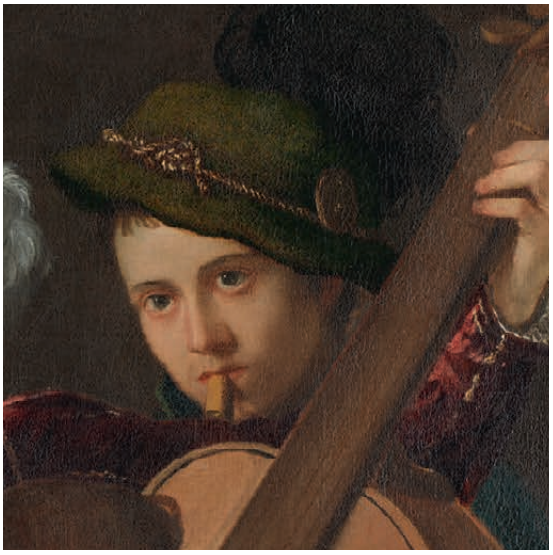
National Gallery Technical Bulletin

VOLUME 34 *Titian's Painting Technique before 1540*



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FRONT COVER
Titian, *Bacchus and Ariadne* (NG 35), 1520–3 (detail).

TITLE PAGE
TOP LEFT: Titian, *The Holy Family with a Shepherd* (NG 4), *c.*1510 (detail).
TOP RIGHT: Titian, *The Music Lesson* (NG 3), *c.*1535 (detail).
BOTTOM LEFT: Titian, *Portrait of Gerolamo (?) Barbarigo ('The Man with a Quilted Sleeve')* (NG 1944), *c.*1510 (detail).
BOTTOM RIGHT: Titian, *'The Aldobrandini Madonna'* (NG 635), *c.*1532 (detail).

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CAT. 8

Bacchus and Ariadne

NG 35
1520–3
Canvas, 176.5 x 191 cm
Thread count of canvas: 22 warp, 22 weft per cm (plain weave)

Cleaned, restored and mounted on panel in 1967–9[1]

Bacchus and Ariadne is one of three mythological scenes commissioned from Titian by Alfonso d'Este for his *studiolo*, known as the Camerino, in his ducal residence at Ferrara.[2] At first, following the example of his sister Isabella d'Este at Mantua, Alfonso tried to obtain works by the leading painters of Italy. He began with Giovanni Bellini, by then old but still regarded as the most important painter in Venice, who completed *The Feast of the Gods* (National Gallery of Art, Washington, DC) in 1514. Titian was later to rework the background, probably in 1529. The Duke sought a painting from Fra Bartolommeo, but when the Florentine died in October 1517 he turned to Titian. On 1 April 1518 Titian acknowledged the receipt of a canvas and strainer from the Duke, together with instructions. By the end of October 1519 Titian had sent a painting to Ferrara and proposed to go there himself in order to make finishing touches. It is widely agreed that this canvas is *The Worship of Venus* (Museo Nacional del Prado, Madrid). In 1520, after the death of Raphael, from whom Alfonso had also hoped to obtain a contribution, Titian was again approached and a canvas and strainer arrived in Venice in December of that year. More than eighteen months later, Alfonso's Venice agent described an unfinished painting in Titian's workshop that was clearly *Bacchus and Ariadne*. In early 1523 the painting was delivered to Ferrara, followed as before by Titian. It is not possible to know for certain whether the canvas delivered in 1520 was for the National Gallery painting, as Titian could have first fitted in the painting of another in the series, *The Bacchanal of the Andrians* (Museo Nacional del Prado, Madrid). Alfonso's well-documented exasperation at Titian's delays in completing *Bacchus and Ariadne* would suggest that it was the final painting needed for his room. Recent scholarship, however, tends to prefer the idea that the *Andrians* was the last of the scenes to be painted, although there is no conclusive reference to its creation either before or after *Bacchus and Ariadne*.

The reason for sending the strainers to Venice was obviously to ensure that the paintings fitted their site exactly, but it is curious that Alfonso also sent the canvas. That for *Bacchus and Ariadne*, whether it is the one mentioned in the correspondence or not, is of linen with a surprisingly fine weave for a painting of these dimensions. There is a single vertical seam and so the canvas was of standard width. The edges are largely covered with putty and retouching, but the X-radiograph confirms that, although the tacking margins have been lost, the painting area has not been reduced. Along the upper edge a few old holes that coincide with the cusp distortion of the weave may be from an early, if not original, stretching. The canvas must have been rolled for transport to Ferrara, since according to the bill it was carried by a single porter on his shoulders,[3] and re-stretched on arrival, and was perhaps rolled again in 1598 when it was taken to Rome by Cardinal Pietro Aldobrandini.[4] This could have been the cause of the severe flaking that has affected parts of the paint surface, since the pattern of the paint losses visible in photographs taken after cleaning but before restoration in 1967 can be seen to have a somewhat vertical alignment.

The canvas was prepared with gesso but there is no pale grey *imprimitura* of the type found so consistently in the group of works in this study dating from about 1510 to 1514,[5] and indeed used by Bellini on his canvas for the Camerino.[6] Unusually, a thin coat of gesso was also applied to the back of the canvas and when the old lining was removed in the 1960s sketches of heads and figures were discovered.[7] They are not of high quality and it is generally assumed that they were drawn by a member of Titian's workshop, but they could have been done during installation in Ferrara. There was also a layer of lead white in oil on the back, on top of these sketches, probably an old lining adhesive left in place or perhaps an old protective coating. Although this was scraped off in the last treatment before the canvas was relined, it was present when the painting was X-rayed and therefore compromises the legibility of the image, especially as it had flaked off in some areas.[8]

Nevertheless, when studied in conjunction with infrared reflectograms, the X-radiograph can be used to

FIG. 128 Titian, *Bacchus and Ariadne* (NG 35), 1520–3. Oil on canvas, 176.5 x 191 cm.

FIG. 129 NG 35, detail.

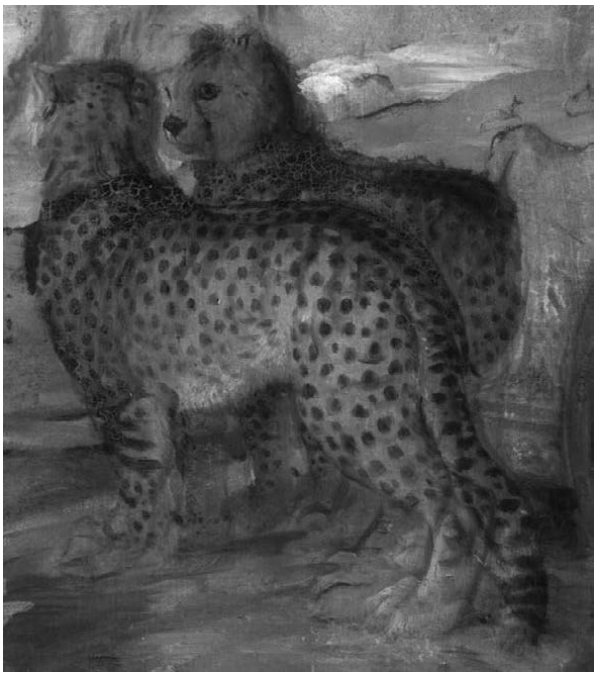


FIG. 130 NG 35, detail of infrared reflectogram.

follow the painting process. It is inconceivable that Titian designed this crowded, complex composition without making studies on paper, especially for individual figures with their twisting active poses (perhaps similar to those in FIG. 33, for example). The X-radiograph confirms that Bacchus, the Laocoön figure,[9] the woman with the cymbals and the satyr on the right brandishing the hind leg of the dismembered calf, for example, were all painted without apparent alteration, other than slight adjustments to contours. Although extensive retouching on the figure of Bacchus makes the identification of underdrawing difficult in the infrared image, some fine repeated lines of drawing, not unlike those in the *Noli me Tangere* (CAT. 7), can be seen, for example, along the lower edge of the arm that crosses his body.

More typical underdrawing with broad brushed lines is visible in the lower part of the painting, especially that for the pair of cheetahs (FIGS 129, 130). They were sketched in with rapid fluent strokes, their enormous feet in slightly different positions to those in which they were finally painted, especially evident in their rear legs. These were moved further back during painting, while the right front leg of the nearer cheetah was moved further forwards. By making these changes Titian opened up a gap and reduced the confusion of legs. The cheetahs appear dark in the X-radiograph, having been reserved, but characteristically Titian was very approximate in blocking in the landscape paint around these areas, brushing it well within their contours in their heads in particular. The underdrawing was made as much to place them as to define their edges and Titian probably had a study on paper to consult as he painted.

The barking spaniel does not register at all in the X-radiograph, and the infrared reflectogram shows that it was painted at a late stage, over the foreground and over part of the chariot wheel. Lines of drawing for the circle of the wheel are evident running beneath the little faun dragging the calf's head (FIG. 131) and Titian clearly developed the figure during painting, adding the maroon drapery over the completed flesh paint of his near shoulder, as well as part of the wheel. He seems to have had an earlier idea for this area – drawn lines resembling a cloven hoof appear between the faun's legs in infrared, as well as some lines for his body and, to the right, there is a shape rather like the hindquarter carried by the adult satyr. This seems to have been at least partly painted and is visible to the naked eye through the thin paint. The bacchante playing the cymbals was painted more or less in the position in which she was planned, and was drawn quite carefully, with lines visible in infrared marking the position of her head, arms, torso and legs, although Titian does seem to have experimented with bringing her drapery in front of her right leg, as well as changing

FIG. 131 NG 35, detail of infrared reflectogram.

the contours of the folds behind her legs several times. Other small changes were revealed by infrared; the volutes were added to the chariot and the lilac drapery of the girl with the tambourine originally extended further to the right – the front legs of the ass and Silenus' lower leg are painted over it. The tree trunk to the right of Silenus was reduced during painting, although it is largely masked by leaves, while the trunk of the foremost tree originally continued down so that it appeared between the legs of the Laocoön figure, where it would have impeded the passage of Bacchus' chariot.

The figure that underwent the most alteration is that of Ariadne (FIGS 132, 133). The infrared image shows that the profile of her head was shifted to the left during painting, and her hand was altered slightly, moving it into a more upright position. In the X-radiograph, the billowing white sleeve apparently goes over dense horizontal X-ray-opaque brushstrokes to her right, which probably relate to Titian using the paint of the sea and sky to obliterate earlier ideas for the drapery. Bold strokes of paint visible in the X-radiograph at the base of Ariadne's neck, down her back – approximately along her spine – and the rough indication of pulled up folds in the lower part of the drapery, may all be placement marks made with lead white-rich paint. The broad white shape near the edge of the painting, to the left of her forearm, could represent a ship's sail or simply be a brush wiping. Even when the pose was established, Titian made another adjustment,[10] for it can be seen in both X-ray and infrared images that Ariadne did not originally have a bare back – her white chemise was first shown slipping slightly down on her left shoulder and the gathered pleats of fine linen can be detected across her back, especially evident in the X-radiograph. The sash was the last detail of her costume to be added so does not contrast strongly with the surrounding

FIG. 132 NG 35, detail of infrared reflectogram.

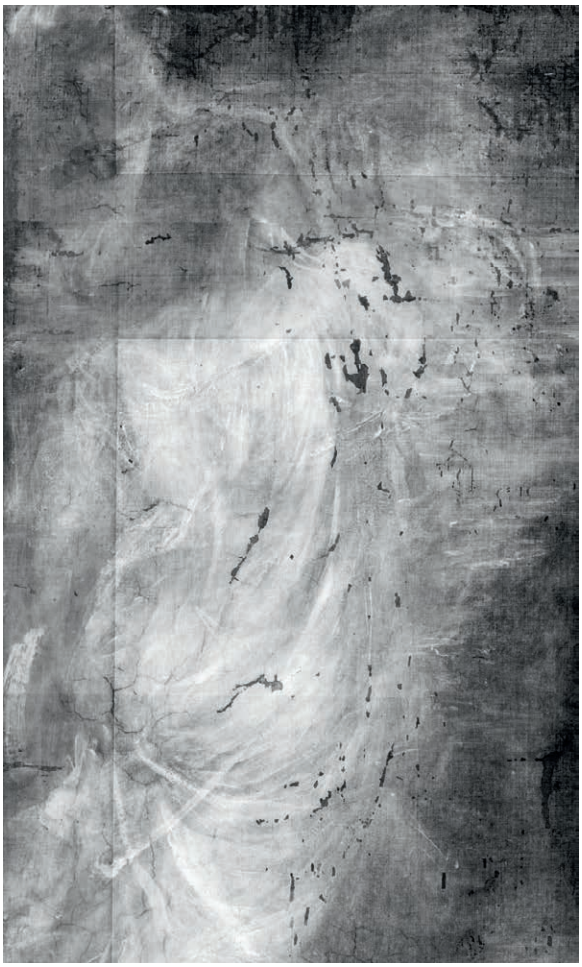


FIG. 133 NG 35, detail of X-radiograph.

paint in the X-radiograph, despite being painted with vermilion.

These multiple changes and overlaps account for the sequence of different colours to be seen in a paint sample taken from the edge of a loss where the sash goes over the top of Ariadne's right shoulder (FIGS 134, 135). Beneath the bright red of the sash, composed of vermilion, are two or possibly three pinkish layers. The first of these is relatively pale, containing mainly lead white and a little red lake, while the upper layers are more strongly coloured and are a mixture of the same pigments but with some ultramarine in addition. This has been interpreted in the past as paint from Ariadne's neck,[11] but the hue and structure of these layers is more reminiscent of lilac drapery than flesh paint, and indeed they are very similar to those seen in a sample from the drapery of this colour of the girl with a tambourine on the right (see below and FIG. 139). They may simply be from Ariadne's adjacent cloak since Titian sometimes underpainted blue drapery with pink and lilac hues.[12] Alternatively they could indicate that changes were made to the drapery around her shoulders, as the many confusing strokes of lead white-rich paint that are visible in the X-ray image in this area might suggest. The lowest layer consists of azurite and lead white. This is very similar to the underpaint in the sky, as seen in a sample from the clouds above her head, which might indicate more extensive changes in the position of the arm than can be made visible in the infrared and X-ray images, but it could equally well be that the paint was brushed well within the reserve when blocking in the background around the figure, as would be typical of Titian.[13]

The paint in this lowest layer looks very like the blue sky close to the horizon in a sample taken where it is overlapped by the edge of Bacchus' cloak just below his right arm (FIGS 136, 137). Further up the sky the warmer blue of azurite gives way to the intense, more purple blue of ultramarine, the quality of the pigment of the highest level, as would be expected for a commission for a member of the d'Este family.[14] The

FIG. 134 NG 35, detail.

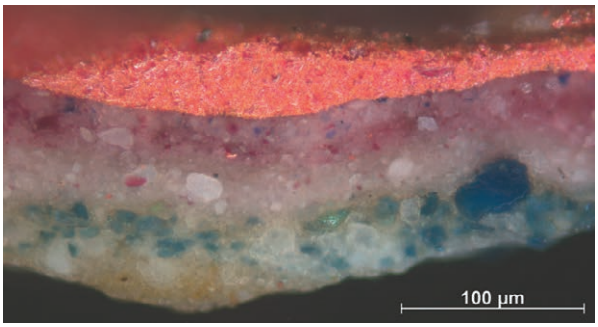


FIG. 135 NG 35, cross-section from Ariadne's red sash on her right shoulder.

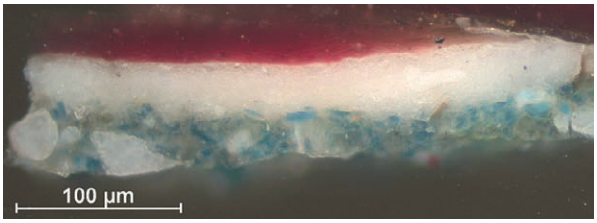


FIG. 136 NG 35, cross-section from the edge of Bacchus' red drapery.

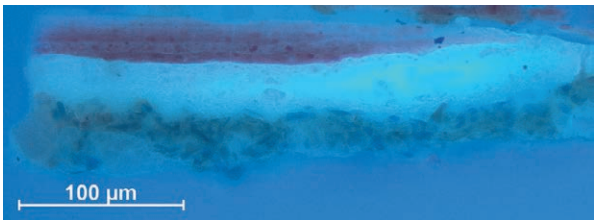


FIG. 137 NG 35, cross-section from the edge of Bacchus' red drapery, under ultraviolet illumination.

sample from Bacchus' cloak includes several very thin layers containing only red lake over a very pale pink of lead white in which only one or two red lake particles can be seen. In the main body of the cloak, the relief of the folds seems to have been achieved with an undermodelling in mixtures of red lake and lead white with very light, almost white, highlights, which has then been glazed with red lake, varying the thickness of the glazes so that they are thin in the highlights and thick and intense in the shadows. The alternating lead white and pale pink layers in the cross-section of a sample from the pale lilac drapery of the girl with a tambourine are probably similar undermodelling, finished with a purple mixture, containing ultramarine as well as red lake and white (FIGS 138, 139). The red lake component is likely to have faded to some extent.

The layers of red lake mixed with lead white that are beneath the blue paint of the skirt of the bacchante with the cymbals (FIGS 138, 140) have been interpreted in the past as an indication that it was first intended that she too was to wear pink. The cross-section shows first a light orange-pink of lead white and a little vermilion and a second more yellow layer containing mainly dolomitic yellow earth (with a little lead white and vermilion), probably the nearby flesh paint of her leg.[15] On top are two pink layers, based on red lake with a little lead white,[16] followed by several applications of ultramarine mixed with varying amounts of lead white.[17] As mentioned above, Titian did sometimes use a pink underpaint to influence the hue of his blue draperies, but here the colour is completely suppressed (except where it shows in drying cracks in the blue paint) by the many layers of blue paint over it. It seems more likely to represent a change here rather than to have had an optical function, such as that intended where red lakes have been used underneath ultramarine in some paintings produced in Florence and especially Rome in this period.[18]

FIG. 138 NG 35, detail.

Certainly the deep blue harmonises better with the rest of her drapery, painted a rich orange that includes arsenic sulphides that have been identified as realgar and pararealgar, the latter probably being a deterioration product.[19] Indeed the paint has a crusty friable appearance that suggests that some degradation might have occurred. Cross-sections show that realgar was used alone in the brightest highlights but was mixed with earth pigments in the darker tones (FIG. 141). The darker red below the uppermost layer probably forms the base colour of the drapery, composed of red and yellow earth with a very small amount of arsenic sulphide, some lead white and some coal black.[20] This underpaint is modelled, since in the lighter area it

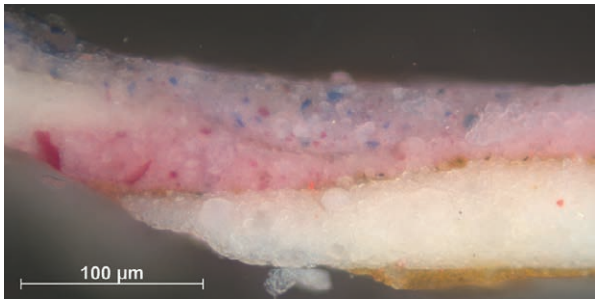


FIG. 139 NG 35, paint cross-section from the lilac drapery of the girl with a tambourine.

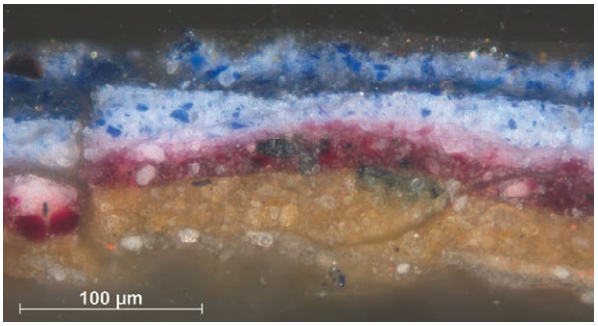


FIG. 140 NG 35, paint cross-section from the deep blue drapery of the bacchante with cymbals.

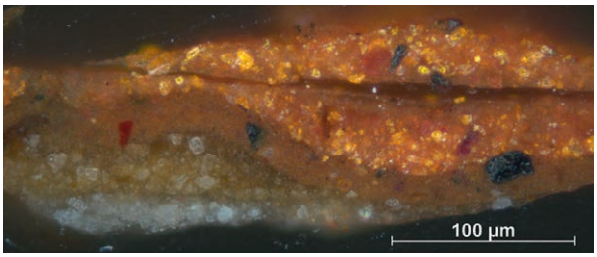


FIG. 141 NG 35, paint cross-section from a deep tone of the orange drapery of the bacchante with cymbals.

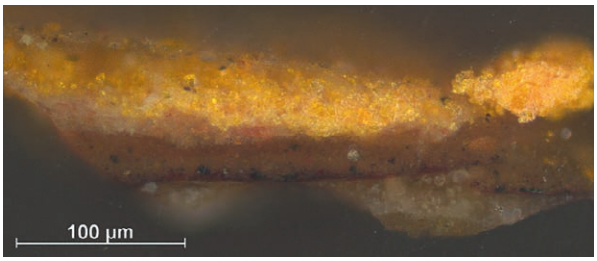


FIG. 142 NG 35, paint cross-section from a highlight of the orange drapery on the right breast of the bacchante with cymbals.

contains a higher proportion of yellow earth relative to red and no black, and is then further modified by a lighter orange layer (FIG. 142). Samples from both light and dark tones include two dull yellow or grey layers that might serve a similar purpose to the khaki undermodelling seen in other paintings by Titian, and also Cima, beneath orange draperies (see essay, p. 30). In the sample from the lighter area there is a very thin layer of red lake directly above these undermodelling layers, perhaps also modelling but conceivably a stroke of paint functioning in the same way as drawing to indicate changes in the contours. There are a few particles of black pigment – including one with the splinter-like shape of charcoal – scattered in a line along this level of the layer structure (above the red lake), which could be intermediate drawing, a feature of Titian's practice that has been observed in other paintings in this study.

While there may be some discoloration of certain areas, distinctions survive between the exceptional variety of shades of green and brown in the trees (FIG. 143). In common with some of the foliage seen in other paintings in this study, the tree that fills the upper right corner was painted using mainly yellow and red-brown earth pigments, mixed with only a small amount of verdigris and lead-tin yellow, and was therefore always intended to be autumnal. In the cross-section from this area there are three layers of foliage paint of different shades (over the blue underpaint in the sky); sandwiched between two greenish brown layers is a brighter green with more verdigris, which must be the brighter paint modulating the foliage in this tree (FIG. 144). The predominant orange-brown tone is set off by the yellow-green leaves of the hops winding through the lower part of the tree, the much brighter green of the feathery branches of the smaller tree to its left, and the deeper coloured leaves of the foremost tree.

FIG. 143 NG 35, detail.

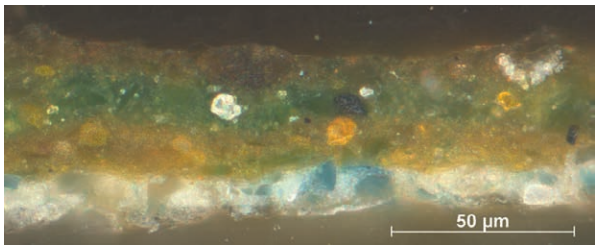


FIG. 144 NG 35, cross-section from the brown paint in the trees at the far right of the painting.

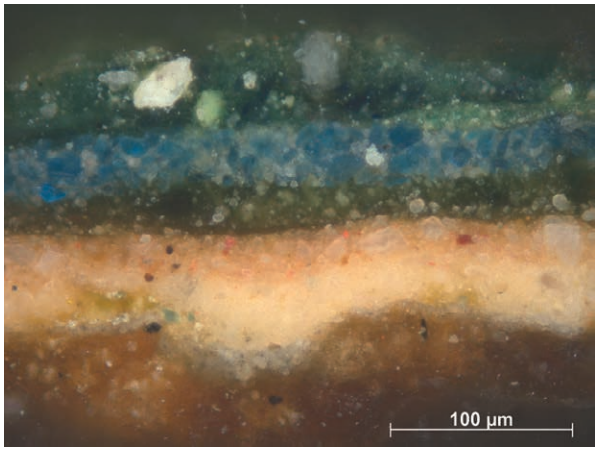


FIG. 145 NG 35, cross-section from the distant trees to the left of Bacchus.

The small trees behind Bacchus in the middle of the painting have a slight bluish cast made from an unusual mixture of verdigris with ultramarine and a little lead white and lead-tin yellow. The cross-section (FIG. 145) shows a greenish blue layer (azurite and white, with a little lead-tin yellow) below the paint of the tree, beneath which is a green layer of verdigris and lead white, laid on two beige paint layers consisting of lead white, with dolomitic yellow earth and a little vermilion.[21] These are probably all overlapping paint in the various colours used in this detailed area of the distant landscape.

The exquisitely painted plants in the foreground (FIG. 146) exhibit rich greens that were probably built up with layers of verdigris with lead-tin yellow and white as in the foreground foliage in works such as *The Holy Family* (CAT. 4), and also similar transparent brown glazes at the junction with the path. A band of paint at the lower edge, however, appears quite different in colour. The greens are duller, and almost brown, yet this is the opposite of what would happen if this area had once been covered by a frame – copper greens protected from the light should be even more brilliant. The paint is evidently very old and its appearance in infrared suggests that it is original. The infrared and X-ray images supply an important clue. In the latter, irregular bands around the edges, ranging in width from about 4 cm at the upper and lower edges to 2.5 cm at the right, appear darker and less opaque to X-rays. This might be thought to be connected to the lead white layer on the reverse, were it not for the fact that these borders also feature in the infrared image (FIG. 131) where they are also slightly darker than the central area (the very dark marks are all later retouching). It seems, therefore, that Titian brushed in a rough border and that, despite Alfonso's precautions, he miscalculated the area of the painting to be covered by framing elements. In addition, this would explain why the painted forms peter out at the right edge, with gaps filled with patches of cool grey paint to the right of the shaggy legs of the satyr and a warmer beige colour further up.

If Titian had to extend the edges of the image (except on the right) once the canvas was installed in Ferrara, he must have painted the extra foliage with a more rapid and direct technique without building up layers of underpaint and glaze as in the main part of the picture, resulting in the paint ageing in a different way. The extension may also have given Titian space to insert the sailing ship at the left edge, while the technical evidence suggests that other additions made in Ferrara might have included the dog, perhaps a favourite pet at court, the faun's maroon drapery, and, most importantly for the design, the bundle of lemon yellow fabric in the left corner (FIGS 147, 148). The lead-tin yellow paint[22] extends over the area of the border and in the X-radiograph it can be seen that it was painted carefully, but rapidly, around the vase that bears Titian's signature. It is easy to imagine the composition without this brilliant patch of colour; conceivably it was added to echo the red, white and blue fabrics in the immediate foreground of *The Worship of Venus*, the painting that probably hung on the opposite end wall of the Camerino.

FIG. 146 NG 35, detail.

FIG. 147 NG 35, detail.

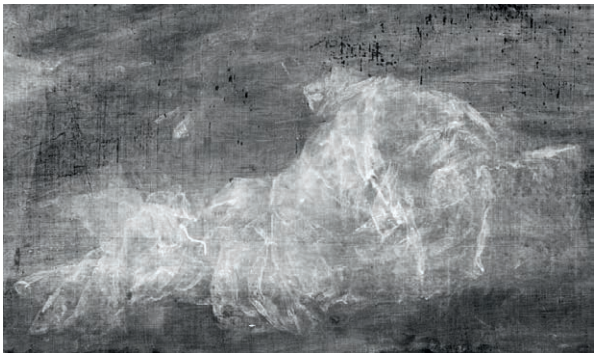


FIG. 148 NG 35, detail of X-radiograph.

CAT. 9

Portrait of Girolamo Fracastoro

NG 3949
*c.*1528
Canvas, 84 × 73 cm
Thread count of canvas: 12 warp, 12 weft per cm (plain weave)

Cleaned and restored 2010–12

Following technical examination and the cleaning and restoration carried out in 2010–12 (described on pp. 106–10), this portrait can plausibly be identified with the portrait of 'il Fracastoro' mentioned by Vasari in his discussion of Titian's portraiture in the 1568 edition of his *Lives*.[1] The identification of the sitter as the famous Veronese physician, author of publications on syphilis and the theory of contagion, and celebrated also as poet, astronomer, philosopher and mathematician, among other subjects, is a traditional one, but comparison with woodcuts and medals of the doctor confirms that it is likely to be correct. Fracastoro was born between 1476 and 1478, more probably in the latter year, and his apparent age in the painting (allowing for Titian's tendency to flatter his sitters in this respect) and connections with other portraits suggest that the National Gallery portrait dates from the later 1520s.

The plain weave canvas, with its typical irregular texture formed by slubs and thicker raised threads, must initially have been stretched across a strainer, with the tacks nailed into the front of the support. Where fragments of the tacking margins survive at the sides it can be seen that the paint continues onto them, most evidently the parapet at the left edge (see essay, FIG. 11). The canvas was prepared with a substantial layer of gesso (FIG. 149),[2] which has formed some roughly vertical ridges in the lower part of the sleeve, now exposed by damage to the paint film (see essay, FIG. 13); the gesso must have been applied as a relatively thick paste, perhaps using a form of palette knife rather than a brush. A thin layer of light grey, containing lead white and black, is present over the gesso in the few paint samples taken, but these were all from the background or towards the edges of the canvas. During the restoration of this much worn painting nothing was observed that might indicate that this layer extended into the area occupied by the figure and so it is unlikely to represent an overall *imprimitura* of the type that features in many of the other works in this study.

The details of Titian's procedure when executing a portrait of a live sitter have been little studied. His capacity to give life and character to figures that he may never

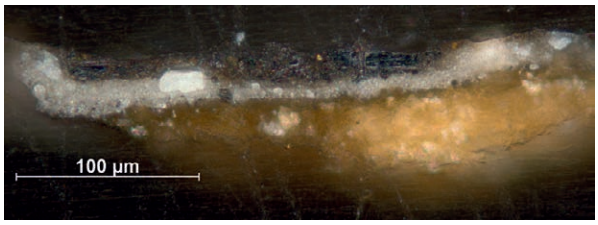


FIG. 149 NG 3949, cross-section of black paint from the arch in the background at the right-hand side of the painting. The uppermost black layer, containing coal black, lies on a mid-grey layer which is in turn directly on the gesso ground.

FIG. 150 NG 3949, detail of X-radiograph (FIG. 214, p. 108).

FIG. 151 Titian, *Portrait of Girolamo Fracastoro* (NG 3949), *c.*1528. Oil on canvas, 84 × 73 cm.

have seen, or indeed were creations of his imagination, means that it can be difficult to determine how much time he had with his subjects. The slightly generalised qualities of this portrait may be in part the result of its damaged condition, but there is a sense that he may not have had long to capture a likeness of such a busy man. The severity of his expression and the strong side lighting are perhaps a deliberate reflection of the portrait of Fracastoro's close friend, Andrea Navagero, in the celebrated double portrait by Raphael (Galleria Doria Pamphilj, Rome), which belonged to their mutual friend, Pietro Bembo, and was to be seen in his Paduan palace in the 1520s. Raphael's portrait seems in turn to suggest knowledge of Titian's early portraiture, of which the *Portrait of Gerolamo (?) Barbarigo* (CAT. 5) is the most pertinent example.

FIG. 152 NG 3949, detail of infrared reflectogram, after cleaning before restoration.

FIG. 153 NG 3949, detail of transmitted infrared image, from the reverse after removal of the old lining.

FIG. 154 NG 3949, detail showing pentimento and scratching into the paint of the fur.

Even though they were painted almost twenty years apart, the connections between the Barbarigo and Fracastoro portraits are underlined by the strikingly similar appearance of their heads in X-radiographs (FIGS 100, 150). Their features are positioned and modelled directly with the X-ray-opaque flesh paint so that the structure of their lips, noses and eyes is defined right from the beginning. The distribution of the densest highlights – where the brow meets the curve of the hair, on the upper part of the nose near the eye socket and where the lower part of the cheek blends into the beard – is also analogous. In both portraits the area of the beard and moustache was always clearly established and so registers as dark in the X-radiograph.

In addition, the short curved lines of underdrawing that can be detected by infrared reflectography on Fracastoro's sleeve are comparable to the curves used to indicate the puffed folds of the sleeve in the Barbarigo portrait (FIGS 152, 102). The detection of underdrawing on a subject dressed in black would normally be impossible, but such is the extent of damage and loss to this area that traces of the marks made to establish the pose can be detected. Transmitted infrared imaging, undertaken from the reverse side of the canvas when it was

FIG. 155 NG 3949, detail of the lynx fur.

exposed following removal of the old lining, makes it easier to distinguish the underdrawn lines from dark marks and patches from surviving areas of original paint (FIG. 153). The strongest and most visible line, evident even to the naked eye, is the thick bold stroke in the background to the left of the sitter, presumably part of the first placement of the figure. The grey background paint was brushed in around the area of the figure very freely, so that in places down the sitter's left side the black sleeve had then to be extended out over the background. Other pentimenti include adjustments at the back of the sitter's neck where the collar meets the fur, and the fur tuft from the seam in the sleeve that once extended further into the background (FIG. 154).

The palette for this portrait is inevitably limited. The black pigment used for the costume is coal black,[3] also found in the paint of the doorway on the right and the architectural feature above it, now so damaged that it can no longer be identified. The medium in samples from the black paint of the costume and the doorway was identified as linseed oil, with some indication that it might have been heat-bodied at least to some extent.[4] The use of the same materials for both areas of black suggests that these somewhat unsatisfactory architectural elements are almost certainly original, although cross-sections show that they were both painted over the mid grey of the background and must therefore have been added at a late stage. The medium was also analysed in two samples from lighter coloured passages, one from the ledge on which the sitter is leaning and one from the inside edge of the architectural feature at the upper left, where the binder was instead found to be walnut oil.[5]

The best preserved part of the painting is the spectacular lynx fur lining of the sitter's coat (FIG. 155). Titian must have had the coat in front of him as he painted. The distinction between the shorter ginger back fur and the long white hairs of the belly of a lynx in its winter coat is carefully observed. His fascination with the texture of different furs, so apparent in *Bacchus and Ariadne* (CAT. 8) gives rise to bravura painting with dry broken brushstrokes of the long white hairs, which appear almost backlit, down the left side of the figure. By contrast, the fur down the shadowed side is soft and indistinct. The white fur trapped in the seams of the sleeve has been textured by scratching, and perhaps by dragging with a stiff dry brush, into the soft lead white paint.

CAT. 10

A Boy with a Bird

NG 933
Probably late 1520s
Canvas, 37 × 49.8 cm
Thread count of canvas: 13 vertical threads, 12 horizontal threads per cm (plain weave)

Cleaned, restored and relined in 2005–6[1]

For a long time *A Boy with a Bird* was believed to be a seventeenth-century pastiche, in part because of a dark varnish and more particularly because the subject appeared to be copied from the small winged Cupid with a dove who features in the background of two of the many surviving versions of Titian's much replicated composition of *Venus and Adonis*. Both of these were produced in Titian's workshop relatively late in his career, yet the handling of the paint in the National Gallery canvas has been observed to be closer to that seen in his earlier production.[2] It can be argued, however, that Titian painted a version of *Venus and Adonis* in the 1520s, long before a painting of this subject was sent to Philip II of Spain in 1554.[3] A watercolour copy by Peter Oliver dated 1631 of this putative early version shows that it included Cupid holding a bird.[4]

Further evidence for an earlier date for *A Boy with a Bird* comes from the revelation by X-radiography and infrared reflectography (FIGS 160, 161) that it was painted over figures that appear in a woodcut of a pastoral scene, based on a design by Titian and attributed to Niccolò Boldrini.[5] This is usually dated to about 1525–30. The most clearly visible elements in the X-ray and infrared images shared with the woodcut are the youth feeding a goat, the woman milking a cow, and the tree behind the cow. The hidden figures are cut – to complete them the canvas needs to have been about 4 cm larger at the lower and right edges and the similar

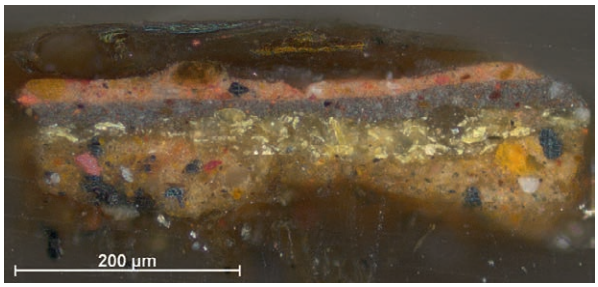


FIG. 156 NG 933, paint cross-section (taken before cleaning) from the reddish brown paint in the foreground below the boy's right hand. At the bottom of the sample is a canvas fibre and then the red brown ground. Over this is the layer of orpiment, followed by a warm grey from the first design, and then a light red brown from the final painting.

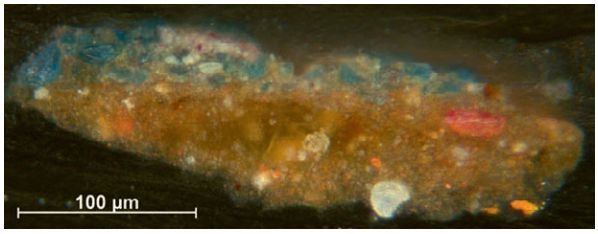


FIG. 157 Titian, *Venus Anadyomene* (FIG. 158), paint cross-section from the blue sky showing the red-brown ground containing mainly red earth with some lead white and finely ground black. Some red lead may also be present. Above is a layer of azurite and lead white.

FIG. 158 Titian, *Venus Anadyomene*, late 1520s. Oil on canvas, 74 × 56.2 cm. Edinburgh, National Galleries of Scotland, Inv. NG 2751.

FIG. 159 Titian or Titian Workshop, *A Boy with a Bird* (NG 933), probably late 1520s. Oil on canvas, 37 × 49.8 cm.

appearance of the distortions caused by stretching along the other edges indicates that it was probably reduced equally all round. The present image appears not to be cut since another version of the painting exists, published in 1932 with an attribution to Titian and dated to the 1520s.[6] Apart from differences in the landscape and clouds, it is very close to the National Gallery work, and was surely painted after it since the latter includes notable pentimenti.

The canvas is of a type commonly seen in Titian's earlier output. There is no gesso, only a red-brown ground applied directly to the canvas containing red and yellow earth pigments and some manganese black (FIG. 156).[7] The manganese dioxide is of the natural mineral form, pyrolusite,[8] also identified in the grey priming of *'The Aldobrandini Madonna'* (CAT. 11). Grounds of similar composition have been found on Brescian school paintings, in particular those of Moretto and Moroni,[9] and the discovery of such a ground on a work apparently associated with Titian might appear anomalous, were it not for the presence of a red-brown ground on his *Venus Anadyomene* (FIGS 157, 158), a work variously dated but perhaps best placed towards the end of the 1520s.[10]

The next layer in the samples from *A Boy with a Bird* is difficult to explain for it consists mainly of orpiment. This intractable and poor-drying pigment would be a strange choice for an *imprimitura* intended to modify the brown ground; another possibility is that this small piece of canvas was cut from a larger, abandoned work, already painted in this area with orpiment.[11]

The relationship between the hidden painting and the woodcut is also unclear. The figures and animals are larger in scale and closer together in the painting. They are not necessarily taken from the print since both painting and print could have been assembled from studies by Titian. The execution of the parts of the figures visible in the infrared image appears confident, especially the milkmaid and cow. Paint samples indicate that the milkmaid's skirt was painted in two layers, the lower one

FIG. 160 NG 933, infrared reflectogram.

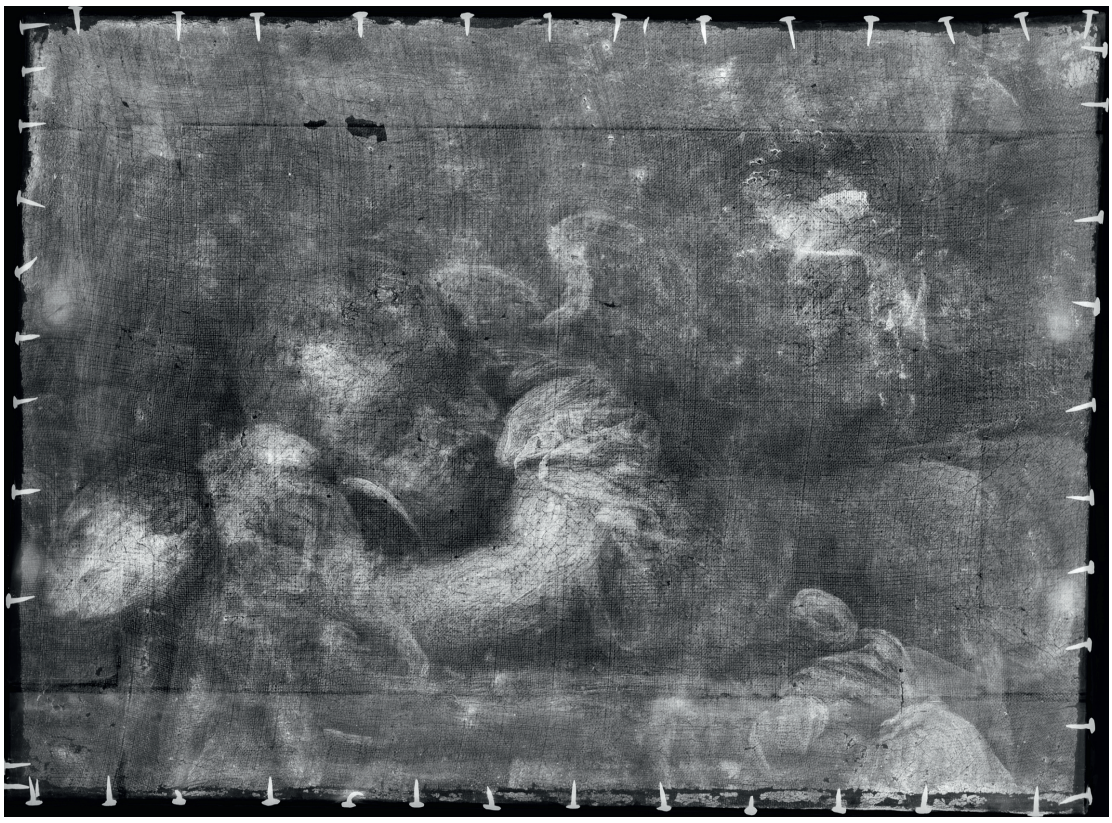


FIG. 161 NG 933, X-radiograph.

a dark reddish brown containing earth pigments with lead white, black and possibly some red lake, over which is a paler combination of the same pigments, while a sample from a point that coincides with the cow includes two pinkish beige layers, also of earth pigments with black and lead white. The cow was therefore similar to the cattle in the background of *'The Aldobrandini Madonna'* (CAT. 11).

Even if it were a study or workshop exercise, the pastoral group was apparently to have a setting,[12] since a layer of pale blue, presumably the sky, was laid in on the left-hand side, in the area now occupied by trees. The sky, and perhaps a distant landscape, must have extended almost down to the figures since a patch of blue could be seen in a flake loss from the upper painting in the area of the boy's forehead. The blue pigment is indigo,[13] also found as an underpainting for the sky in *The Triumph of Love* (CAT. 13), and for blue draperies in other works by Titian, including *The Holy Family with a Shepherd* (CAT. 4). This might suggest that the first painting was never finished.

The figure of the boy was drawn directly over the first painting with broadly sketched black lines, most clearly seen around the top of his head, the side of his brow and cheek, and the edge of his white sleeve. The head was originally tilted further back and so his eyes, with dark irises, were drawn and also initially painted in a higher position. The head in this first position registers more strongly in the X-radiograph than the final one. The downward shift meant that the upper fold of the puffed sleeve had to be eliminated and the head and neck of the dove adjusted. There are also alterations to the attachment of the dove's wing and to the child's fingers. Perhaps the most significant change is that the boy was drawn, and also partly painted, with wings. These are in the same position as those of the Cupids in the *Venus and Adonis* paintings. A sample confirms that they were pale pink, containing lead white with a little red earth.

The pink costume was painted directly, without glazes, using mainly red lake, combined with vermilion and lead white. Examination of the paint surface under magnification indicates that the same pigments were used for the flesh tints, with the addition of a small amount of green pigment. The red outlining of details such as the boy's fingers is particularly emphatic. For the bank in the foreground red lake has been mixed with a warm translucent brown pigment. The sky is painted with azurite, ground to an unusually small and consistent particle size, and under magnification a few particles

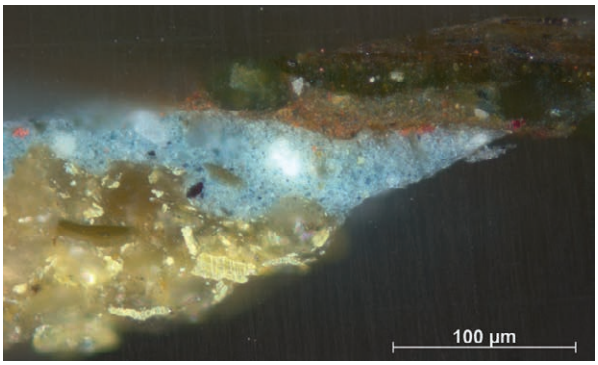


FIG. 162 NG 933, paint cross-section from the tree at the top edge, above the child's head. Over the orpiment and indigo layers of the first painting are at least three layers of foliage paint.

of lapis lazuli can be seen in the white clouds. As the infrared image demonstrates, the foliage was brushed in boldly and rapidly. The sample point (FIG. 162), near the top edge above the child's head, coincides with leaves overlapping the sky, and probably overlapping each other, since in cross-section there are three distinct layers of green. The first is a greenish brown containing red and yellow earth with some black, similar to mixtures found in brownish leaves in other paintings in this study. Over this is a stronger green made mainly from green earth, with some azurite, yellow earth and possibly a yellow lake, and then a more translucent dark greenish brown containing a copper pigment, probably verdigris (which may have discoloured), and perhaps also including some yellow lake.[14] The paint binder was identified as walnut oil in the boy's white sleeve and in his flesh. In the sky, however, and in the green brown foliage above the child's head linseed oil was used.[15] In each case the oil had been heat-bodied at least to some extent.[16] Linseed oil, which again had been heat-bodied to some degree, was also used for the sky of the hidden painting.[17] This could be sampled since it was exposed in a small loss in the upper design but no further samples from the lower design were analysed and there are no results from lighter paint where walnut oil might be expected.

In spite of its puzzling features, *A Boy with a Bird* includes several technical elements that are consistent with an origin from Titian's workshop. It is an open question as to whether it is a slight and perhaps not especially appealing product of his own brush or whether it was painted by a workshop member. If the latter, then this painter shared with his master a remarkably bold and improvisatory approach to the execution of this little picture.

CAT. 11

The Virgin and Child with the Infant Saint John and a Female Saint or Donor ('The Aldobrandini Madonna')

NG 635
*c.*1532
Canvas, 102.5 x 143.7 cm
Thread count of canvas: 20 warp, 19 weft per cm (plain weave)

Cleaned and restored in 1955[1]

The painting takes its name from Cardinal Pietro Aldobrandini, in whose Roman collection it is first documented in 1603.[2] The possibility that this is the painting by Titian seen by Marcantonio Michiel in 1532 in Andrea Odoni's bedchamber is increased by Michiel's uncertainty as to the identity of the kneeling female saint.[3] Although the saint in the National Gallery canvas is often assumed to be Saint Catherine, she has no attributes. It has also been suggested that she might be a donor. A date in the early 1530s would fit with the work's style and technique.

At some point, perhaps in the 1630s when the painting passed into the Spanish royal collection, a strip about 4.5 cm wide was sewn on to the left edge and painted to extend the composition.[4] This addition does not reach the top of the painting, since either before or at the same time the upper part of the painting had been folded over a smaller stretcher, reducing the height by about 8 cm – the line of damage at the crease is clear. This must have necessitated painting out the little winged angel emerging from the clouds at the right. The upper edge has since been recovered and, although there is no evidence of original tack holes, the canvas exhibits cusping around all four sides, so the picture surface appears not to have been trimmed. The extension on the left is still in place and, although narrow, is enough to detract from Titian's daringly asymmetric composition with the figures all to one side of the Virgin, whose head is positioned exactly at the centre of the canvas with its correct dimensions. There is a band of old putty and retouching about 1.5 cm wide along the bottom edge, but it is clear that the female saint's shin and foot were always almost at the frame edge, as the Baptist's foot would be on the left without the extension – Titian often cropped figures in surprising ways or allowed their extremities to come right to the picture edge. The design works largely because of his astonishing use of colour, the natural ultramarine of the sky and distant mountains almost matching in intensity that of the Virgin's draperies, so that this upper quarter balances the bright tonality of the figure group in this strongly diagonal composition. The Virgin is also unusual in Venetian painting in being dressed entirely in blue.

Several workshop versions or adaptions of *'The Aldobrandini Madonna'* exist, to which Titian himself probably contributed to a variable extent. In the paintings in the Kimbell Art Museum, Fort Worth (on panel), and the Galleria Palatina, Florence, the Virgin is dressed traditionally in red with a blue mantle, the saint is identified as Catherine by her wheel and the Baptist has been moved to the right, creating a more conventionally stable isosceles triangle. Infrared reflectography of the Florence painting has revealed a careful underdrawing made with a fairly broad brush line that follows in every detail the National Gallery painting, including the figures and animals in the background and Saint John on the left. He was only later moved to the right. Since the paintings are on the same scale, it is clear that a tracing was made of the first version specifically for the production of replicas and variants.[5] This practice was to become an important part of Titian's later workshop production.[6]

The canvas of *'The Aldobrandini Madonna'* has been prepared first with a gesso ground and then a grey *imprimitura* containing, in addition to lead white, a fairly substantial amount of natural mineral manganese black (pyrolusite, manganese dioxide), sometimes encased together with brownish iron oxide in large agglomerates (see FIG. 172), giving probably the darkest preparation among the works included in this study.[7] The priming also probably accounts for the vertical streaks crossing the painted forms that appear in the X-radiograph (FIG. 164).

The composition was probably drawn on top of these preparatory layers, as seems to have been Titian's usual practice, but unlike in the Florence painting, the underdrawing is not easily visible in the infrared images,[8] partly because of differences in the pigments that were

FIG. 163 Titian, *The Virgin and Child with the Infant Saint John and a Female Saint or Donor ('The Aldobrandini Madonna')* (NG 635), *c.*1532. Oil on canvas, 102.5 × 143.7 cm.

FIG. 164 NG 635, detail of X-radiograph.

FIG. 165 NG 635, infrared reflectogram mosaic detail.

FIG. 166 NG 635, infrared reflectogram mosaic detail.

used, but mainly due to the thickness of the paint layers. Some of the vertical and diagonal brush marks visible in the infrared detail of the Virgin's head (FIG. 165) are clearly in the upper paint layers of the sky, or in the paint across her forehead. A few brushed lines or marks around the Virgin's jawline and on either side of the tip of her nose may be underdrawing, but the heavier, darker strokes along her hair parting and at the junction between her hair and headdress are all from final touches applied during painting. Nothing that can definitely be identified as underdrawing is visible in the delightfully earnest little Baptist's head (FIG. 166), perhaps because few changes were made. The infrared image does, however, clarify the structure of his face and curls, which is now difficult to see, perhaps because the dark pigment mixtures used to paint the head have 'sunk' and lost some definition with time. Some lines that certainly are drawing are more easily seen in the female saint's plaited and coiled hair as dark C-shaped loops, although other strokes that appear similar in the infrared image are instead in the paint layers (FIG. 167).

Also evident in the saint's head, in the X-radiograph, is a small – and entirely characteristic – alteration: another ear can be detected to the left of the present one (FIGS 168, 169). The dense white blur of the X-ray image suggests that the whole face was moved forward so that the saint inclines her head closer to the Child whom she embraces. The draperies over the Virgin's knees were also rearranged: there appear to be bunched folds of fabric over her right knee. The position of her left knee was indicated with two broad strokes that meet at a right angle (also visible in the infrared image as light strokes), and the left foot that we now see

FIG. 167 NG 635, infrared reflectogram mosaic detail.

appears to be partially over the lower paint layers of the blue underskirt. There are also changes to the contours of the folds of the saint's dress where it trails on the ground behind her. The edge of the hem was altered and bold broad zigzagging strokes of X-ray-opaque paint form a triangle that projects above the visible edge, just below the Baptist's heel. Titian seems here to have been roughing in the general construction of the drapery. The skirt as a whole appears to consist of a flurry of contradictory brushstrokes (FIG. 164). These might be interpreted as extensive improvisation and revision of the folds, but in fact when the X-ray image is studied alongside the painting many of the marks can be related to folds and crinkles visible on the surface of the painted fabric, surely intended to represent silk. The X-ray opacity of the lead-tin yellow used is such that every mark and movement of the brush registers distinctly. A similar effect occurs in the X-radiograph with the pale yellow fabric in the foreground of *Bacchus and Ariadne* (FIG. 148).

A paint cross-section made when the painting was cleaned in 1955 has always been taken to indicate that the saint was originally to be dressed in pink,[9] for beneath the lead-tin yellow is a layer of lead white and then beneath that a rose pink layer consisting of lead white and red lake.[10] This pink layer looks remarkably like the base colour in the layer structure for the several areas of purple in paintings included in this study, so, if Titian did change his mind about the colour, it seems equally likely that the dress was to be painted with one of the various hues of purple that he favoured. The dress is not, however, uniformly yellow but instead the shadows that we now see are a lilac colour (a mixture of lead white, red lake and ultramarine), suggesting a *cangiante* silk (FIG. 170). It is even therefore possible that this effect was always intended and that, as was the practice of many artists when painting *cangiante* draperies, Titian chose to first underpaint the whole area with the purple component, starting with pink as was his customary way for any purple drapery, before applying the lighter mid tones and highlights in pale yellow.[11] The lead white layer immediately below the yellow may be associated with the bold zigzag marks in the X-radiograph – the sample was taken from a fold to the left of the saint's raised heel.

Given the alterations to the Virgin's draperies revealed by the X-radiograph, it is not surprising that samples from this area display a number of layers in a sequence that is inconsistent and not easily explicable. Three of the four cross-sections include, immediately over the priming, a brown layer that contains some earth pigment, but surprisingly given its colour, EDX

FIG. 168 NG 635, detail of X-radiograph.

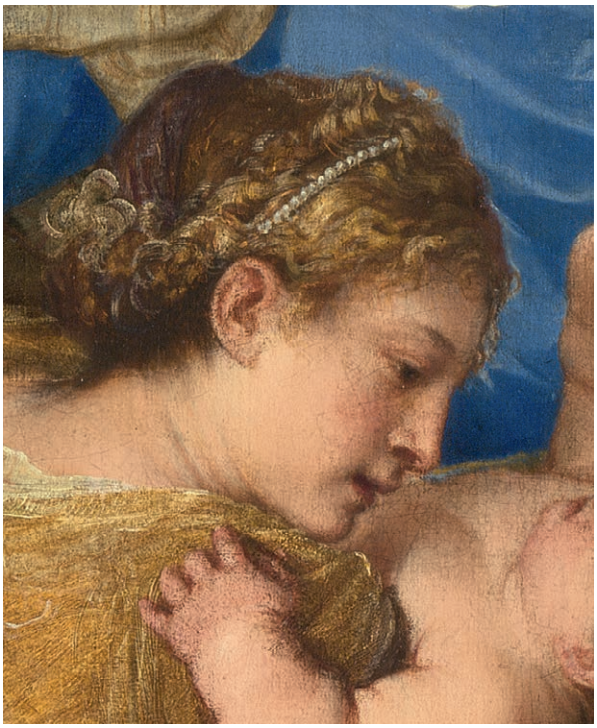


FIG. 169 NG 635, detail.

FIG. 170 NG 635, detail.

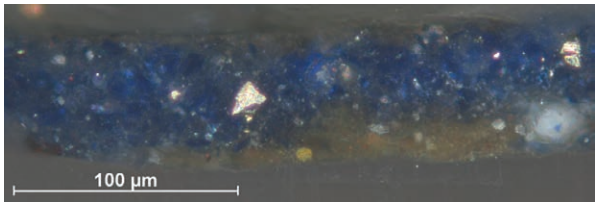


FIG. 171 NG 635, paint cross-section from a shadow in the Virgin's drapery, showing the brown undermodelling beneath blue paint containing ultramarine of an intense colour and two large golden particles of pyrites.

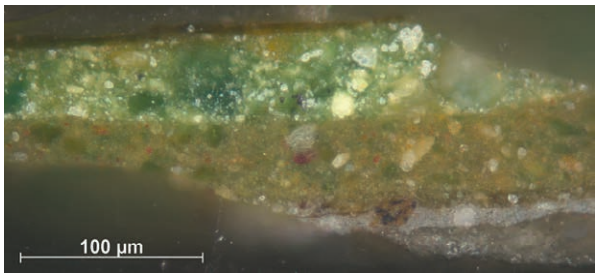


FIG. 172 NG 635, paint cross-section from a green leaf in the foliage.

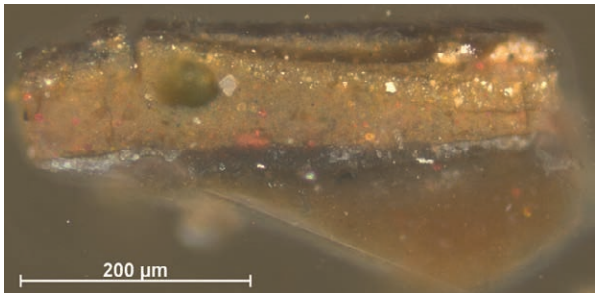


FIG. 173 NG 635, paint cross-section from the trees in the area just above the Baptist's cross.

analysis has confirmed that there is also some ultramarine and some copper pigment present (FIG. 171). It has been interpreted in the past as undermodelling but seems to have been quite broad, not completely covering the *imprimitura*, since it is not present in one of the cross-sections. Instead, this sample displays a relatively simple structure, with a single pale blue layer beneath the blue surface paint. The light colour of the underpaint is unexpected given that the sample is from a shadow. It may be one of the light strokes visible in the X-ray image that seem to be placing folds, or could be related to the revisions, as could the greyish-blue and lead white layers present between the brown undermodelling and the uppermost blue paint in one of the other samples from a brighter blue mid tone of the skirt. Another sample from a shadow has very thin black and dark reddish brown layers at the same place in the layer structure. There is no doubt about the final layers, however, which consist of high quality ultramarine, used with almost no lead white in the deep shadows. The ultramarine can be seen to contain a notable amount of pyrites (iron sulphide), visible in the cross-section as glistening golden particles (FIG. 171).[12]

The design of the painting means that a large area is occupied by the wooded landscape. The foliage exhibits a variety of shades of green and brown. While there may have been at least some discoloration of the copper green pigments, the paint samples confirm that, as in Titian's other works, different pigments and layer structures, including some that were clearly always brown, were selected to achieve this variegated effect. A sample from a green leaf at the left edge shows a dull green base colour of yellow earth and verdigris, with a little lead white and a few particles of red iron oxide, onto which the leaf has been painted in a brighter colour composed of verdigris, lead-tin yellow and lead white (FIG. 172).[13] There is a very thin final layer of verdigris present, but only at the left of the cross-section, so it is probably a detail on the leaf rather than an overall glaze.[14] In browner green paint from the trees, from an area just above Saint John's cross, the cross-section shows a browner underpaint containing red earth in addition to yellow earth, with almost no verdigris, and therefore intentionally brown (FIG. 173). Above are several layers of different shades of green, with varying proportions of earth pigment relative to lead-tin yellow, verdigris and lead white, but the final thin layer is again rather brown and clearly contains some red earth in the mixture. These trees are among

the most carefully observed and beautifully painted of Titian's whole career. Other areas too are notable for their refinement, above all the delicately painted flesh tints. They are generally rather pale, but are not necessarily faded since a paint sample from a shadowed area of the Child's proper left shoulder found that the red pigments mixed with the lead white are mainly vermilion and some red earth, with only a very small amount of red lake, over a paler layer containing lead white and a red earth.

Only in the more distant landscape does Titian display a more flamboyant handling of paint, in the rapid abbreviated marks that indicate the shepherds, cattle and sheep, all painted in shades of cream and light brown, and above all in the depiction of unsettled weather effects in the mountains, recognisably those of his native Dolomites. To suggest sunlight catching a distant rainstorm he simply dragged his brush across the still soft lead white of the streak of cloud, itself no more than a couple of wavering strokes of paint (FIG. 174).

FIG. 174 NG 635, detail.

CAT. 12

The Music Lesson

NG 3
*c.*1535
Canvas, 99 × 120 cm
Thread count of canvas: 13 warp, 13 weft per cm (plain weave)

Cleaned, restored and relined in 2011–13

The painting now titled *The Music Lesson*, but formerly called *A Concert* (FIG. 177), is first securely documented in the 1627 inventory of the collection of Vincenzo II Gonzaga, Duke of Mantua.[1] Appropriately, given the subject matter, it hung in a prominent position over a doorway into the room where the court used to dance, in the apartments of the Duke's father, Vincenzo I. Although it can be dated on stylistic and technical evidence to the mid 1530s,[2] a period when Titian was working on several projects for Mantua, it was probably not originally a Gonzaga commission. It may have been acquired later by Vincenzo I, or perhaps by his father Guglielmo I, who was passionate about music and was himself a composer. *The Music Lesson* was bought, together with many other Gonzaga pictures, for King Charles I of England. Following the dispersal of the Royal Collection in 1650 it probably went to Holland and then France before returning to England, where it was purchased before 1806 by John Julius Angerstein and then in 1824 became part of the newly founded National Gallery. For a while it was much admired by connoisseurs, but later in the nineteenth century the attribution to Titian began to be disputed, seemingly in parallel with a deterioration in its appearance due to the discoloration of numerous accumulated varnish layers, and during the last century it was widely considered to be a pastiche made in the early seventeenth century, perhaps by Padovanino. That it must be a sixteenth-century painting was strongly argued in Nicholas Penny's catalogue[3] and the painting can now be re-evaluated after cleaning and restoration (described on pp. 110–16).

The painting has been returned to its correct dimensions. It consists of a single piece of medium weight plain weave canvas, with the usual irregularities seen in others in this study. One or two of the tack holes at the outer margins may be those from the original stretching. It was prepared with gesso and then a beige-coloured *imprimitura* containing lead white, yellow earth, red earth, black and a little vermilion, as well as some calcium carbonate which could be a component of the earth pigment or a deliberate addition as an extender, bound together with heat-bodied walnut oil (FIGS 175, 176).[4] The composition of the *imprimitura*

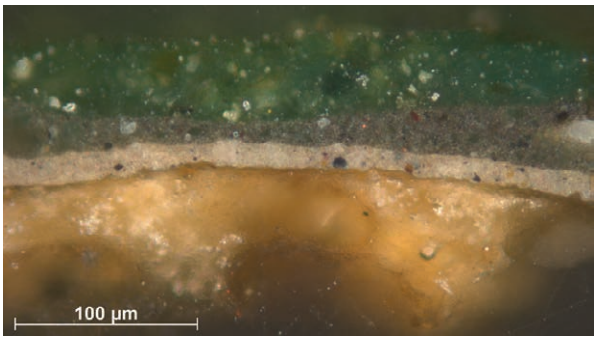


FIG. 175 NG 3, paint cross-section from the woman's dark green dress.

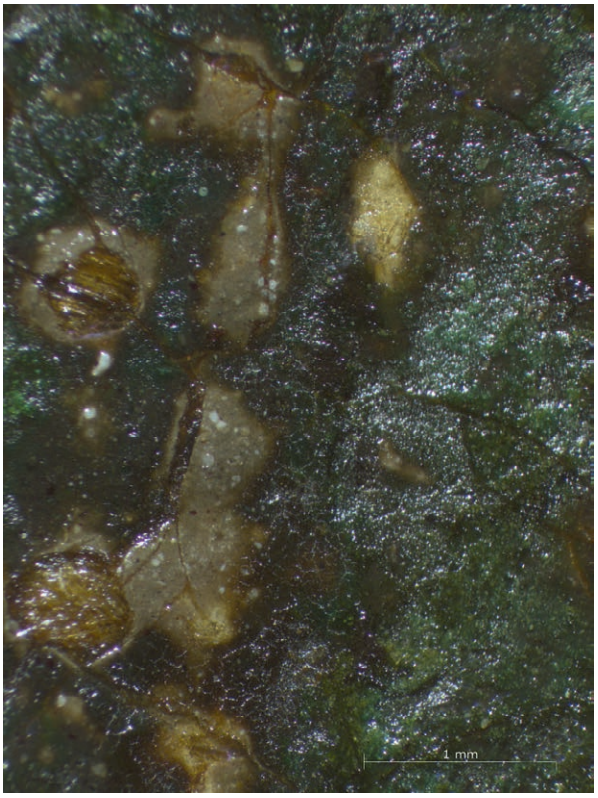


FIG. 176 NG 3, photomicrograph of the woman's dress, taken after cleaning, before restoration, showing the *imprimitura* and gesso in areas of damage.

FIG. 177 Possibly by Titian, *The Music Lesson* (NG 3), *c.*1535. Oil on canvas, 99 × 120 cm.

is notably like the mixture used to prime the gesso of *The Presentation of the Virgin in the Temple* (see essay, FIGS 29, 41), painted between 1534 and 1538, which is close to the date proposed for *The Music Lesson*.

X-radiography and infrared imaging (including both reflectography and transmitted infrared through the canvas after the old lining had been removed)[5] reveal a sequence of alterations as the figures in the group and their relation to one another and to the spectator were developed (FIGS 178–80). The boy soprano singing from a part book appears to be the focal point of the composition. Nevertheless, his head was placed in shadow, in a similar way to the figure of Christ in *Christ and the Adulteress* (CAT. 2). The X-radiograph confirms that his position remained fixed (it also shows that his head is the most damaged part of the painting). The pages of his music were enlarged slightly. The pose of the player of the bass viol is also unchanged, but there are adjustments around the neckline of his costume. Originally more of the white shirt was to be visible and the opening of his doublet was perhaps conceived as flapping open so that it caught the light that rakes in from the left. His proper right shoulder and the lower edge of his left sleeve were extended over the paint of the brown background. The shape of his instrument, accurately depicted with the upper part of the back canted towards the top where it meets the neck, seems to have caused some initial difficulty, with several adjustments to the curved edge on the right. Dense X-ray-opaque strokes suggest that originally the curve leading to the pegs and scroll was to be convex instead of slightly concave.

The music master, who was perhaps also the bass singer, guides the boy with his hand, but he beats time as well (particularly important for the ensemble before the introduction of bar lines in music). The gesture may well have significance for the meaning of the picture[6] and particular attention was paid to the fingers; the index finger seems first to have been more upright, pointing to the beginning of a line of music. The whole hand was then slightly rotated and the ring and little finger changed so that they now hang downwards in a more

FIG. 178 NG 3, X-radiograph, made before cleaning and relining.

FIG. 179 NG 3, infrared reflectogram, taken after cleaning, before relining and restoration.

relaxed fashion. His head underwent multiple adjustments, also visible in the infrared images, especially those made with transmitted light (FIG. 181). As with the female saint in *'The Aldobrandini Madonna'* (CAT. 11) his profile was moved in and inclined further towards the boy. The original position of his eye can be seen in both the X-ray and infrared images. The X-radiograph also features typical opaque strokes that seek to define the angle of his cheek and his nostrils. In the course of painting, the back of his head and neck was then extended twice to the left, the last alteration being thinly painted over the background colour. At a late stage the edge of the stand-up collar of his cloak was raised so that it now cuts across his chin.

The young woman, most probably one of the imaginary beauties that appear in paintings associated with Titian, was first painted with her hand on the music master's right shoulder. Her first arm shows clearly in both the X-ray and infrared images. Even in the final version there are several pentimenti around her elbow and the edges of her white sleeve. In the infrared reflectogram, a twisting shape, not unlike the piece of fabric that was underdrawn but not painted across the neckline of *'La Schiavona'* (FIG. 113, p. 59), crosses the man's back, just below the woman's first hand. In the transmitted infrared image these lines and other marks can be seen to continue into the tunic of the viol player and the back of the boy's head, where the curves might suggest another position for the viol, or perhaps even a different instrument such as a lute. More shapes, looking a little like rapidly sketched hands, appear in the area of the music master's back. However, it is difficult to relate these marks to the present composition and, given the Titian workshop's habit of sketching and doodling on the backs of panels and canvases, they are possibly unconnected.

Nevertheless, a few lines of brush underdrawing for the present figures can be detected, mainly around the head, neck and shoulders of the music master in his original position. Indeed, it is possible that the eye in its first position, which shows so clearly in all the infrared images, did not progress beyond the underdrawing stage. Elsewhere, it is difficult to identify any underdrawing, partly because it is not easy to distinguish it from surface paint, but probably mainly because the paint that lies over it absorbs infrared because of its thickness or composition. In addition, during restoration it was observed that a few traces of red lake paint were present beneath the paint layers in damaged areas that included no red colours: for example, around the edges of the part book. Therefore it is possible that some underdrawing was executed with red lake, which would not be visible in infrared or X-ray images.

As well as the change to her arm, the angle and level of the woman's head was altered; hence the build up of paint around the top of her head. In the X-radiograph

FIG. 180 NG 3, transmitted infrared image, taken from the front of the canvas following removal of the lining.

FIG. 181 NG 3, detail of transmitted infrared image, taken from the front of the canvas.

FIG. 182 NG 3, detail of infrared reflectogram.

FIG. 183 NG 3, detail of transmitted infrared image, taken from the front of the canvas.

FIG. 184 NG 3, detail of infrared reflectogram.

and especially the infrared reflectograms (FIGS 180, 183), it can be seen that her nearer, right, eye was originally lower and that she was looking down and across to the boy. Perhaps the most radical change is to the head of the young man playing a recorder; this was first drawn and painted inclined in the opposite direction so that it aligned with the neck of the viol. His forehead can be seen to extend well up into the area now covered by the hat, and the dark shape in the infrared image suggests that in the first version he was also wearing a hat, but squarely positioned on his head. The angle of the present hat follows the angle of the first hat, but since the head was tilted it is now at a delightfully jaunty angle. The eyes and even the eyebrows were painted before the change was made and they therefore show well in the X-ray and infrared images (FIG. 184). While the eyes are open and looking out of the painting, the direction of his gaze was still towards the music master. By changing these two youthful and handsome outer figures so that they engage with the viewer, the other three are left absorbed in their music making. It may not be a coincidence that they are a child, a young man and a figure in vigorous middle age, and that the child is being instructed in much the same way as the youth in Giorgione's so-called *Three Ages of Man* (Galleria Palatina, Florence), also in fact a 'music piece'.[7] The changes to *The Music Lesson* enhanced its similarly complex levels of meaning.

With the exception of the three portraits, *The Music Lesson* is the only painting in this study to have an interior setting. It is distinguished by its strong side lighting with consequent chiaroscuro effects and by its deep toned colours, very different from the high-key palette of outdoor scenes such as *Bacchus and Ariadne* (CAT. 8) and *'The Aldobrandini Madonna'* (CAT. 11). The paint of the indeterminate background is a dark chocolate brown colour containing a mixture of black, yellow and red earth, calcium carbonate, some lead white and, in some places, a little vermilion.[8] The brown background to *'La Bella'* (Galleria Palatina, Florence), painted by Titian in 1536 is similar in appearance, but in that instance no vermilion was found in the mixture.[9] To deepen the hue of the woman's green skirt, it was underpainted with a layer of dark greenish grey, containing mainly verdigris and black, with small amounts of lead white, red lake and vermilion (FIGS 175, 176).[10] As a result this area is very dark in the infrared reflectogram. This is a traditional technique aimed at producing a very dark green without mixing black pigment into the uppermost green glaze, which would compromise its translucency and saturation, but it also echoes the use of dark brown underlayers for deep reds seen on the shepherd's tunic in *The Holy Family* (CAT. 4) and in the Pharisee on the left in *Christ and the Adulteress* (CAT. 2). The green upper layer contains mainly verdigris of a type that includes a little copper chloride from the manufacturing process, with a very small amount of lead-tin yellow and lead white.[11] The woman's orange and yellow striped shawl is painted with mixtures based on relatively subdued red and yellow earth pigments, with only a small amount of vermilion in the orange tones, and perhaps some lead-tin yellow in the highlights. The infrared image suggests that even in the vermilion red hat of the viol player, the brightest colour note in the painting, the paint in the shadows is muted by the addition of black pigment.

The splendid watered silk cloak of the music master occupies almost one quarter of the picture surface. It was painted a deep purple-blue colour, beginning with a pinkish base layer containing red lake and lead white, with a little azurite (FIGS 185, 186). The fluorescence of some of the lake particles under ultraviolet illumination suggests that the pigment may have been prepared with madder dyestuff. This pinkish mauve first layer is therefore similar to the predominantly pink underpaintings to areas of purple in other paintings in this study. The same mixture was also used to underpaint at least

FIG. 185 NG 3, detail.

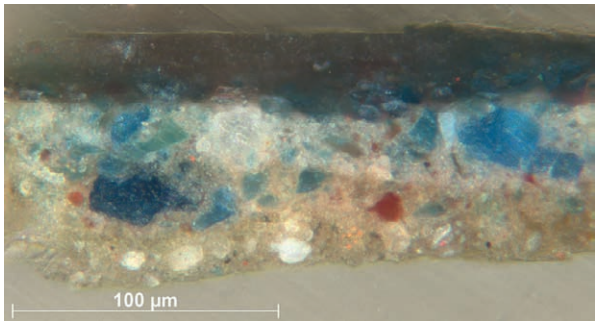


FIG. 186 NG 3, paint cross-section from the music master's purple-blue cloak.

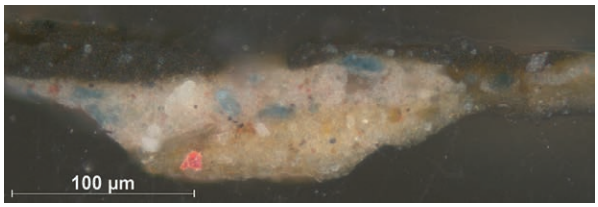


FIG. 187 NG 3, paint cross-section from the music master's black cap.

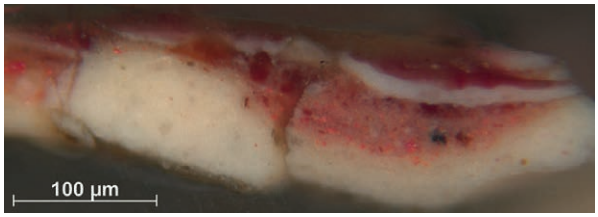


FIG. 188 NG 3, paint cross-section from the viol player's red tunic.

the lighter areas of his black hat, perhaps to give the black a deep slightly purple cast (FIG. 187). Similarly the plumes of the recorder player's hat are underpainted with azurite, suggesting the bluish iridescence of black feathers.[12] For the cloak there were further applications of azurite, with a little red lake and lead white, the proportions varied according to the modelling. In the sample illustrated, the sequence is completed with a deep purple-blue layer containing mainly azurite with a little red lake. Unfortunately, darkening of the medium surrounding the azurite particles means that the colour now appears duller and more green in hue than was originally intended. The discoloration almost completely masks the red lake component; it is now visible in only a few places: for example, around the collar.

Where the red lake is used on its own, as in the tunic of the viol player, it is notably well preserved. As in samples from plum red draperies from many works by Titian, the cross-section includes several layers alternating between lead white and various shades of pink (FIG. 188). The penultimate layer is composed of lead white and must represent one of the flickering touches used to indicate the puckers in a silk or satin fabric. The tunic was completed with glazes of pure red lake, applied even over the areas of highlight. Analysis of a sample of the glaze has shown that at least two dyestuffs are present, kermes and the slightly cheaper madder, exactly as in the other samples analysed in this study and consistent with the newly proposed dating of the painting to the 1530s (see essay, p. 28). There may also be a small amount of dyestuff from a soluble redwood such as brazilwood or sappanwood.[13]

The boy singer is now dressed in a dark greenish brown tunic, but the cross-section indicates that originally he was to wear a bright green (FIG. 189). Directly over the *imprimitura*, without the dark underpaint present in the woman's skirt, there is a thick layer of verdigris mixed with a little lead white and lead-tin yellow. This was then covered with a light brownish grey paint containing mainly lead white and a fine-particled manganese black, with some red lake, vermilion, yellow earth and calcium carbonate.[14] A few translucent copper-containing yellow brown particles are also present in this layer, and despite the fact that they are not green, they give ATR–FTIR spectra consistent with a copper acetate (verdigris); a similar pigment was found in the brown paint of the landscape in *Noli me Tangere* (CAT. 7).[15] This is perhaps a brownish type of verdigris, or it may have become brown over time. The modelling

was completed with very thinly applied lighter and darker brown paint containing coal black, yellow earth, a little vermilion, calcium carbonate and probably the same brownish type of verdigris that is present in the lower layer, since EDX analysis indicated copper was present even though no green particles can be seen.[16] There are also smaller translucent brown particles that seem to be organic in character. Hot orange brown glazes containing softwood pitch or tar have been found in the shadows in the foreground of *The Holy Family with a Shepherd* (CAT. 4), but here GC–MS analysis did not supply any evidence for this particular type of brown organic pigment.[17] Analysis by FTIR in both transmission mode and by micro-ATR–FTIR imaging instead suggested that the small translucent brown particles have a similar composition to the large particles identified as coal black, and it seems likely that they are simply smaller particles of the same pigment.[18]

The change of colour for the boy's tunic meant that a bright green could be introduced with the plumed hat worn by the recorder player (FIG. 190). The layer structure in the cross-section is complex since the sample point on the hat included paint from the head in its first position. Over the *imprimitura* are two layers of flesh colour from his forehead, consisting of lead white with a little vermilion, red lake, black and yellow earth. Over this are two layers of brown, containing the usual black, lead white, yellow and red earths, calcium carbonate and red lake, with the redder brown upper layer containing vermilion in addition. These layers probably represent the young man's hair, perhaps similar in colour to the chestnut hair of the boy. There is then a thin layer of black, perhaps related to the dark shape visible in the infrared reflectogram. The rest of the hat appears lighter, however, and so perhaps this black paint was used to establish the shadowed part of the hat and brim. The green of the hat, containing verdigris, lead-tin yellow and lead white is applied with stiff dabs of colour so as to suggest a rough textured material, perhaps some form of felt. The inclusion of lead-containing pigments means that the spots of colour show well in the X-radiograph. The green does not appear especially bright in the sample, but there is likely to be some discoloration at the surface, which is also apparent on the painting. Some of this may be from very old varnish layers; the blurred interface between medium-rich copper green paints and oil-containing varnishes means that the two can sometimes no longer be separated during cleaning.

Indeed, all the paint samples taken for medium analysis following cleaning were found to contain traces of old varnish materials, including pine resin and in some cases minor amounts of fir balsam. It is not possible, therefore, to confirm whether any pine resin was added to the more translucent red, green and brown oil-bound paint layers. The analysis showed that walnut and linseed oils were used; both were heat-bodied.[19] The walnut oil was found in the *imprimitura*, as already mentioned, and the woman's white sleeve (as in the areas of white in *The Holy Family with a Shepherd*, CAT. 4), and also in the music master's purple cloak and the viol player's deep red sleeve. The green of the woman's skirt, the brown glazes of the boy's tunic and the brown paint of the background were found to contain linseed oil, all darker areas where the yellowing of the oil may have been a less important consideration. The less yellowing walnut oil was chosen not only for white but also for the cooler pinks and purples. Paintings by Titian where it has been used for these colours are *'La Schiavona'* (CAT. 6), in both the pink underlayer and the purple paint of the dress, and *The Vendramin Family* (NG 4452). In the latter, painted over some years during the 1540s, it was identified not only in Andrea Vendramin's maroon cloak but in all of the six areas analysed, including dark paint such as the black of the robe of one of Vendramin's sons.[20] As more samples from paintings by Titian and his workshop are analysed, patterns of use over his career may emerge.

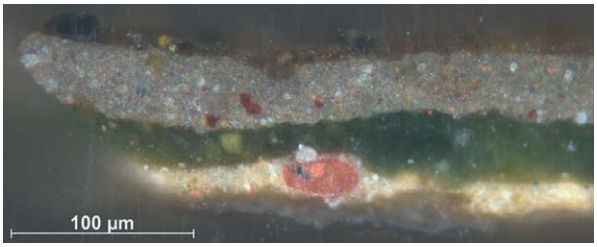


FIG. 189 NG 3, paint cross-section from the boy's brown tunic.

FIG. 190 NG 3, paint cross-section from the recorder player's green hat.

CAT. 13
The Triumph of Love

Ashmolean Museum of Art and Archaeology, Oxford
*c.*1544–6
Canvas mounted on panel, diameter 88.3 cm
Thread count of canvas: 8 warp, 12 weft per cm (twill weave)

Cleaned, restored and relined in 2008–9[1]

The provenance of *The Triumph of Love* can be traced back to the collection of Gabriel Vendramin,[2] for whom Titian painted the grand group portrait *The Vendramin Family, venerating a Relic of the True Cross* (NG 4452). The canvas was originally rectangular (see FIG. 243) and is recorded in an inventory of 1602 as the cover of a portrait of a woman dressed in black and holding her right hand to her breast. An earlier inventory records that the portrait (now lost) was by Titian. When the missing parts of the cut oculus are reconstructed (see FIG. 243),[3] the dimensions of the cover match those of the portrait in the 1602 inventory and confirm that its format, only slightly taller than it is wide, was one often seen in Titian's portraiture, including the *Portrait of Girolamo Fracastoro* (CAT. 9). Although portrait covers – usually called *timpani* in Venice – are often mentioned in inventories,[4] *The Triumph of Love* is an exceptional survival, and its subject of the power of love (in the form of Cupid) over base passions (the tamed lion) was appropriate for a portrait most probably of a famous Venetian beauty. The early inventories that record the portrait cover do not include attributions; it is not mentioned as attributed to Titian until the late eighteenth century.[5] However, the technique and paint handling revealed by recent cleaning are entirely characteristic of Titian, and similarities with the first phase of the execution of *The Vendramin Family* (begun probably in about 1540–3)[6] and the Naples *Danaë* (about 1544–6) indicate a date of around the mid 1540s.

Titian's choice of a robust twill weave canvas seems appropriate, given the amount of handling to which a portrait cover was likely to be subjected. The weave is notably coarser than that of *'La Schiavona'* (CAT. 6) and is indicative of Titian's general tendency to use increasingly rough textured canvases as his career progressed. It was prepared with gesso (FIG. 191). There is no *imprimitura*.

The paint layers are generally relatively thin. This means that an almost complete underdrawing is revealed by infrared reflectography (FIG. 193). The first stage must have been to inscribe the two intersecting circles that form the inner and the outer edges of the rim of the oculus on the rectangular canvas – the upper part was lost when the painting was reduced to a tondo. The circles are somewhat approximate with some lines repeated and further adjustments were made during painting.[7] A line roughly across the diameter was ruled, and another just above. Neither coincides exactly with the painted horizon line. Titian seems then to have lightly sketched the figure of Cupid, initially drawing a vague circle, perhaps his head, and the outline of a wing, both above and to the right of the present ones, as well as some lines for the bow and perhaps for the hand holding it. The broken intermittent nature of these marks might indicate a dry medium such as charcoal, although it seems more likely that they were instead made very rapidly with a black paint on a dry brush that skimmed over the raised canvas weave. Bolder lines more visible in the infrared image were then brushed in, still in the higher first position, using a more obviously liquid medium that can be seen, in the cross-section from the line indicating the bow, to have soaked into the upper surface of the gesso (FIG. 191). Cupid's bubbling curls were indicated with quick curves that roughly follow the first dotted line, and there is also a higher outline for his right shoulder (see FIG. 32). The figure was then moved down to its present position. Any drawing for the face is obscured by the thicker paint and pentimenti made during painting, but he appears to have had longer hair streaming out to the left, his wings were drawn larger, the bow was more vertical and several different angles seem to have been tried for the arrow in his right hand. The position of his legs was also

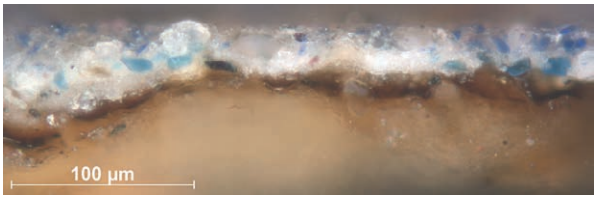


FIG. 191 *The Triumph of Love*, paint cross-section from a cloud in the upper right, coinciding with a line of the very liquid underdrawing from the bow.

FIG. 192 Titian, *The Triumph of Love*, *c.*1544–6. Oil on canvas mounted on panel, diameter 88.3 cm. Oxford, Ashmolean Museum, Inv. WA2008.89. Accepted by HM Government in lieu of Inheritance Tax and allocated to the Ashmolean Museum, purchased with the assistance of the Art Fund, Daniel Katz Ltd, the Friends of the Ashmolean, the Tradescant Group, the Elias Ashmole Group, Mr Michael Barclay, the Highfield family, the late Mrs Yvonne Carey, the late Mrs Felicity Rhodes and other private donations, 2008.

repeatedly shifted so that there are multiple outlines, some quite fine and drawn with the point of the brush, while others are heavier and more liquid. The black pigment used in the painting of the lion means that some of the underdrawing is obscured, but he too was sketched in with similar flamboyant energy. Drawn lines of both the dryer and more liquid types seen in Cupid are clearly visible around the lion's head, back and hind quarters, and his tail was indicated with a couple of sweeping loops of the brush, not followed in the painting.

While a portrait cover might not be thought an important commission, Titian was evidently engaged by the subject, and the X-radiograph shows that he continued to make revisions during painting to achieve the desired result. He began to paint Cupid's left forearm and hand in a higher position on the bow before moving it down (FIG. 194), an alteration also evident in the infrared image. Sometimes when making changes he used bold strokes of lead white, for example to define the curve of the bow and the lower edge of his right wing;

FIG. 193 *The Triumph of Love*, infrared reflectogram.

FIG. 194 *The Triumph of Love*, detail of X-radiograph.

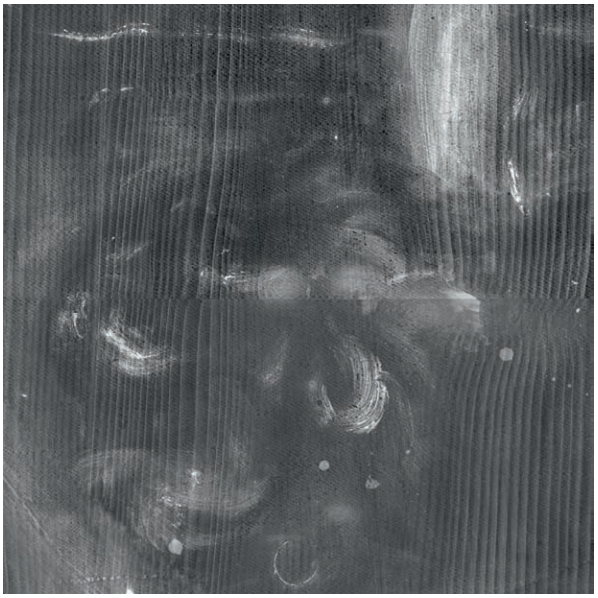
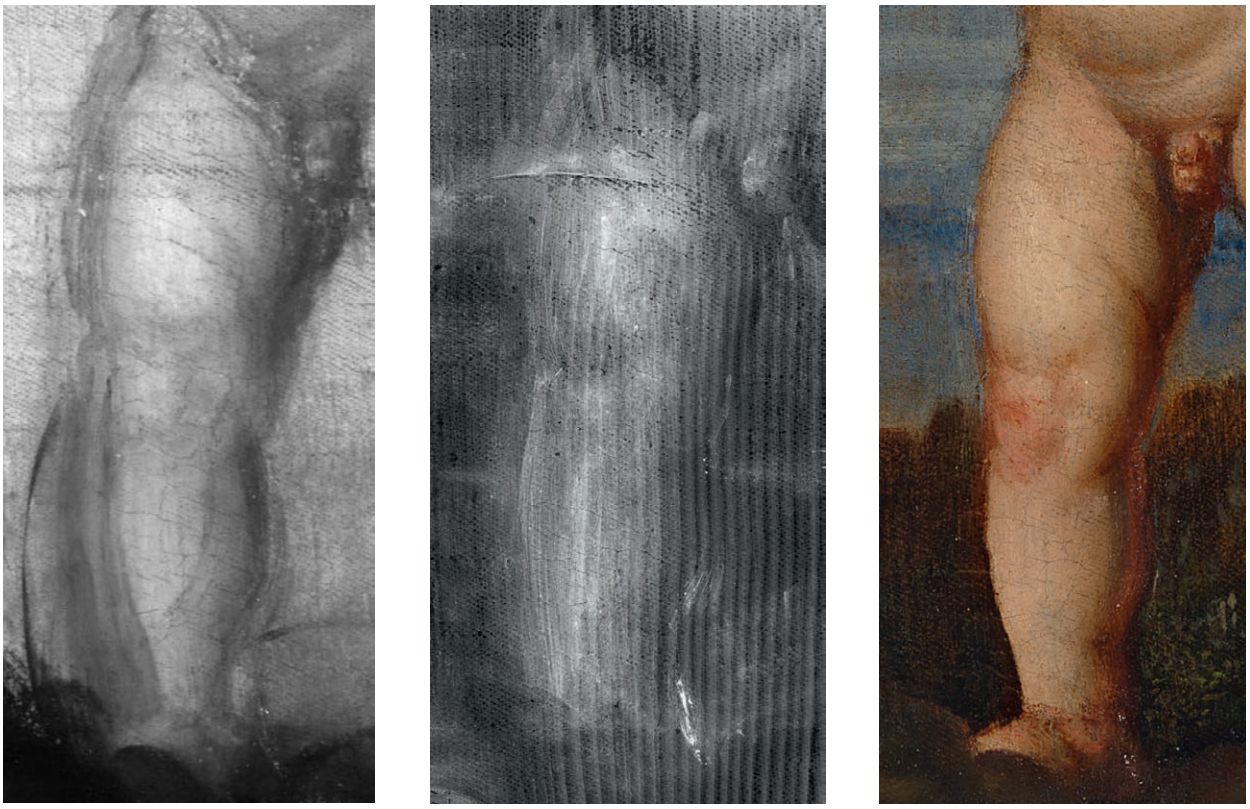


FIG. 195 *The Triumph of Love*, detail of X-radiograph.



FIGS 196–8 *The Triumph of Love*, detail of infrared reflectogram; detail of X-radiograph; detail.

they were only thinly covered with the final layer of ultramarine blue of the sky and so they are just visible on the surface of the painting. Cupid is set against the sky in a way that recollects Bacchus in *Bacchus and Ariadne* (CAT. 8) and, as with that figure, Titian seems to have concentrated on the pose before painting in much of the sky. Therefore a dark border appears around the figure in the X-radiograph where the final layers of ultramarine and lead white do not quite meet the contours. More strokes of lead white feature in the first stages of painting the lion (FIG. 195), for example the broad loop of paint to the right of his jaw, and a broken wavering line indicating the edge of the scrubby foreground. Cupid's legs, especially the one on which he balances, underwent several revisions (FIGS 196–8). Before achieving the final perfectly poised position, Titian drew the leg to the left and then to the right, before beginning to paint it somewhere in between. Finally he moved it further to the right, marking the back of his heel with another stroke of lead white.

The binding medium was identified in the blue paint of the sky as heat-bodied linseed oil.[8] The painting of the landscape appears quick, direct and impressionistic, yet paint cross-sections demonstrate a distinct layer structure. The sky and distant landscape were first underpainted with indigo, lead white and a little red lake (FIGS 191, 199).[9] The clouds include layers of both azurite and lead white and ultramarine and lead white, but their forms are now indistinct as a result of abrasion. The shapes of the clouds are now largely defined by the more intense ultramarine blue of the sky around them, painted with a higher proportion of blue pigment. A yet deeper blue appears on the distant mountains. At the left edge the pearly dawn sky is depicted with

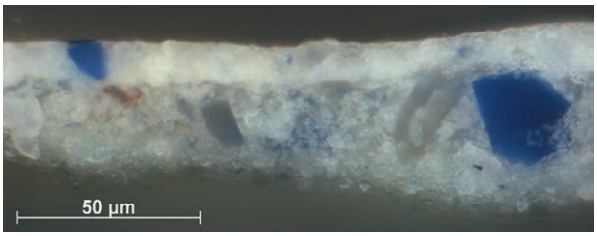


FIG. 199 *The Triumph of Love*, paint cross-section from the streak of yellow sky at the horizon on the left.

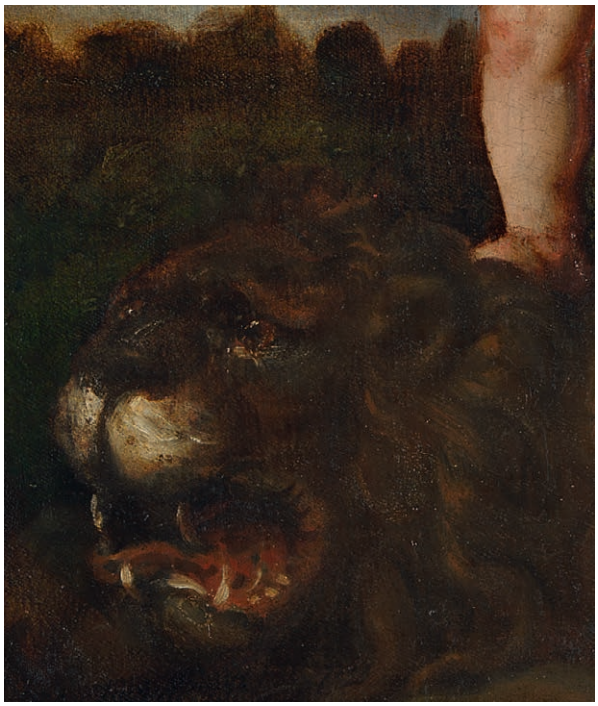


FIG. 200 *The Triumph of Love*, detail.

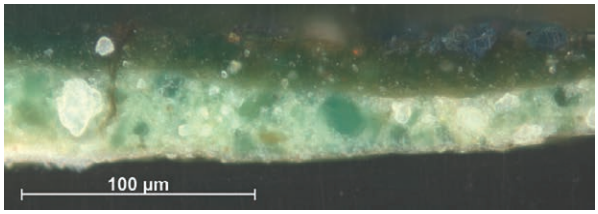


FIG. 202 *The Triumph of Love*, paint cross-section from the deep green grass.

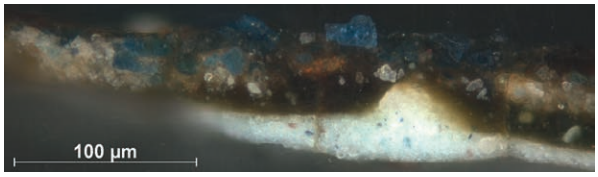


FIG. 203 *The Triumph of Love*, paint cross-section from the bushes in front of the water.

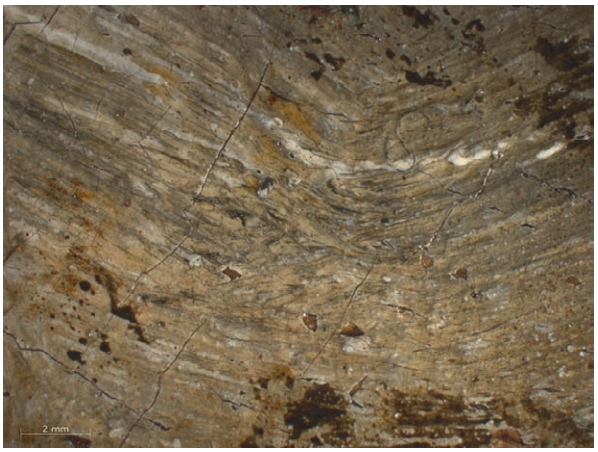


FIG. 201 *The Triumph of Love*, photomicrograph of the lion's muzzle.

FIG. 204 *The Triumph of Love*, photomicrograph of the edge of Cupid's leg.

streaks of pale blue and yellow, containing ultramarine, lead white and lead-tin yellow.[10] In the patch of dark green grass to the left of the lion (FIG. 200) a sample shows a mid green containing verdigris, lead white and lead-tin yellow, followed by a darker green paint also containing verdigris but very little lead white and lead-tin yellow (FIG. 202). This appears relatively unaltered. The composition of the browner green of the bushes in front of the water is very similar, but the paint seems to have discoloured to some extent, perhaps because it lies directly over the pale blue indigo and lead white underpaint for the water.[11] This can be seen in a sample from a bush immediately to the left of Cupid (FIG. 203), where lying over the dark green base colour is some pinkish-beige paint perhaps relating to the upper layer of the water encroaching on the bushes and a final greenish-blue paint containing mainly azurite, touches of which can be seen along the top of these bushes and also in places elsewhere in the foliage.

In several places there is fine beading of the paint.

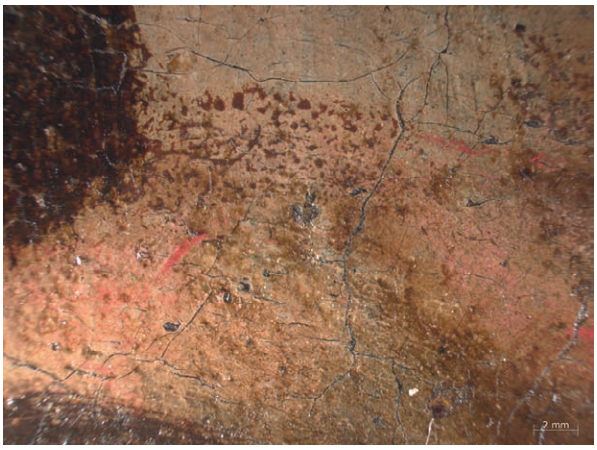


FIG. 205 *The Triumph of Love*, photomicrograph of Cupid's foot.

FIG. 206 *The Triumph of Love*, photomicrograph of the fingers of Cupid's right hand.

FIG. 207 *The Triumph of Love*, detail.

FIG. 208 *The Triumph of Love*, photomicrograph of Cupid's wing.

This occurs when paint is applied over layers that are completely dry, another indication of the time and care taken over the portrait cover. The phenomenon can be seen in the string of Cupid's bow (see FIG. 239), the brown spots on the lion's muzzle, dotted over the wet-in-wet swirls of greyish yellow and white paint (FIG. 201), and down the edge of Cupid's right leg, where a brown colour has been brushed in over flesh paint in one of the adjustments to his legs (FIG. 204). The same brown paint was also used for the light, interrupted stroke that emphasises the crease of his ankle (FIG. 205). Small flicks of bright pink, probably containing vermilion and lead white, but perhaps also some red lake, can be seen on his foot, and more obviously on his face and around the tips of his fingers (FIGS 207, 206). Here, and in details such as the rapid, perhaps wet-in-wet, painting of the wings, with glazes of red lake and highlights of a dry, almost crusty looking lead-tin yellow,[12] dragged over a light orange base colour of lead-tin yellow and red lead (FIG. 208), it can be seen how Titian was beginning to use the coarser texture of his canvas and the more absorbent surface of a gesso ground without a priming to achieve the interrupted surfaces and indeterminate contours that were to create such vibrant effects in his later paintings.