

Plate 1 Follower of Quinten Massys, *Saint Luke painting the Virgin and Child* (NG 3902), c.1525. Oak, 113.7 x 34.9 cm.



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Front cover: Jan Gossaert, *The Adoration of the Kings*
(detail of Plate 65)

Gossaert's *Adoration of the Kings*

Jeannin Gossart (active 1503; died 1532), sometimes known as Jean or Jan Gossaert, came from Maubeuge in the county of Hainault. He was also called Jeannin of Hainault or Jean de Maubeuge, translated into Latin as Ioannes Malbodius and into Dutch as Jan van Mabuse. It is not known where he was trained. In 1503 he became a master of the Antwerp guild but in 1507 or 1508 he entered the service of Philip of Burgundy (1464–1524), afterwards (1517) Bishop of Utrecht, an unusually accomplished patron who was himself an amateur painter.¹ In the winter of 1508–9 Gossaert accompanied Philip to Rome, where he copied for Philip the ‘monuments of antiquity’. On his return to the Low Countries he settled in Zeeland, and served various noble patrons until his death in 1532. Primarily a painter, he also made prints and designs for miniatures and sculpture. On at least one occasion he worked as a restorer: in 1523 he was paid a considerable sum for having worked for fifteen days on several ‘rich and exquisite’ pictures in the collection of Margaret of Austria.² His humanist friends discussed with him the acids used in etching and perhaps other questions of technique.³

His most famous painting was a large, double-winged triptych of the *Descent from the Cross*, made for the church of the Premonstratensian abbey of Middelburg. Dürer saw it there in 1520 and noted that it was ‘nit so gut im hauptstreichchen als in gemähl’ – by which he apparently meant that it was less well designed than painted.⁴ Though it was destroyed in 1568, when the church was struck by lightning, a local chronicler recorded that Dürer had praised it and had said that, in the Low Countries, he had seen nothing comparable.⁵

In Antwerp, Gossaert took two apprentices and evidently ran a workshop of the normal kind. When he moved north, however, he may have been without trained assistants. Van Mander reported that Gossaert asked the Haarlem painter Jan Mostaert to help him with his work for the abbey of Middelburg and that

Mostaert declined.⁶ According to some sixteenth-century accounts, it took Gossaert fifteen years to complete the Middelburg altarpiece.⁷ Such stories seem to suggest that he worked without assistants. Towards the end of his life, he may have employed his son-in-law Hendrik vander Heyden, a Louvain painter about whose work nothing has been discovered.⁸ Gossaert’s estate included ‘various quantities of paintings’⁹ and his other son-in-law, the second-hand clothes dealer Jan Eyen or Yden, inherited several of Gossaert’s pictures.¹⁰ This may imply that Gossaert kept a stock of paintings or that he sometimes painted for his own pleasure. He may have been prepared to produce replicas of his small religious pictures and portraits¹¹ and he certainly kept his ‘patterns’: the ‘*patroen*’ for the Middelburg altarpiece was one of the most valuable items in his estate and may possibly have been a painting rather than a drawing.¹²

Several signed paintings, drawings and prints survive; by comparison with the signed works, many unsigned pictures can be confidently attributed to Gossaert. In the National Gallery are his *Adoration of the Kings* (NG 2790), signed in two places;¹³ his *Little Girl* (NG 2211), possibly signed in anagram;¹⁴ and his *Virgin and Child* (NG 1888), which, though unsigned, was engraved in 1589 as a ‘distinguished picture’ by Gossaert.¹⁵ The *Man with a Rosary* (NG 656),¹⁶ the *Man holding a Glove* (NG 946),¹⁷ and the *Elderly Couple* (NG 1689)¹⁸ are securely attributed to Gossaert. All six paintings are executed with enormous and consistent skill; there is no reason to believe that assistants made significant contributions to any of them.

The *Adoration* was by 1600 in a chapel dedicated to the Virgin in the church of the Benedictine abbey of Geraardsbergen (Grammont) in East Flanders. It is believed to have been painted for the abbey; on stylistic grounds it may be dated in the early 1510s. The other paintings in the National Gallery are all later: the *Elderly Couple* is perhaps of about 1520; the *Virgin and Child* was almost certainly painted in 1527; the



Plate 65 Jan Gossaert, *Adoration of the Kings* (NG 2790). Oak, 179.8 × 163.2 cm.

Man with a Rosary may be from the late 1520s; while the *Little Girl* and the *Man holding a Glove* are probably from about 1530.

The *Adoration of the Kings* (Plate 65), a large and exceptionally well-preserved picture, is the subject of the present article. The study is based on a re-examination of the painting itself and of paint samples taken during cleaning in 1974–5. The materials used are not unusual; indeed they would not have been out of place in any artist's studio in the Netherlands in the sixteenth century. The binding medium of the paint is standard; in all the samples analysed it was identified as linseed oil. One sample, of a red lake glaze, contained a small addition of resin to the linseed oil, probably pine resin. This would have increased the transparency of the paint and was a common addition to glazes.¹⁹

The picture is painted on a large oak panel constructed from six radially cut boards, joined vertically. The panel has been thinned and a cradle attached. The thinning of the panel has exposed several of the dowels at the back set into the thickness of the wood to reinforce the butt joints. Unpainted edges are retained on all four sides but they have been trimmed unevenly and vary in width.²⁰ The panel is prepared with a white ground of chalk bound in glue, over which is a thin, pale yellow layer consisting of lead white tinted with a small amount of lead-tin yellow (Plate 66). This priming layer would have given a slight yellowish tint to the ground, but presumably its main purpose was to reduce the absorbency of the chalk.²¹

The *Adoration* is a complex composition. The recent investigations, in particular the results of infra-red reflectography, have given insights into how the design evolved as work progressed. All the main figures are extensively underdrawn. Most of the drawing appears to be in a dry material which was applied after the priming. In places, the drawn lines are broken by the ridges created by the brushstrokes of the priming layer. The drawing in the figures is relatively free, with areas of scribbled hatching and cross-hatching in the draperies to indicate folds and shadows (Fig. 15). In flesh areas, short and curved hatched strokes are used to indicate volume as well as

shadow (Fig. 16). The straight edges of the architecture are ruled, while some of the main horizontals and orthogonals are incised into the ground. The most important verticals seem to have been drawn first, before the figures, since certain lines, for example those of the stone building on the left, are continuous under the two large angels (see Fig. 15). The principal figures and the dogs must then have been drawn, before the floor. The ruled lines of the grid for the floor, drawn with a brush, hardly intrude across the contours of the figures. The chips, cracks, displaced paving stones and other irregularities are not underdrawn but are painted over the basic grid.



Fig. 15 Infra-red reflectogram mosaic showing a detail of the large angel on the left.



Fig. 16 Infra-red reflectogram mosaic showing a detail of the Virgin and Child.

The reflectograms reveal numerous changes made during the course of painting. The principal figures, the Holy Family and the three kings – Caspar kneeling before the Virgin, Melchior behind him, and on the left Balthasar – have not been dramatically altered, although all have been changed slightly. The head of Christ, for example, is drawn and reserved in a different position and on a smaller scale; Caspar’s nose is shorter in the underdrawing and his chin is smaller; Melchior’s nose is broader, longer and more aquiline in the drawing. More significant changes have occurred in the groups of attendants on the left and right of the picture. On the left, the head of Balthasar’s foremost attendant is painted much as it was drawn but the other two heads have been radically changed (Fig. 17). The reflectogram here is very difficult to interpret but the two figures between Balthasar and his main attendant have been altered several times. The reserves left during the initial painting of the architecture suggest two heads placed closer to the main attendant. In the reserve for the head closest to Balthasar the eyes, nostrils and mouth of the painted face can be seen, but there is also,

Fig. 17 (below) Infra-red reflectogram mosaic showing a detail of the heads of Balthasar and his three attendants.



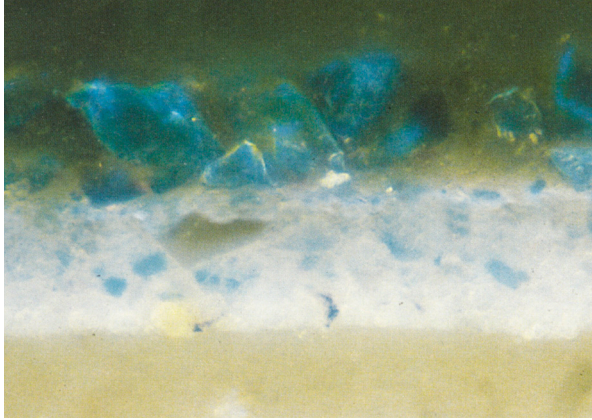


Plate 66 Cross-section of the Virgin's mantle. The thin pale yellow priming can be seen above the chalk ground. The light blue underpaint consists of lead white and azurite. The uppermost layer contains azurite and a small amount of ultramarine. Photographed at a magnification of 750 \times ; actual magnification 675 \times .



Plate 67 Detail of the Virgin's dress and mantle.

quite clearly, a drawn nose on a slightly larger scale pointing to the right. All three attendants must have originally faced towards the king. The reflectogram also shows a chipped stone in the masonry painted beneath the tall, conical part of the king's hat. The painting of the stonework must have been completed, suggesting that this part of the hat was a late addition. The attendants on the right, behind Melchior, are partly inspired by Schongauer's engraving of the *Adoration of the Kings*, from which the dog on our left is also taken. The underdrawing for the group is closer to the print than is the final painted version, in particular the figure of the horseman who, in the underdrawing as in the engraving, wears a larger turban with a point at its centre (Fig. 18). Certain figures, animals and objects are neither underdrawn nor reserved but are painted directly on top of whatever is behind them. They include: the ox, the ass, Caspar's sceptre, the lid of his goblet, the four shepherds behind and to the right of the ass, and several of the more distant angels.

Gossaert must first have prepared a design, drawn or painted, which his patron would have seen and approved. The underdrawing would be a freehand adaptation of the approved design. Gossaert began by ruling some of the leading lines of the architecture, then drew the principal figures, completed the drawing of the ruined buildings with broken arches in the centre, and ruled the grid on which the paved floor is based. He then laid in the background, leaving, for the



Fig. 18 Infra-red reflectogram mosaic showing a detail of the heads of Melchior and his attendants.

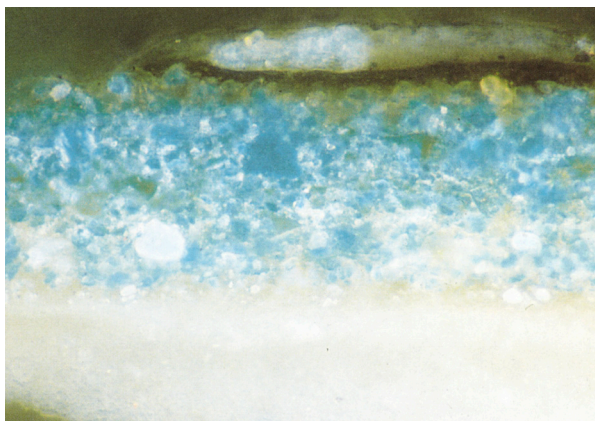


Plate 68 Cross-section of sky paint. The two blue paint layers contain azurite of relatively small particle size. The chalk ground and thin pale yellow priming are visible beneath the paint layers. Photographed at a magnification of 500×; actual magnification 360×.

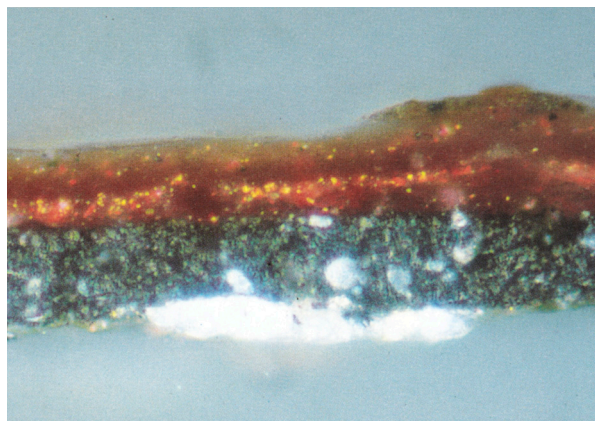


Plate 70 Cross-section of Caspar's plum-red cloak. A dark grey layer consisting of black and a little lead white lies beneath the red lake-containing upper paint layer. Photographed at a magnification of 500×; actual magnification 520×.

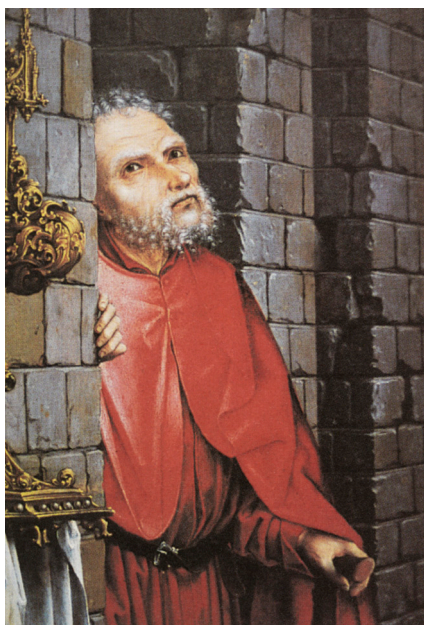


Plate 69 Detail of Saint Joseph.

larger figures, reserves that correspond more or less closely to the underdrawing. Afterwards he made various modifications to the principal figures, altered the two attendants immediately behind Balthasar and the group behind Melchior, and elaborated his composition by introducing several of the smaller shepherds and angels, the ox, the ass and Caspar's sceptre. He changed the background by closing the two broken arches and by including the view of the distant city; and he worked up the ornate detail of the architecture, the metalwork and the garments.

The colours in the painting have been planned so that areas of blue, green, red and pink are bal-

anced across the composition, echoing but never repeating the same colour exactly. Gossaert has succeeded in achieving subtle variations, even with the limited range of pigments available. The Virgin is dressed all in blue (apart from a tiny glimpse of a purple underdress), but her dress is a subtly different, duller, darker shade than her mantle (Plate 67). Her mantle is a strong, bright blue in the highlights but appears greener in the shadows. Cross-sections reveal that it has a light underpaint consisting of azurite and lead white, and an upper layer containing natural ultramarine as the principal blue pigment. In the highlights the ultramarine is mixed with white. The shadows appear a greener blue because they contain mostly azurite, with a small amount of ultramarine – probably not a deliberate mixture, but a result of using both blue pigments in the upper paint layer, wet-in-wet (Plate 66). This use of both azurite and ultramarine is also found in the upper layer of the dress. Less white is added, which partly explains why the dress looks darker, but the main reason for the difference between the two blues is a modelled grey underpaint (lead white and black) beneath the blue layers of the dress.

Ultramarine is not used in the other areas of blue in the picture: the sky, the angel's wings and the clothing of several other figures are painted with azurite. All these areas differ in colour from one another, although they contain the same blue pigment, azurite. These variations are a result of different paint layer structure and the admixture of small amounts of other pigments. The blue

tunics of Melchior's two main attendants are quite similar in colour, but that of the man holding the green hat is a stronger, brighter, slightly greener shade. It is painted using almost pure azurite, mixed with a little white in the highlights applied over a grey layer like the underlayer of the Virgin's dress. The tunic of the man in the pink hat is also painted using mainly azurite with a little lead white, but this time a small amount of red lake has been added. The paint is applied in two layers, and there is no grey underpaint. The azurite in the sky, applied in two layers and mixed with lead white, is of small particle size and therefore rather greenish blue (Plate 68). This fine-grained azurite was also used in the underlayer of the Virgin's mantle, although the upper layer contains coarser more intensely coloured particles (see Plate 66).

Saint Joseph, like the Virgin, is wearing two garments of the same basic colour but of slightly differing hue, achieved by a difference in the ways in which they have been painted (Plate 69). Both the red cloak and the red robe have an underpaint consisting of vermilion mixed with some red lake. In the cloak the final modelling has been carried out using a thin red lake glaze which, in the shadows, is thicker and contains black. Joseph's robe is slightly more orange and more opaque, resulting from adding black to vermilion, rather than red lake, to model the folds of the drapery. A final thin red lake glaze has been applied.

Balthasar's cloak is a richer red than Saint Joseph's garments. Darker parts of the cloak are now so transparent that the underdrawing is visible through the paint. Oil paint increases in transparency with age – the underdrawing would not originally have shown – but the paint consists mainly of red lake, mixed with small amounts of vermilion, lead white and black, and must therefore always have been relatively translucent. There is further modelling using red lake mixed with black to indicate the deepest shadows and an opaque pink (lead white and red lake) for the highlights. The richest of the vermilion-based reds is Caspar's glorious red velvet hat which is painted in the same way as Saint Joseph's cloak: an opaque red underlayer covered by a red lake glaze, but here the glaze is thicker, giving a richer red colour. Other areas of red, such as the hat which Melchior's attendant

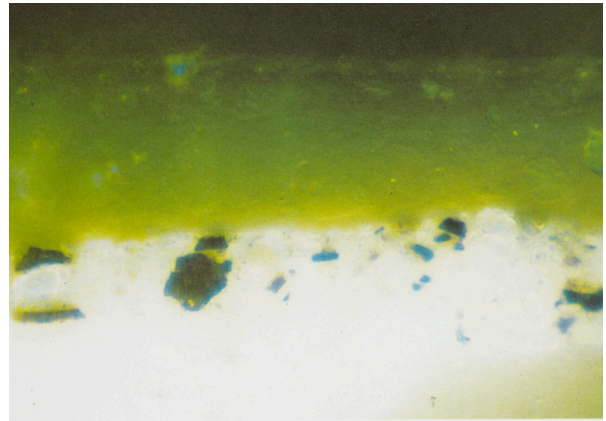


Plate 71 Cross-section of green drapery of the large angel in the upper half of the painting. The uppermost green paint layer consists of verdigris with a small amount of lead-tin yellow. There is a grey undermodelling beneath the green paint, consisting of lead white and coarse black pigment. Photographed at a magnification of 1500×; actual magnification 1050×.



Plate 72 Detail of Melchior's cloth-of-gold cloak.

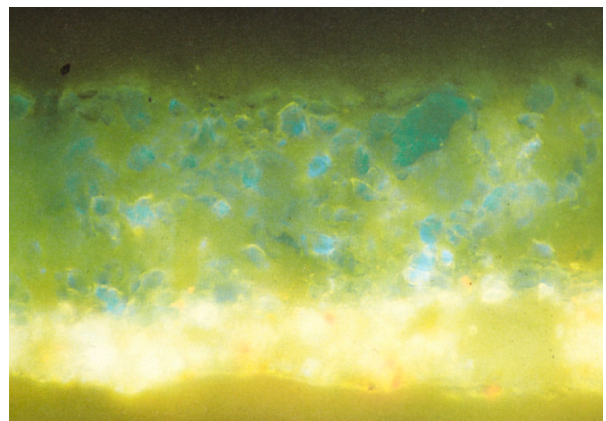


Plate 73 Cross-section of the pattern on Melchior's cloth-of-gold cloak. The uppermost layer, containing azurite, is the dark blue paint of the pattern. Beneath it is the dull yellow base colour which consists of lead white, lead-tin yellow and vermilion. Photographed at a magnification of 780×; actual magnification 680×.



Plate 74 Detail of the tassel on Caspar's hat.



Plate 75 Detail of the dog's head.



Plate 76 Detail of the hairy wart on Caspar's face.

wears and the cloak he holds, are pinker in tone because the main red component is red lake.

One of the most unusual colours in the painting is the rich, plum colour of the velvet cloak worn by Caspar. There is a uniform, very dark grey paint layer beneath the whole area (Plate 70). The modelling of the cloak was painted on this grey layer with mixtures of red lake and lead white. The darker red pattern was then painted in red lake and the whole cloak received a final glaze of the same red lake. The origin of the dyestuff used to prepare the red lake pigment was investigated by microspectrophotometry. The results indicate that it was derived from a scale insect source, possibly the kermes insect.²² The unusual colour is achieved by exploiting the optical effect of translucent red over black, no blue or black was added to the upper layers. Mixtures of red and blue are used to create various shades of purple, from the pale mauve of Balthasar's sash (red lake, azurite, lead white) to the deeper purple of the Virgin's underdress (ultramarine and red lake).

Grey undermodelling similar to that beneath the Virgin's dress is found beneath some of the greens, for example the green dress of the large angel above Balthasar (Plate 71). As with the Virgin's dress, the artist has not relied entirely on the grey underpaint to provide the modelling. The green paint on top, consisting mainly of verdigris, is applied in one layer which is thicker in the darker green shadows, and is mixed with small amounts of lead white and lead-tin yellow in the lighter areas. In the green drapery of the small angel in the doorway behind the ox, Gossaert again makes use of a dark grey undermodelling. Here the green in the upper layer is thinner and more translucent, allowing the underpaint to create the modelling. One of the shepherds behind Caspar also wears green, but does not have a grey undermodelling. Here the underpaint is green, consisting of verdigris, lead-tin yellow and lead white, with further modelling using verdigris-containing paint.

Many different forms of gold are represented in the painting: solid gold objects, like the kings' gifts and their crowns, and the different cloth-of-gold fabrics which they wear. Melchior's robe is cloth of gold lined with ermine (Plate 72). The pattern is outlined with dark paint which now looks virtually black, although a cross-section

(Plate 73) shows that it consists of azurite.²³ The base colour for the cloth of gold contains lead-tin yellow, lead white and vermilion. The modelling of the folds is achieved partly by varying the base colour, and reinforced by adjusting the thickness of the small strokes of lead-tin yellow which represent the gold threads. There is also metallic gold on the painting, although it is confined to the haloes of the Virgin and Christ, which are painted in shell gold.²⁴ Caspar's hat incorporates a solid metal crown, and has a tassel and embroidery made from gold thread (Plate 74). The high impasto of the lead-tin yellow paint of the tassel contrasts with the thinner, flatter paint of the embroidery at its base, and the way the hard shiny metal has been painted emphasises the contrast with the soft velvet.

Gossaert handled paint with exceptional skill. Frequently it is worked wet-in-wet, for example in the eye of the dog in the lower right corner (Plate 75); the wet paint is often dragged or feathered, for example in Melchior's ermine and the fur of the shepherd holding the pipe. A *scraffito* technique is used for some of the hair and beards. In certain places, for instance the doublet of the attendant on the left, the glazes have a spotted appearance because they have been blotted, perhaps with a cloth. A fingerprint in the green glaze of the angel behind the ox shows that here Gossaert has blotted the glaze with his finger.²⁵

There are virtuoso passages of detail, especially in the foreground: for example the hairs sprouting from the wart on Caspar's cheek (Plate 76), the decoration of Caspar's hat, and the fringes on Balthasar's stole. By contrast, some extraordinary details are rendered with surprising economy of effort. The pearls edging Melchior's green doublet are painted by laying in a strip of grey, worked over rapidly with white highlights, pale blue secondary lights and dark grey shadows to define the shapes of the pearls (Plate 77). The pearls on Caspar's hat, however, which are more prominent, are more carefully executed (Plate 78). They are circles of grey, painted on top of the red of the hat and thin enough to reveal the red in some places, as if it were reflected in the pearls. On the shadow sides are black crescents and bright orange reflected lights, while on the lit sides are dashes of pale blue and, on top of that, spots of pure white.



Plate 77 Detail of the pearls at the top of Melchior's tunic.



Plate 78 Detail of the pearls around the brim of Caspar's hat.

Such virtuoso passages can be found in the five other paintings by Gossaert in the Collection. Two of the most striking are: in the *Virgin and Child*, the fingers and finger-nails of the Christ Child;²⁶ and, in the *Elderly Couple*, the startlingly illusionistic white hairs which have fallen from the old man's head and curl across his fur collar.

Details like these invite comparison with the work of van Eyck and van der Weyden, who were much admired by their sixteenth-century successors. In a rather despondent mood, the painter Lambert Lombard wrote in 1565 to Vasari: 'Master Rogier and Jan van Eyck ... opened the eyes of the painters who, imitating their styles and not thinking progressively, have left our churches full of works which do not resemble the good and natural ones but are only

garbed in good colours.²⁷ In 1568 Marcus van Vaernewyck stated that Gossaert, Hugo van der Goes and others had praised the Ghent Altarpiece.²⁸ An earlier source had implied that van der Goes had been driven mad by futile attempts to rival the altarpiece.²⁹ Gossaert expressed his admiration for van Eyck by copying his *Virgin in a Church* and by painting versions of the Deësis group in the Ghent Altarpiece and the Saint Donatian in his *Virgin and Child with Canon van der Paele*.³⁰ Margaret of Austria owned several van Eycks, including the *Portrait of Giovanni(?) Arnolfini and his Wife* (NG 186); and one or more of her van Eycks were perhaps among the ‘rich and exquisite’ pictures which Gossaert restored for Margaret in 1523.³¹ In any case, he had every opportunity to examine closely various paintings by van Eyck. He may have observed that Jan sometimes manipulated paint with his fingers, that he blotted his glazes and that he used *sgraffito* techniques.³² Jan’s example may have encouraged him to experiment with similar procedures.

Gossaert seems to have been unusual in the extent to which he emulated the mid-fifteenth-century masters. Aspects of his handling of paint have much in common with his predecessors’, as does his fanatical attention to detail, but the technique of the *Adoration* differs in other respects. In particular, grey undermodelling, as used beneath the Virgin’s blue dress and several areas of green, and the use of the optical effect of a uniform grey layer beneath semi-transparent paint to give the purplish colour of Caspar’s cloak, would be unusual in the paintings of these earlier artists. Gossaert was also untypical in that he appears generally to have worked without assistants. He cannot therefore have trained many pupils, but his work was so much admired that it was copied and imitated. None of his imitators, however, succeeded in emulating his degree of skill, which impressed Dürer by its excellence. As Dürer seems to have implied, Gossaert was unique in his technical accomplishment.³³

Notes and References

1. On Gossaert’s life and work, see M.J. Friedländer, *Early Netherlandish Painting*, VIII, trans. H. Norden, ed. H. Pauwels and S. Herzog, Leyden and Brussels 1972. Many of the sources concerning Gossaert are reprinted in H. Pauwels, H.R. Hoetink and S. Herzog, *Jean Gossaert dit Mabuse*, exhibition catalogue, Museum Boymans-van Beuningen, Rotterdam, and Groeningemuseum, Bruges, 1965, pp. 373–91. For Philip of Burgundy, see J. Sterk, *Philips van Bourgondië*, Zutphen 1980.
2. M. Gossart, *Jean Gossart de Maubeuge, Sa vie et son oeuvre*, Lille 1903, p. 39.
3. G. Geldenhauer to F. van Cranevelt, 22 July 1522: see H. De Vocht, *Literae virorum eruditorum ad Franciscum Craneveldium 1522–1528*, Louvain 1928, p. 24.
4. H. Rupprich, ed., *Dürer, Schriftlicher Nachlass*, Berlin 1956–69, I, pp. 162, 190 n.393.
5. ‘...Albert Durer Hoochduytsch/ die dese Schilderije seer gherecommandeert heeft/ segghende/ dat hy sulckx in dese Nederlanden niet ghesien en hadde’: J. Reygesbergen and M.Z. van Boxhorn, *Chroniick van Zeelandt*, Middelburg 1644, II, p. 445.
6. K. van Mander, *The Lives of the Illustrious Netherlandish and German Painters*, ed. H. Miedema, I, Doornspijk 1994, fol. 229v.
7. See the ‘Register perpetueel der stad Rumerswaal’ and Molanus’s history of Louvain, reprinted in Pauwels et al., cited in note 1, p. 381.
8. M. Smeyers, ‘De Leuvense schilder Hendrik Vander Heyden, schoonzoon van Jan Gossart’, *Bulletin Museum Boymans-van Beuningen*, XIX, 1968, pp. 76–116
9. ‘...diuerssche p[er]ceele[n] van tafereele[n] besondere tpatroen vander tafel vand[en] abdye te middelb[urg]’: Gemeentearchief, Veere, Archief van de weeskamer van de stad Veere, Weesboek E, 1531–1544, fols. 107–108. French translations were published by Gossart, cited in note 2, pp. 143–5. Peter Blom, the archivist at Veere, very kindly sent photocopies of the original document.
10. Petition of 1536, addressed by Yden to Charles V, mentioning unspecified pictures by Gossart which Yden did not wish to have to sell: Gemeentearchief, Veere, Archief van de vierschaar van de stad Veere, Stukken ingekomen van de Hoge Raad, Inv. nr. 488^a. This document was discovered by Peter Blom, who kindly sent a photocopy.
11. See Friedländer, cited in note 1, Nos. 39, 76, etc., for instances of replicas possibly produced in Gossart’s workshop.
12. See note 9 above.

13. M. Davies, *Early Netherlandish School*, National Gallery Catalogues, 3rd edn, London 1968, pp. 63–4.
14. *Ibid.*, pp. 62–3.
15. L. Campbell and J. Dunkerton, 'A Famous Gossaert Rediscovered', *Burlington Magazine*, 1996, pp. 164–73.
16. Davies, cited in note 13, pp. 60–1.
17. *Ibid.*, p. 61.
18. *Ibid.*, pp. 61–2.
19. Paint samples were analysed by GC–MS by Raymond White. Green paint from a plant in the foreground and yellow paint from the robe of the angel in the upper right part of the picture was found to contain linseed oil. There was no evidence of heat pre-polymerisation. The red lake glaze on an angel's wing was found to contain a small amount of resin, probably pine, in addition to non-heat pre-polymerised linseed oil.
20. Along the top and bottom unpainted edges is a series of irregularly spaced holes, approximately 5 mm in diameter, countersunk on the front. Some of the holes lie very close to the edge of the paint so that countersinking has resulted in some paint loss, indicating that the countersinking was done quite some time after the painting was completed.
21. The thickness of the priming, as seen in cross-sections, is around 10 microns. Lead-tin yellow and lead white were identified by EDX analysis. The layer was too thin to allow the binding medium to be identified. The four other paintings on panel by Gossaert in the Collection also have a priming on top of the chalk ground. The *Little Girl* and *Man holding a Glove* have lead white primings. The other two, *Virgin and Child* and *Man with a Rosary*, have a more strongly tinted pinkish-grey priming.
22. Microspectrophotometry indicated that the dyestuff was of insect origin and comparison of the curve with that obtained from a standard sample indicated that it might be kermes. See J. Kirby, 'A Spectrophotometric Method for the Identification of Lake Pigment Dyestuffs', *National Gallery Technical Bulletin*, 1, 1977, pp. 35–48. The principles of the method are outlined in this article, although the analysis was performed on updated equipment. Not enough sample was available to analyse the lake dyestuff using HPLC, a more exact method of analysis. This suggestion is consistent with results obtained so far on lake pigments from Northern paintings; where it has been possible to identify the dyestuff more exactly by HPLC, the insect dyestuff was found to be from the kermes insect. See J. Kirby and R. White, 'The Identification of Red Lake Pigment Dyestuffs', *National Gallery Technical Bulletin*, 17, 1996, p.72.
23. The darkening of azurite-containing paint is discussed in R.J. Gettens and E. West Fitzhugh, 'Azurite and Blue Verditer' in *Artists' Pigments. A Handbook of Their History and Characteristics*, Vol. 2, ed. A. Roy, Washington 1993, p. 27. The particles are relatively small, similar in size to those in the sky paint.
24. The use of shell gold is discussed in the general section of this *Bulletin*, see p. 34.
25. Glazes which appear to have been applied or blotted with a cloth to achieve a thin even layer are discussed in the general section, p. 42.
26. Campbell and Dunkerton, cited in note 15, p. 170.
27. '... Maestro Rogiero et Ioan di Bruggia, ch'aperse li occhi alli coloritori, i quali imitando la maniera sua et non penzando più inanzi, hanno lasciate le nostre chiese piene di cose che non somigliano alle bone e naturali, ma solamente vestite di belli colori' (G. Gaye, *Carteggio inedito d'artisti dei secoli XIV, XV, XVI*, vol. III, Florence 1840, pp. 176–7; the translation is based on that given in W. Stechow, *Northern Renaissance Art 1400–1600, Sources and Documents*, Englewood Cliffs 1966, p. 42).
28. M. van Vaernewyck, *Den Spiegel der Nederlandscher audheyt*, Ghent 1568, fol. 117v.
29. Hieronymus Münzer, writing in 1495: see W.H.J. Weale, *Hubert and John van Eyck, Their Life and Work*, London 1908, p. lxxv.
30. For Gossaert's copies and versions of paintings by van Eyck, see Friedländer, cited in note 1, Nos. 3, 19, 5; see also H.F. Pauwels, 'Jan Gossaert en Van Eyck', *Bulletin Museum Boymans-van Beuningen*, XIX, 1968, pp. 4–15.
31. See note 2 above.
32. This description of van Eyck's technique is based on a study of his paintings in the National Gallery. See also p. 82 of this *Bulletin*.
33. See notes 4 and 5 above.