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Plate 7. The Master of S. Giles. *The Mass of S. Giles*, after cleaning and restoration.

Plate 6. The Master of S. Giles *S. Giles and the Hind*, after cleaning and restoration.

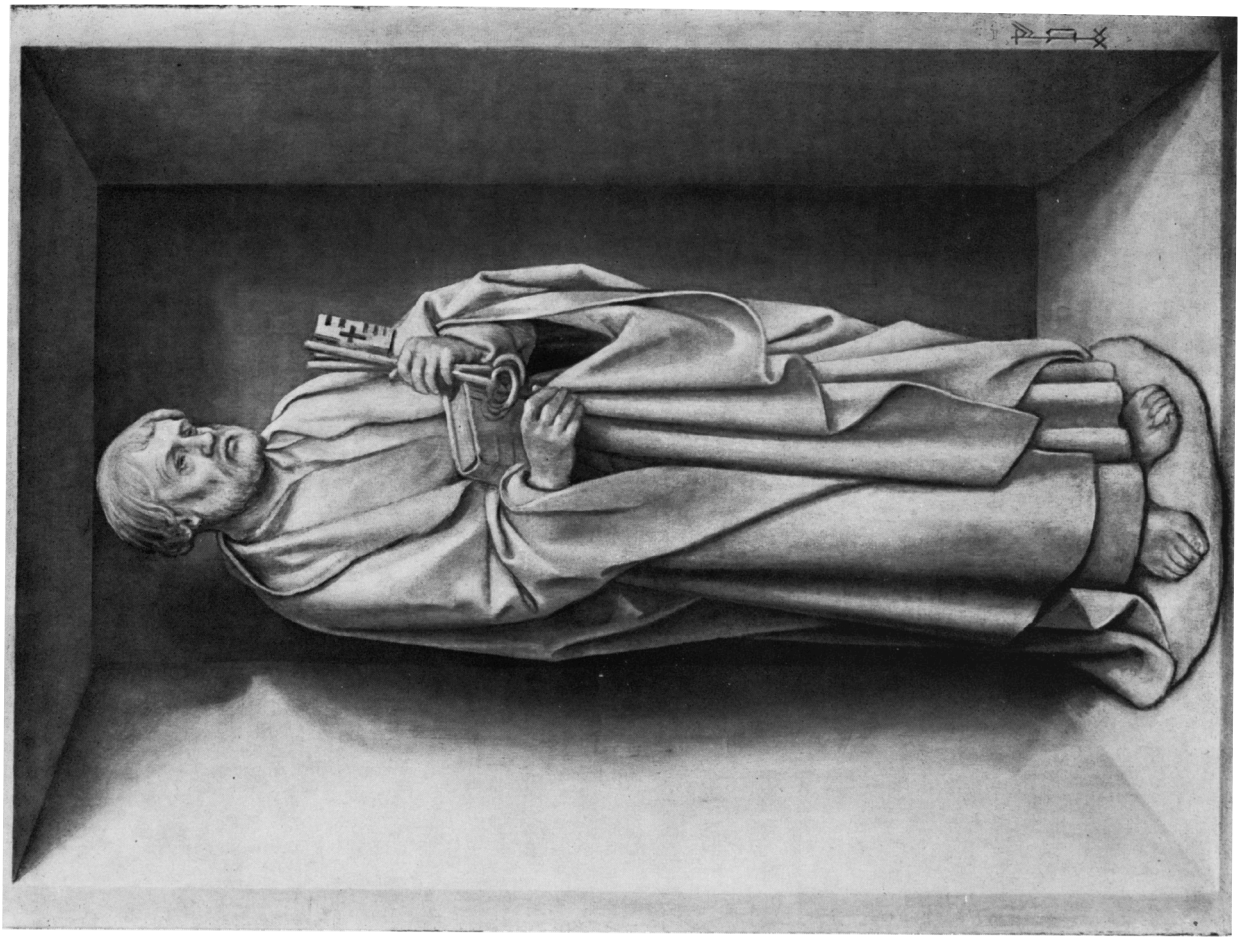


Figure 2. Reverse of *The Mass of S. Giles*, after cleaning and restoration.

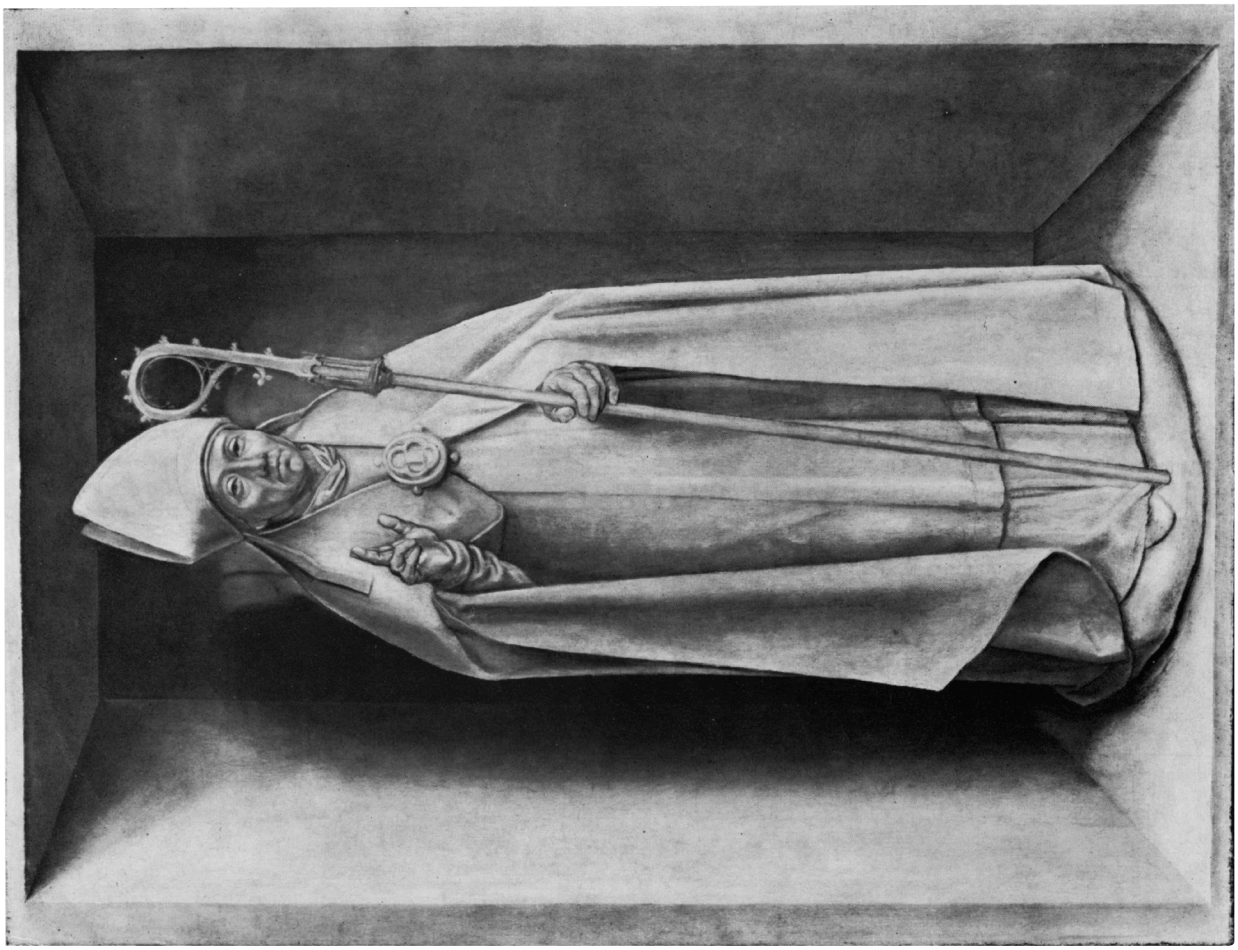


Figure 1. Reverse of *S. Giles and the Hind*, after cleaning and restoration.

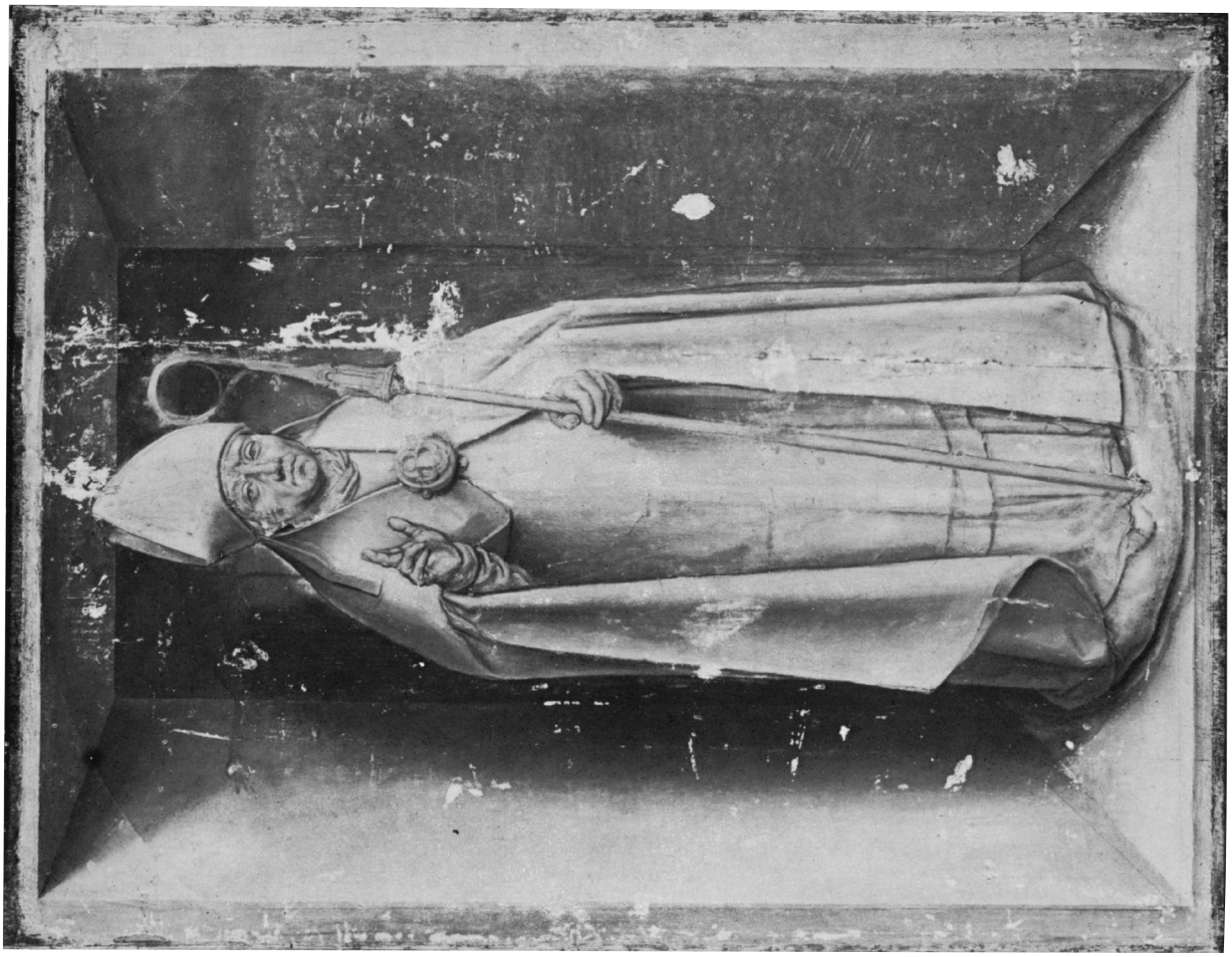


Figure 4. Reverse of *S. Giles and the Hind*. Infra-red photograph after cleaning before restoration.

Figure 3. Reverse of *S. Giles and the Hind*, before 1937.

Two Panels by the Master of Saint Giles

David Bomford and Jo Kirby

Observations on their cleaning and restoration

David Bomford

The anonymous painter known as the Master of S. Giles is named from two panels in the National Gallery depicting scenes from the life of S. Giles. The panels are of oak, and painted on both sides. The first, acquired by the Gallery in 1894 is *S. Giles and the Hind* (No.1419) (Plate 6) with, on the reverse in grisaille, a bishop in a niche (Fig.1); the second, acquired in 1933 is *The Mass of S.Giles* No.4681 (Plate 7) with, on the reverse in grisaille, S. Peter in a niche (Fig.2). A full account of subject, dating and related paintings may be found in the National Gallery catalogue *The Early Netherlandish School* by Martin Davies.

In 1974–5 both sides of each panel were cleaned and restored. Cleaning confirmed that the reverse sides were not in good condition: before entering the Gallery they had suffered considerable indignities such as being written upon and having labels stuck to them (Fig.3). In addition there were pitted areas suggesting that the paint had been burned, a not uncommon hazard for the outsides of altar shutters.

By contrast, the front sides were in almost perfect condition. Apart from quite normal small lacunae associated with joins and splits in the panels, the only substantial losses found on *The Mass of S. Giles* were confined to the green curtain (at the left of the altar) which had been heavily overpainted. The nature of the paint loss makes it fairly certain that its origin lies in a failing of materials or technique rather than accidental or wilful damage. The scientific report that follows shows the layer structure here to be extremely complex and points to a probable cause for the flaking of the paint layers.

Retouching of the areas of damage on both the front and reverse of each panel was carried out using pigments ground in the acrylic resin Paraloid B72; the final varnish was a polycyclohexanone resin, MS2A, in white spirit.

A detailed description of the materials and technique found in these paintings is the subject of the scientific report to which this note forms an introduction. Some relevant points may be mentioned here which have been raised or clarified by the recent cleaning and by the use of infra-red photography.

The niche shown on the reverse of *S. Giles and the Hind* was originally painted with a rounded top, but changed by the painter to a rectangular one. This is visible to the naked eye but appears even more pronounced in an infra-red photograph (Fig.4). The reverse of *The Mass of S.Giles* does not show the same alteration and is of much lower quality. The experimental nature of the niche and higher quality found in the grisaille of the bishop on *S.Giles and the Hind* suggest that it was the first to be painted, perhaps by the Master himself. Other grisailles (including that of S. Peter) might well have been the work of assistants. The order in which the reverse sides were painted does not necessarily indicate the sequence for the front sides.

There are several pentimenti on the fronts of the panels which show clearly in the infra-red photographs (Figs.5,6). The most prominent occurs in the face of S. Giles in *S. Giles and the Hind.* An earlier version of his face is visible, smaller and slightly to the right, although there are not two distinct faces, one overlying the other. A cross-section taken from the outside of his left eyebrow shows only a single layer of pale pink paint over a thin lead-white underpaint, indicating that the earlier face had merely been extended and adapted for the later, rather than completely painted over.

The foreground in the same painting was begun before the final positions of the figures was decided. The infra-red photograph shows that green underpaint extends under the figures for some way; this is especially visible in the boot, bottom centre, and the red robe, lower left. Green pigments are particularly opaque to infra-red radiation (hence the black appearance of the foreground) and where the boot and robe cover green underpaint they appear substantially darker.

In *The Mass of S.Giles* there are pentimenti in the statuary at the right edge (originally there had been a hanging drape) and the line of the architecture at the top right corner. The position of the angel's wing (top left) was also substantially changed.

Finally, infra-red photography is valuable in showing underdrawings where the thinness of technique allows. The hatched preparatory drawing lines may be seen clearly in the white robe of S. Giles as he stand in front of the altar.

Materials, paint structure and techniques

Jo Kirby

The cleaning and restoration of the two panels by the Master of S. Giles presented the Scientific Department with a welcome opportunity to examine the paint structure and the more technical aspects of the artist's technique. The S. Giles panels were investigated in rather greater detail than had been possible with some of the other Early Netherlandish School pictures examined previously and were found to show some interesting features, many of which seem typical of the School as a whole at this time.

In order to examine the layer structure of the paint

Figure 5. *S. Giles and the Hind.* Infra-red photograph, after cleaning before restoration.

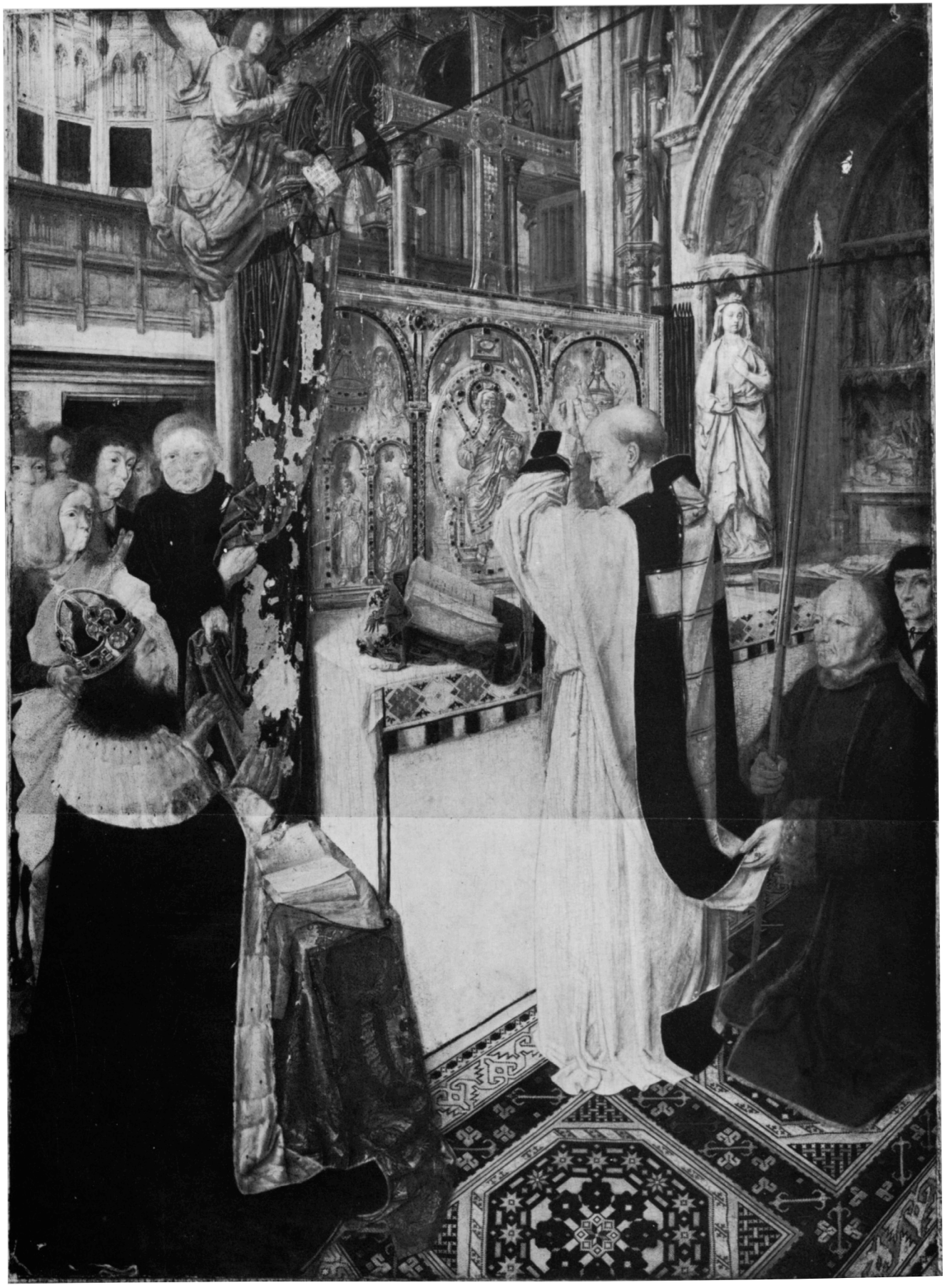


Figure 6. *The Mass of S. Giles*. Infra-red photograph, after cleaning before restoration.

and identify the pigments used, tiny fragments of paint were taken from damaged areas of *The Mass of S. Giles* and *S. Giles and the Hind*. The two grisailles were not examined, although a sample was taken from one for analysis of the paint medium. In *The Mass of S. Giles*, samples were taken from areas of paint loss in the green curtain to the left of the altar, that to the right of the altar, the white altar cloth, the red altar frontal, the carpet (mostly along the bottom edge of the picture), the King's dark bluish-green robe and one or two areas of the architecture (mostly along the top edge of the picture). A long crack running from the top to the bottom of *S. Giles and the Hind*, just to the left of the tree, enabled samples to be taken from the sky, the distant landscape, the figure behind the kneeling Bishop, the Bishop's face, the King's robe and boot, and a leaf in the foreground. A sample was also taken from a tiny paint loss near to the Saint's left eyebrow, in the hopes that it might provide information on the alterations made to his head; in fact it did not, as has been discussed in the section on the cleaning and restoration of the painting. As always, in neither picture was it possible to take samples from every area that it might have been desirable to examine, as sampling was restricted to damaged areas only. The survey represented by the samples taken from each picture is thus rather incomplete, if the pictures are considered individually, but can be seen to be quite comprehensive if the two sets of samples are considered together.

The panels themselves are oak, commonly used for Early Netherlandish School paintings. The scenes are painted on a white preparatory layer or ground, composed of chalk (calcium carbonate), in an animal-skin glue medium, which forms the lowest paint layer in, for example, the cross-section prepared from a sample taken from a dark green shadow on the curtain to the left of the altar, just to the right hand of the attendant holding it, in *The Mass of S. Giles*, shown in Pl. 1a Its appearance under the microscope, reminiscent of cotton wool, is fairly typical of chalk grounds, which have invariably been found in Early Netherlandish paintings of this period; the use of gesso grounds seems on the whole to be restricted to Italian paintings at this time. The yellowish colour of the ground shown in Plate 1a is probably largely due to darkening of the animal-skin glue medium, identified by its solubility even in cold water and by a staining test, to be described later. Before any painting was carried out, the design was drawn in black on the ground, indicating such features as areas of strong shadow; a certain amount of the drawing can be seen in the infra-red photographs (Figs.5,6) and traces also appear in several of the cross-sections prepared from samples taken from the two paintings, including that shown in Pl.1a, where it can be seen as a very thin line of black pigment particles immediately below the first layer of green paint.

Above the ground and underdrawing, the paint is built up in a sequence of the thin, regular layers typical of Early Netherlandish School paintings, those in the S. Giles panels having an average thickness of perhaps 15–20μm apart from the highlights, which are applied rather more thickly. Cross-sections prepared from some of the samples contain a larger number of paint layers than has been usual in samples taken from other Early Netherlandish School works examined at the National Gallery, where often no more than two or three paint layers have been found to be present above the ground and underdrawing. To some extent this may be explained by the fact that the pictorial design of the two paintings is complicated, with a wealth of intricate and meticulously painted details, such as the superb carpet and the brocades in *The Mass of S. Giles* and the carefully observed flowers and foliage in the foreground of *S. Giles and the Hind*. Perhaps it is understandable, therefore, that a cross-section prepared from one of the samples taken from a damaged area of the carpet should contain as many as six layers of paint above the ground. The presence of fine detail could almost be described as a characteristic feature of many paintings of this school and it is interesting to note that No.2790 *The Adoration of the Magi*, painted by Jan Gossaert between 1500 and 1515—that is, at about the same time as the S. Giles panels—is just as detailed a work, but the samples taken from this picture during restoration do not show as complicated a layer structure on the whole. Had the artist changed his mind about various details of the paintings during their execution this might indeed be reflected in the paint structure, but, while there are various pentimenti in both panels, most alterations seem to have been made at the drawing stage.

In some of the Early Netherlandish School paintings examined, a thin layer of light-coloured underpaint has been found above the ground and underdrawing: in No.6394 *S. Ivo*(?), painted by Roger van der Weyden, which may be dated around 1450, a very thin layer of lead white underpaint is present. There is no uniformly-coloured layer of underpaint in either of the S. Giles panels. From the samples available for analysis, it appears that the first layer of paint applied may indicate local colour immediately, as in the case of the red altar frontal in *The Mass of S. Giles*, for example, which has a red underpaint, or may be in a fairly neutral light colour suitable for a larger area in the picture. Subsequent paint layers supply appropriate local colour, or modelling of an item, or correspond to one detail having been painted over another, as will be discussed in the following examples.

The green curtain to the left of the altar in *The Mass of S. Giles* was the only badly damaged area in the whole picture. Samples were taken at the request of the restorer in order that a yellow material, which could be seen under the original paint, might be identified. It was identified as the chalk ground, which, as has already been mentioned, is discoloured, particularly in this area of the painting. The samples also provide an interesting insight into the artist's technique. If Pl.1a, previously mentioned, is compared with Pl.1b, showing a cross-section prepared from a sample taken from a greenish-yellow highlight on a fold to the right of the King's left hand, it can be seen that the layer structure of the cross-sections varies, both in the number of paint layers present and in their colour. The shadow, for example (Pl.1a), is built up using two or three layers of fairly dark green paint, containing the pigment malachite mixed with other pigments, over a curiously translucent underpaint, apparently consisting of a green glaze-like

Note
Plate 1 referred to in the text is to be found on page 15

material mixed with green and black pigment particles. An apparently similar green glaze is also found in the uppermost paint layer to give depth and luminosity to the shadow. The glaze may be prepared by dissolving a copper salt in a suitable resin or a mixture of resin and drying oil; it is commonly known as 'copper resinate'. It is generally used as a glaze over other layers of paint and its presence in an underpaint is surprising. However, a translucent green material with a very similar appearance to that of 'copper resinate' may be formed as a result of a copper-containing pigment, like malachite, dissolving to a greater or lesser extent in the binding medium, forming copper salts of the acids present (1). If such a process has taken place in the underpaint of this sample, its translucent appearance is explained: it may also account for the poor adhesion of the paint, although, as the curtain to the right of the altar seems to be in reasonably good condition, it may be that the poor adhesion is partly caused by reaction between the malachite present and the priming, or some other material present in the ground, in this area alone, Some evidence for this hypothesis is given by the presence of a trace of the green translucent material between the ground and the underpaint, in Pl.1b. The strongly lit fold of the curtain (Pl.1b), has a very light green underpaint, above which may be seen several layers of light green paint. The uppermost paint layer is the pale yellow highlight, merging imperceptibly into the lime green layer below, as if it had been laid on while the lime green paint was still wet. In the case of the curtain, therefore, it is likely that the various paint layers present correspond to the lights, half-lights and different depths of shadow modelling the curtain; the curtain to the right of the altar shows a very similar paint structure. If the original paint of the curtain is studied carefully, it may be seen that the folds have been carefully and naturalistically rendered. It is not uncommon in Early Netherlandish School paintings to find a number of layers of green paint used to build up a green-coloured item, particularly when the uppermost layer is a green 'copper resinate' glaze. Such a glaze tends to go brown with the passage of time, but the paint as a whole still appears green owing to the presence of the layers of green paint underneath. A rather less complicated example than the curtain discussed is shown in Fig.7, showing a cross-section prepared from a sample taken from the green hanging behind the figures in No.709 *The Virgin and Child*, from the studio of Memlinc.

The paint of the carpet was in such good condition that it was not possible to investigate the paint structure fully; samples could only be taken from along the bottom edge of the picture and from the bottom right-hand corner, and in many the layer structure was found to be incomplete. It seems clear, however, that the pattern of the carpet was built up by painting one detail over another, after the main areas of red, green and blue had been laid in over a uniform light-coloured underpaint. Samples taken from the differently coloured motifs on the patterned green border, surrounding the mainly red and blue part of the carpet in the foreground, for example, show that they are painted over the green background colour of the border; the same is true of the white edge to the border (Fig.8). The lowest layer illustrated in Fig.8 is that of the underpaint for the whole carpet; above this, the paint structure varies slightly from area to area. A different pattern of layers is seen, for example, in Plate 5b and Fig.9, taken from a red part of the carpet in the extreme right-hand corner, from what appears to be the riser of a step (the underpaint and ground are missing). If the surface of the paint is examined closely, it can be seen that the knots of the carpet are indicated by regularly spaced lines drawn across the paint of the carpet in a colour appropriate to that found in each area: a red lake pigment over red, a green 'copper resinate' glaze, now rather browned, over green, and so on.

Samples taken from various parts of the architecture in *The Mass of S.Giles* show a relatively straightforward structure, illustrated by the cross-section in Fig.10. This is prepared from a sample taken from the greyish-coloured stone above the arch on the right-hand side of the picture, the colour of which is given by a layer of beige paint of a most delicate tint. The lowest layer of underpaint is orange-red in colour. In a sample taken from a deep brown shadow, the depth of shadow is given by two layers of dark brown paint, both containing mostly a dark brown ochre and black, in slightly different proportions, over a sequence of layers very similar to that illustrated in Fig.10. A sample taken from an orange banner covering a window in the well-lit part of the church on the left, just visible through the cusped arch immediately to the left of the crucifix, contains the cream underpaint seen in Fig.10 only, above which are two layers of paint representing the stonework and a layer of orange paint for the banner (Pl.1c). It would seem that the area of the church on the right-hand side of the picture, which is relatively shadowy, is underpainted in a darker colour than the well lit part of the church on the left. Thus, if one imagines the painting as it might have appeared after the first layer of paint only had been applied, the architecture would appear cream-coloured on the left and orange on the right, at least in the upper part of the picture; the curtains would be green, the carpet, cream; in addition, the altar frontal would already be red, the altar cloth would be cream and the position of the robe of the King on the left would be indicated by a yellowish colour.

S. Giles and the Hind shows a very similar method of construction, which will not be discussed in detail. Samples taken from the sky and distant landscape show an unexpectedly simple construction after the complexities of some of the samples from *The Mass of S. Giles* just discussed. A sample taken from the mid-blue of the sky, just below the main group of leaves on the left-hand side of the tree shows only a single layer of fairly light blue paint above the ground, consisting of the blue pigment azurite, quite finely ground, mixed with a little lead white. For the very light blue of the sky just below the mid-blue, the light blue paint is overpainted with an extremely light blue, consisting of lead white paint to which has been added a very little extremely finely ground azurite. For the deep blue sky at the top of the picture, however, the light blue is overpainted with a relatively thick layer of coarsely ground azurite, mixed with a small amount of lead

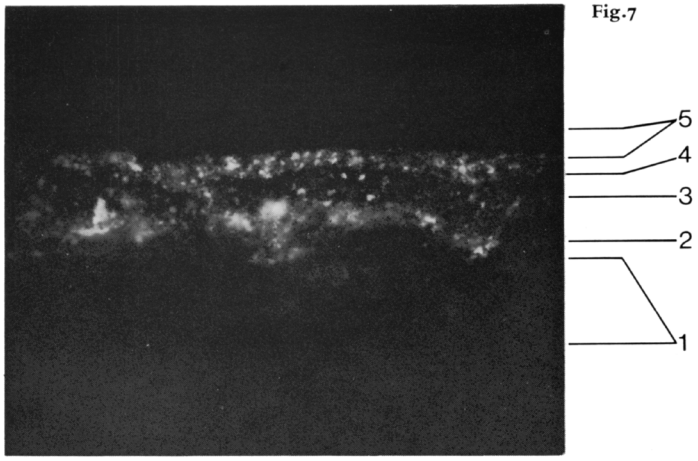
Figures 7–10.
Photomicrographs of paint cross-sections, photographed by reflected light. The approximate thickness of each paint layer, apart from the ground, is given in micrometres.

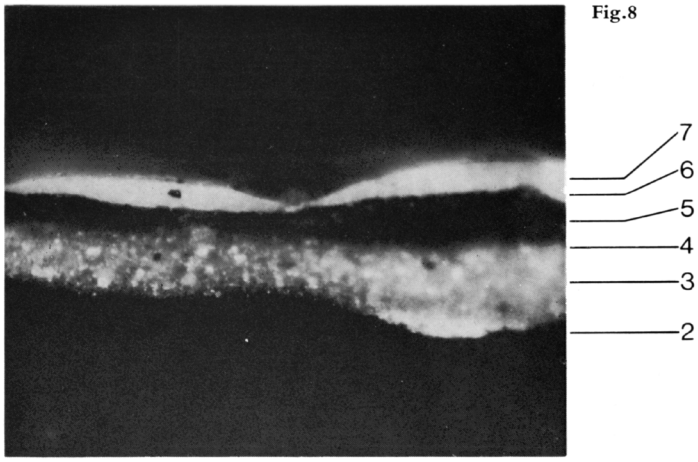
Figure 7. No. 709 Memlinc Studio. *The Virgin and Child*
Green curtain.
Magnification 120×.
1. Chalk ground.
2. Lead white underpaint (22μm).
3. Deep green layer: mainly malachite + a little lead white, lead-tin yellow and black (36μm).
4. A lighter green layer, containing a similar mixture of pigments, without the black, and with a higher proportion of lead white (22μm).
5. Green 'copper resinate' glaze, browned on the surface (29μm). (Not clearly visible in photograph).

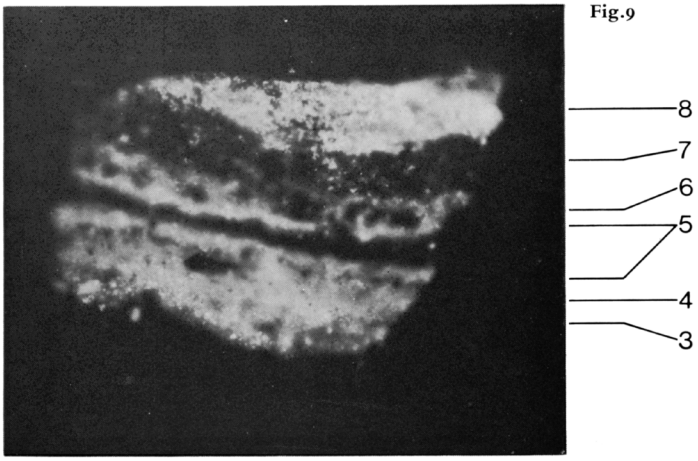
Figure 8. *The Mass of S. Giles*
White edge to green patterned border of central motif of carpet.
Magnification 220×.
(1.) (Chalk ground missing.)
2. Whitish layer, probably the underpaint layer for the carpet as a whole: lead white + a few particles of black, blue (azurite) and red (vermilion and a red lake pigment) (11μm).
3. A light green layer: malachite + lead white and possibly also a little lead-tin yellow (40μm).
4. Extremely thin layer (one particle thick): black + vermilion (c.4μm).
5. Deeper green layer, the colour of the border itself: mainly malachite (12–25μm).
6. A thin line of pigment particles as in (4): black + vermilion (c.4μm).
7. Lead white (trace of old varnish in hollow) (20–30μm).

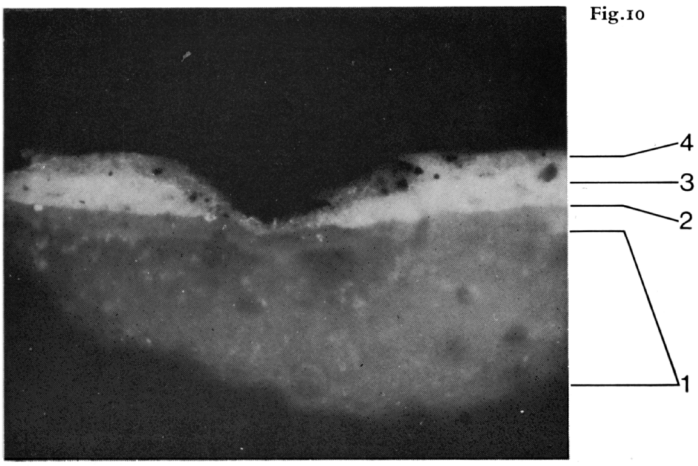
Figure 9. *The Mass of S. Giles*
Red of carpet from riser of step in bottom right hand corner. (See also Plate 5b).
10μm cross-section. Magnification 330×.
(1.) (Chalk ground missing).
(2.) (Whitish underpaint, as in Figure 10, layer 2, missing).
3. Light, rather dull green layer: malachite + a little black and possibly a few particles of lead-tin yellow (15–20μm).
4. Pale pinkish layer: mainly lead white + a little vermilion and black (15μm).
5. Orange layer: mainly vermilion + a little lead-tin yellow and black (c.8μm). (This layer is divided horizontally into two parts by a crack).
6. A deeper orange layer: the same mixture of pigments, with the addition of an orange-red lake pigment (15μm).
7. Layer containing an orange-red lake pigment, probably made using madder dyestuff (20–23μm).
8. Orange-red paint: vermilion (20–28μm).
(9.) (Thin glaze of red lake pigment missing.)

Figure 10. *The Mass of S. Giles*
Middle tone of architecture, from stone above arch on right.
Magnification 220×.
1. Chalk ground.
2. Orange-red underpaint: probably contains largely a red iron oxide pigment (its appearance is rather similar to that of red bole) + a little vermilion and black (11μm).
3. Whitish layer: lead white + tiny particles of black and possibly a dark brown ochre (19μm).
4. Beige paint: lead white + dark brown ochre + black + one or two particles of a blue pigment (azurite or smalt) (15μm).









white. The gradation in the blue colour is thus partly caused by the use of azurite graded according to particle size, as well as by the proportion of blue pigment in the mixture. Azurite is relatively transparent and only gives an intense colour if it is coarsely ground; it is frequently found to be the most coarsely ground pigment present, as it is in the S. Giles panels. The smoothness in the gradation is given by the careful application of light or dark blue paint over the mid-blue which extends over the whole area, except the white part of the sky which consists of a single layer of lead white paint. The mid-blue paint does appear again, however, under the landscape immediately behind the group of figures behind the Bishop; the lime green colour of the bank or field is obtained, very simply and most unusually, by applying a thin layer of yellow paint, containing the pigment lead-tin yellow, over the blue, a method not seen in other Early Netherlandish School paintings examined in this department. A further layer of blue paint painted over the yellow gives the blue-green of the area immediately behind. The leaves of the tree are also painted over the sky, using one or two layers of green paint.

If the painting is examined closely, what appears to be a dark line of shadow can be seen under the lower part of the King's right boot; this is more clearly visible in the infra-red photograph seen in Fig.5. If a cross-section of a sample of the paint from this region is examined (Fig.16), two layers of green paint may be seen above the chalk ground, below the paint of the boot itself, which are very similar in appearance to those seen in a sample of paint taken from a leaf in the foreground foliage. It would appear that the landscape was laid in, at least in part, before the King's boot was painted, with the result that the lower part of the boot had to be painted over the green of the landscape. The lowest layer of the paint of the boot itself consists of a layer of dark paint, which appears brown at first glance, but which consists of a mixture of vermilion and black, with the possible addition of a little dark brown ochre and lead-tin yellow. Such a mixture has only been found in Early Netherlandish paintings of this period, and not in Italian works; it also appears in samples of the architecture in *The Adoration of the Magi*, by Jan Gossaert, and in the original dark brown paint of the shutter in *S. Ivo(?)*, by Roger van der Weyden, to mention but two examples, and it also occurs in samples taken from *The Mass of S. Giles*. The function of this layer may simply have been to paint out the green of the landscape; it may also indicate the position of the shadow in the crease of the boot, from where the sample was taken.

An interesting and commonly used technique is observed in the shadows on the blue robe of the King. To give the necessary depth of shadow, a purplish colour would be required; as no purple pigment was available at that time, this was done by glazing a deep purplish-red lake pigment over the blue of the robe (Pl.1e). A layer of red lake is often found over a layer of vermilion in samples taken from red areas in both pictures; its function is not always to give shadow, but often to give depth and richness to the colour. The 'rusty' appearance of the King's robe is due to the presence of the pink paint beneath, which can be seen through the blue paint. It is impossible to say whether this appearance was intentional or not; the robe may have been intended to be purplish in colour, and the colour obtained by applying a layer of azurite over the pink would be closer to rust than purple, but the effect would only be obtained if the azurite layer was sufficiently thin and translucent and it is not at all clear whether this is the case. On the other hand, the effect may simply be due to the blue paint having become more transparent with the passage of time.

The pigments and pigment mixtures used are similar to those seen in other Early Netherlandish School paintings. One of the most interesting is the pale yellow pigment, lead-tin yellow, made by fusing lead and tin oxides, which is found in great quantity in both paintings and also, for example, in Gossaert's *The Adoration of the Magi*, previously mentioned. This rather insoluble pigment was identified by the use of the laser micro-spectral analyser (described on p.23), which also proved useful in the analysis of an interesting lake pigment, found in several samples from both pictures, the unusually chalky appearance of which suggested that a calcium salt was present in the substrate. Calcium was indeed detected in great quantity by the use of the laser micro-spectral analyser, confirming the presence of a calcium salt (possibly calcium sulphate) in the substrate. Such a lake pigment has not been found in other Early Netherlandish paintings examined, but there is certainly no reason to suppose that its occurrence in these two panels is unique. It is seen in a sample taken from the shirt of the man behind the kneeling Bishop in *S. Giles and the Hind*, shown in Pl.1f In the transparent lake pigment (the type commonly found) illustrated in Plate 5b and Fig. 9, the dyestuff present is thought to have been extracted from the madder root (see Table on p.42). Other pigments found in both pictures include lead white, malachite, azurite, vermilion, various iron oxide pigments including a dark brown and a yellow ochre, and black (possibly charcoal). In the sample taken from the orange banner in *The Mass of S. Giles* (Pl.1c) the vermilion paint of the banner itself also included particles of other pigments, including three or four glassy fragments of what appeared to be the blue pigment smalt, made by grinding a blue glass. If this tentative identification is correct, it represents an early occurrence of the pigment, which has not been found in other Early Netherlandish School works examined in this laboratory (2). It is interesting to note the absence of the costly blue pigment ultramarine, rarely found in Early Netherlandish School works, except in what must have been the most expensive commissions (3). A most unusual mixture of pigments was found in the dark bluish-green robe of the King in *The Mass of S. Giles*, the paint of which was found to consist largely of a mixture of azurite with a little lead-tin yellow, giving a deep green colour. Almost invariably, a green pigment has been included in any mixture of pigments required to give the desired green colour in other Early Netherlandish School works examined.

The two panels show few differences, if any, in the techniques discussed so far, and the identical range of pigments is found in each painting. The results of the analysis of the paint medium of the two paintings were

thus unexpected and interesting. Several small samples were taken from each picture for analysis by gas chromatography: from the green curtain, the bluish-green robe of the King, the white altar cloth and the red of the carpet in the bottom right-hand corner in *The Mass of S. Giles*, and from the pale blue sky, the green foliage at the bottom edge of the picture and the red cloak of the attendant at the left in *S. Giles and the Hind*. The results obtained are given in the Table on p.59, in the section on the results of analyses, but it is convenient to summarize them here. They indicate that both egg tempera and drying oil were present in the paint medium of *The Mass of S. Giles*, whereas a drying oil, probably walnut oil, alone seemed to be present in the samples taken from *S. Giles and the Hind*. It is possible to indicate the presence of protein and lipid components in the paint medium in each paint layer by staining the cross-sections with certain histochemical stains; thus, a layer containing a medium of animal-skin glue is stained by protein stains only, one in which the medium is drying oil is stained by lipid stains only, while a layer containing whole egg or egg yolk is stained by both stains (8–10). In order to see whether the egg and oil were present in the same paint layer or in different layers in *The Mass of S. Giles*, a similar range of samples, excluding the red of the carpet, were stained with Ponceau S (proteins) and Sudan Black B (lipids and certain other materials). The results obtained indicated that the egg and drying oil were present in separate layers. The white paint layer of the altar cloth appeared to be in egg tempera. The results obtained from the cream-coloured underpaint were unclear. In the samples taken from the mid-green of the curtain and the King's robe, it appeared that the lowest layer of underpaint, immediately above the ground, contained egg tempera. It is probable that the upper paint layers in both samples were painted in a drying oil medium. 6μm and 10μm cross-sections cut from the sample of red paint taken from the carpet were stained with a variety of protein stains, including Light Green and Amido Black 10B, and the lipid stain Sudan Black B. Unfortunately the sample lacked the lowest layer of underpaint as well as the ground. The layer of lake pigment at the top of the sample stained very strongly with the protein stain Amido Black 10B (although not to any marked degree with any other protein stain), and also with the lipid stain. The result might be interpreted as indicating the presence of egg tempera, were it not for the fact that an animal-skin adhesive was suspected to be present from earlier restorations; what is more important, perhaps, is that it is impossible to rule out the possibility of reaction between this particular stain and the lake pigment itself (this was found to occur with a laboratory-prepared lake pigment painted out in a drying oil medium). Thus, in the case of this particular paint layer no conclusions could be reached. The lower layers present appeared to be in a medium of drying oil. Samples taken from the blue of the sky and the lime green of the distant landscape in *S. Giles and the Hind*, which were sectioned and stained in a similar manner, showed the presence of drying oil only, confirming the results obtained by gas chromatographic analysis.

The different results obtained from the analysis of the paint medium of the two pictures is curious and must, for the present at least, remain something of a mystery; no particular explanation can be given for the difference. Very little is known of the Master of S. Giles and his studio, but it is assumed that the panels are part of the same commission (4) and this assumption is certainly not contradicted by the examination of the pigments and paint structure. *The Mass of S. Giles* is perhaps the more complex picture of the two, from the point of view of the paint structure, and possibly it has been rather more meticulously constructed, but, considering the different subject matter and scenes represented, the differences may have been unfairly stressed, particularly as the samples taken did not provide a complete survey of each picture. The layer structure of the paint was found to be rather more complicated than had been expected, but it must not be thought that the Master of S. Giles, painstaking though he seems to have been, is unique in this respect: other Early Netherlandish School paintings, including the famous van Eyck *Mystic Lamb* altarpiece in Ghent (5,6) and the *Holy Sacraments* altarpiece by Dieric Bouts in Louvain (7), have been found to have a most complicated paint structure.

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