
- 2 See V. Terraroli, 'Brescia', in V. Terraroli, ed., *La pittura in Lombardia. Il Quattrocento*, Milan 1993, pp. 210–42, p. 240. For a summary of opinions on the picture see M.G. Balzarini, *Vincenzo Foppa*, Milan 1997, p. 179.
- 3 M. Davies, *National Gallery Catalogues. The Earlier Italian Schools*, London 1959, pp. 196–7. For the entry in the Fesch inventory (Rome, Archivio di Stato) see D. Thiébaud, *Ajaccio, Musée Fesch. Les Primitifs italiens*, Paris 1987, p. 168. The item was one of those asterisked in the Fesch sale catalogue of 1845 (Galerie de feu S.E. Le Cardinal Fesch, Palazzo Falconieri, Rome, 18 March, vol. 4, pp. 193–4, no. 875), indicating works that had been in the Cardinal's possession before his move to France, and therefore not subject to the strict export restrictions imposed by the Papal States. On this, see F. Haskell, *Rediscoveries in Art: Some Aspects of Taste, Fashion and Collecting in England and France*, London 1976, pp. 81–2, note 60.
- 4 See Balzarini, cited in note 2.
- 5 For paintings in Brescia in the first half of the fifteenth century see Terraroli, ed., cited in note 2.
- 6 Umbertino Posculo's 1458 description of Gentile's murals refers only to a Saint George and the Dragon, but a later description of the chapel, apparently by then reworked by Calisto da Lodi, also records a Life and Passion of Christ. See K. Christiansen, *Gentile da Fabriano*, London 1982, pp. 134–5.
- 7 Ffoulkes and Maiocchi, in the first monograph to be written on Foppa, recognised the importance of Jacopo Bellini for Foppa, even suggesting that Foppa received his early training with him. See C.J. Foulkes and Monsignor R. Maiocchi, *Vincenzo Foppa of Brescia, Founder of the*

PLATE 9 Vincenzo Foppa, *The Nativity*, possibly late 1480s. Oil and tempera (?) on panel, 175 × 84 cm. Brescia, Chiesanuova, Parrocchiale di Santa Maria Assunta.

*Lombard School, His Life and Work*, London 1909, pp. 9–18.

- 8 A sample of gesso was examined by FTIR microscopy. Too little medium was present for precise identification, but it is assumed to be an animal-skin glue.
- 9 To date very little has been published on Foppa's painting technique, the exception being B.A. Price, T.A. Lignelli and J.H. Carlson, 'Investigating Foppa: Painting Materials and Structure' *Art et Chimie, la couleur*, Actes du congrès, Paris 2000, pp. 209–12. They report that the *imprimitura* of a *Portrait of an Elderly Gentleman* usually dated to about 1495–1500 (Philadelphia, John G. Johnson Collection) contains lead white and carbon black, while that of *The Virgin and Child before a Landscape* in the same collection, probably painted in

- about 1490, is pigmented with carbon black and a red earth pigment. The colour and appearance of the *imprimatura* are not described, but they are probably thin, translucent and only slightly coloured in the same way as the *imprimatura* of the National Gallery panel.
- 10 Only infra-red photographs have been taken, because the large size of the panel makes it inconvenient for infra-red reflectography. The latter might have revealed more drawing under some colours, for example areas of green. However, the black underpainting discovered in a cross-section of green foliage would obscure any such drawing.
  - 11 See M.C. Galassi, 'Sul percorso di Vincenzo Foppa: un avvio all'analisi del disegno sottostante', *Commentari d'arte*, anno II, n. 5, 1996, published 1998, pp. 27–42.
  - 12 Galassi, *op.cit.*, pp. 37–8. The underdrawing on these polyptychs varies considerably from area to area, and Galassi suggests that the simple quality of the line might be evidence for the use of tracings to transfer parts of the design. This is unlikely to be the case with the National Gallery altarpiece, where the lines are too free, fluid and continuous, with none of the hesitancy of an artist seeking to reinforce the usually faint and sometimes discontinuous marks that result from transfer by tracing.
  - 13 For discussion of pouncing using a liquid drawing material see C.C. Bambach, *Drawing and Painting in the Italian Renaissance Workshop. Theory and Practice, 1300–1600*, Cambridge 1999, p. 77.
  - 14 See Balzarini, cited in note 2, p. 87, plate 38, for a good illustration of a head transferred by pouncing, and L. Mattioli Rossi, ed., *Vincenzo Foppa. La Cappella Portinari*, Milan 1999, pp. 264–71, for diagrams showing the presence of *spolvero*, especially for many of the heads.
  - 15 The use of incision as well as other forms of underdrawing is also a feature of the Fornari polyptych of 1489 (personal communication from Franca Carboni who recently restored the altarpiece).
  - 16 The same technique was used for the jewels of the crown of the Virgin in the most lavishly decorated of Foppa's surviving polyptychs, that for Santa Maria delle Grazie in Bergamo (now Milan, Pinacoteca di Brera), dated to about 1485–90.
  - 17 The analysis was by GC–MS. A trace of pine resin was also found but this is thought to represent contamination by later varnish layers. Franca Carboni (see note 15) believes the Fornari polyptych to be painted principally in oil. In the case of the two small panels in Philadelphia (see Price, Lignelli and Carlson, cited in note 9) examination by FTIR, supplemented by GC–MS in the case of a few samples, indicated that they were painted mainly in egg (*The Virgin and Child*), or egg and oil mixtures (*tempera grassa*) (the portrait), and completed with oil glazes.
  - 18 Crowe and Cavalcaselle, cited in note 1, p. 324, n. 1, described Balthazar's costume as a 'grey dress'.
  - 19 National Gallery Conservation Record. The painting was cleaned and restored by Helmut Ruhemann. The report, made by the curator, Martin Davies, recorded that it was 'a striking example of unnecessary repainting. Former restorers had not confined themselves to mending, but had gone over the whole, softening the direct quattrocento qualities, emphasizing certain places with new gold etc., and dimming the tone of the whole with a heavy coloured varnish'. The new gold included haloes for the Holy Family, gold highlights for the cloth-of-gold of the kneeling king, actually executed entirely in paint, and lavish gold borders for the mantle of the Virgin, which had first been entirely repainted in a dark blue. Although Raffaele Pinti was more often employed by the National Gallery to make adjustments to previous restorations and to tone varnishes, the sum he was paid for his work on the Foppa (£95 11s. 0d.) suggests that he may have been responsible for much of this repainting and that it was therefore carried out under the direction of Sir Charles Eastlake and the Keeper, Ralph Wornum.
  - 20 The basic copper sulphate, brochantite, was detected on the trees and the lining of the Virgin's mantle of the Philadelphia *Virgin and Child* (see Price, Lignelli and Carlson, cited in note 9, p. 211), but EDX analysis of a sample from the foliage of the National Gallery altarpiece found only the more usual verdigris.
  - 21 This damage is largely responsible for the sense of a Leonardesque 'chiaroscuro fumoso', generally used to argue for a very late date for the altarpiece. See Balzarini, cited in note 2, p. 179.
  - 22 These are probably similar to the mixtures of lead white, black, red and yellow earths found in the *Portrait of an Elderly Gentleman* in Philadelphia, also painted with a relatively simple direct technique. See Price, Lignelli and Carlson, cited in note 9, p. 209.
  - 23 A green underlayer is present in the flesh painting of the Philadelphia *Virgin and Child* (see Price, Lignelli and Carlson, cited in note 9, p. 209).
  - 24 Price, Lignelli and Carlson, cited in note 9, p. 210, mention extensive underdrawing and several pentimenti on both Philadelphia panels.
  - 25 In the *Adoration of the Kings* at the centre of the predella of the Della Rovere polyptych, the kneeling page is placed to the right of the king. Therefore the pose is a less complex one.
  - 26 The reading of X-radiographs made of this area of the picture is considerably disrupted by the presence of the cradle on the reverse.
  - 27 See L. Castelfranco Vegas, *Italia e Fiandra nella pittura del Quattrocento*, 1983, p. 272, Milan.
  - 28 The Fesch sale catalogue entry, cited in note 3, is particularly eloquent on the sumptuous quality of the work: 'La beauté de leurs [the kings'] costumes ne saurait se décrire: leurs robes étincèlent d'or et de pierreries, et leurs riches couronnes sont encore rehaussées par l'éclat des diamants. Les gens de leur suite, dont quelques-une descendent la montagne, sont vêtus avec une magnificence digne des maîtres qu'ils servent. La somptuosité des costumes et des détails, le faste de la composition, font de ce tableau un morceau très remarquable.'