

6. *Bacchus and Ariadne*



Artist TITIAN (active 1507; died 1576)

Medium Oil

Support Canvas

Size 175.2 x 190.5 cm

Date 1523

It was not uncommon for canvas paintings to be rolled up for ease of transport. However, this painting seems to have been rolled the wrong way – with the paint on the inside. This led to problems of flaking. Its restoration gave opportunities to study Titian's methods and materials.

The subject This large picture shows the sequel to the famous classical myth of Theseus and the Minotaur. Ariadne, the daughter of King Minos of Crete, having helped Theseus escape destruction by the bull-headed Minotaur and get through the labyrinthine corridors of her father's palace, sails for Athens with the ungrateful Theseus, who abandons her *en route* on the island of Naxos. Here she meets Bacchus, who offers himself as a husband and the sky – in which she will become a constellation – as a wedding gift. The story is known from the Latin poets (Catullus/Ovid and Philostratus).

Titian has shown the moment when Bacchus first appears. He is the scantily dressed figure with vine leaves round his head who leaps from his cheetah-drawn chariot. He is accompanied by a retinue of Bacchanalian revellers. Ariadne, who is waving hopelessly at Theseus' departing ship just visible on the horizon, turns in surprise at the sudden arrival of the god. The circle of stars above her head refers to the gift Bacchus will give her.

The patron This was originally one of a series of Bacchanalian paintings commissioned from various artists by Duke Alfonso I d'Este for a room in his castle in Ferrara, Italy.

The Duke sent Titian the **canvas** and stretcher in 1520 and for the next two and a half years badgered him to get on with it. Titian was known to be working on the picture in Venice in 1522. In January 1523 the unfinished picture left Venice for Francolino, the port of Ferrara. From there a porter carried it on his back to Ferrara (his bill for this job still exists). Titian arrived at the castle soon afterwards to finish it. It says something about the relationship between artist and patron at this point that Titian said that he would only go to Ferrara if the Duke guaranteed *in writing* his safe return to Venice!

The picture is moved to Rome In 1598 the painting was moved from Ferrara to Rome. At that time it was not unusual to take a painting off its stretcher and roll it up to make it easier to transport. However, if rolled tightly or with the paint layer inside, this can cause cracks, especially in the **gesso ground**.

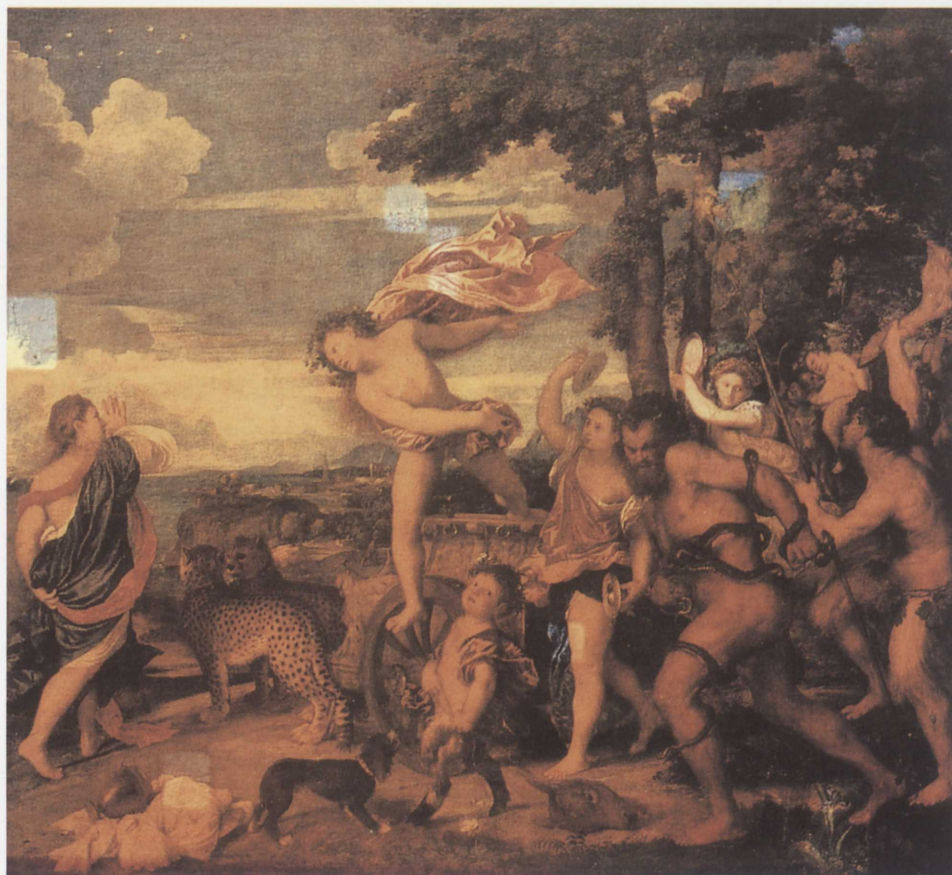
When restoration started in 1967 many small paint losses and areas of disintegrating ground were found; this fits in with rolling of the canvas and rough handling, either in the portage to Ferrara or on the journey to Rome, or maybe at some other point in the painting's history.

Conservation problems

The painting was bought in Rome and reached London in 1806 or 1807, and it was cleaned and restored around that time. However, once cleaned it was revarnished with something like **mastic in turpentine**; these old-type natural resin varnishes soon go yellow, and by 1826, when the picture was bought by the National Gallery, the varnish had already darkened. In 1846 it was partially cleaned, and revarnished with a mastic varnish containing some **linseed oil**. By 1894 the canvas was in a bad state, so the painting was re-lined and given a new stretcher, and again re-varnished. It was again re-lined in 1929.

This is Bacchus and Ariadne before the removal of the dirty varnish. The small 'clean' squares are a 'cleaning test' – small areas of old varnish have been removed. If the decision not to proceed with the cleaning had been made, the clean areas would have been made to seem dirty again!

The condition of the picture was examined in detail in 1967. A photograph taken with **raking light** showed the surface of the original canvas to be severely buckled and uneven. The glue used in the 1929 lining had not penetrated the back of the original canvas, so the loose ground and paint had not been re-attached. The X-radiographs also showed lots of small losses of paint and ground; most damage and retouching was in the top half of the picture, and most of it in the sky. Bacchus had badly-discoloured retouching on the right arm, head and shoulder; and pale yellow spots on his cloak were presumed to be caused by retouching with a **fugitive pigment**, probably red **lake**.



discoloured by age, it had been deliberately tinted brown and yellow – possibly to hide poorly matched retouchings.

The 19th century **varnish** was very thick and brittle, and stuck to the paint more than the paint layers did to each other or to the ground. (The varnish was up to 80 μm thick; a single sprayed coat of modern varnish is about 10 μm . (1 μm = 10^{-6} m)). The varnish was shown by **gas chromatography** to be probably a mastic varnish with some linseed oil. Microscopical examination indicated that it was not only

The varnish was removed 100 cm² at a time, fixing loose paint more or less simultaneously. Laying (*ie* the fixing back on) of loose paint was done using a gelatine/water mix at 30°C and pressing, using a hand-held thermostatically-controlled electrically heated spatula.

The laying of the paint on the front had been so successful that it was decided that a new re-lining canvas, plus impregnation with adhesive of the gesso ground and paint film, need not be done. Instead, the original canvas was stuck on to a rigid, light non-warping synthetic board (with a honeycomb paper core) using a wax-resin adhesive.

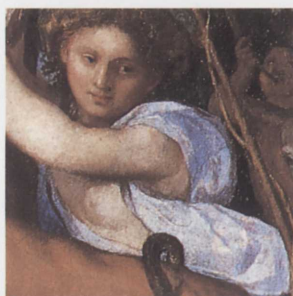
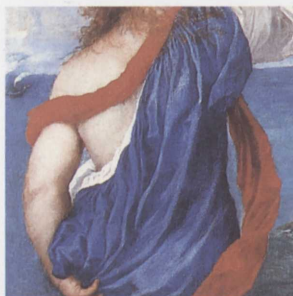
The cleaning and restoration led to an enormous gain in clarity and colour (compare the 'before' and 'after' pictures). The purpose of the 1967-69 restoration was to safeguard the survival of the painting. It also gave an opportunity to study Titian's working methods and the materials he used.

Observations about Titian's colours

All but one of the paint samples were taken after varnish removal. At the time of this restoration, techniques such as **Fourier-transform infrared spectroscopy** and **energy-dispersive X-ray microanalysis** were not available, and most of the evidence from the paint samples was acquired by microscopical examination.

Titian's basic palette included **lead white**; black; and yellow, red and brown **earth pigments**. Others identified in the main colour areas were as follows.

Blue



The blue in this painting is mostly natural **ultramarine**, which is used pure in the dark parts of Ariadne's cloak and the drapery of the Bacchante with the cymbals. When it is used by itself in oil, ultramarine dries slowly. If applied thickly, the top surface shrinks and splits, and dirt gathers in these cracks and makes them show up more. Lead white mixed in with the ultramarine helps drying and stops cracking. The mauve drapery of the Bacchante with the tambourine contains ultramarine, lead white, and red **lake**. The ultramarine in this picture is of extremely high quality – intensely-coloured and pure.

But the very dark shadows may be deeper and more translucent than they originally were, and they may no longer look very blue. This is because of ultramarine's relatively low refractive index (about 1.5) and the increase in the refractive index of the oil medium with age.

Azurite was used for the blue sea and in some distant parts of the landscape. The cheaper blue pigments, **indigo** and **smalt**, are not found in this painting at all.

Green



Malachite is used here in landscape and some of the foliage. **Verdigris** and ‘**copper resinate**’ green are also used. A major problem with copper resinate is that exposure to light makes it discolour to opaque brown or even black. Some of the foliage was painted as a single layer of green ‘copper resinate’ **glaze** over blue sky, and was therefore very vulnerable to light and has turned

brown. An early 17th century copy of this painting shows the leaves on the extreme right still green, so the discolouration must have happened since then. However, Titian used earth pigments to paint the brown tree in the top right-hand corner, possibly as a contrasting colour, but as the green tree has turned brown, the contrast is now lost.

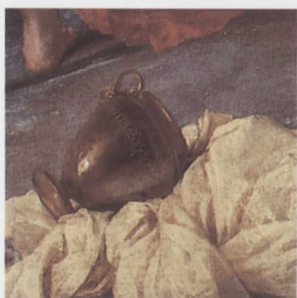
Red

Vermilion was used for Ariadne’s sash – a very thick layer of fine-ground vermilion, covered by a layer of larger, darker particles to intensify the colour. Crimson lake pigments are used in Bacchus’ cloak and the drapery of the young faun – mixed with lead white for light and middle tones, but unmixed



and thick for the glaze in the shadows. For lakes of this period, they are remarkably thick and pure and show very little fading. Lake pigment was also used in Ariadne’s flesh colour and in the pale mauve of the Bacchante with the tambourine. Layers in one paint sample suggest that the dark blue part of the drapery of the Bacchante with the cymbals was originally painted crimson or pink.

Yellow and orange



The yellow drapery beneath the urn is **lead-tin yellow**, which was shown by **X-ray diffraction** to be type I. When this painting came to London in about 1807, the painter Sir Thomas Lawrence admired this drapery, and compared the then-modern **Naples yellow** unfavourably with it. **Orpiment** (yellow) and **realgar** (orange/red) – shown to be present by both microscopy and **laser microspectral analysis** – are in the orange drapery of the cymbal Bacchante. These highly poisonous pigments are quite rare in European easel paintings, with 16th century Venice and 18th century paintings from Britain, France, Holland and the

United States providing most of the instances. High exposure to light can cause orpiment to fade to white and realgar to become more orange and then to fade. Neither seems to be significantly affected here, probably because they are more stable in oil paint than in **egg tempera**.

Titian had – and still has – an enormous reputation as a colourist. In this painting, which comes quite early in his very long career, he used in a single picture all the most colourful pigments he could lay hands on, including the uncommon ones such as realgar and malachite. And he used pigments of the finest quality; the vermilion, red lakes and ultramarine, for example, are of exceptional purity and richness of colour. He used each pigment separately in quite large well-spaced areas, and placed strong contrasting colours near to one another. He used each pigment at full strength – *ie* by itself or mixed only with white to brighten it. Sometimes the colour is intensified using glazes – *eg* the blue drapery of the cymbal Bacchante has a layer of large deep blue particles of ultramarine over a layer of finer particles. (A dark, transparent glaze over a light underlayer increases *saturation* – *ie* the apparent depth of colour – without the loss of brightness which would happen if the two layers were simply mixed.)

Ariadne's very pale skin is tinged with crimson lake pigment; the shadows of Bacchus' skin contain a green earth colour; red and brown **ochres** are used in the mixes for Bacchantes and satyrs.

The medium The **medium** was shown using gas chromatography to be linseed oil.

Some observations about Titian's painting method The canvas was covered by a thin layer or ground of gesso. (In this picture the gesso is a calcium sulfate/glue mix). The infrared photographs showed almost no underdrawing. X-radiographs showed fewer changes during painting than is usual with Titian, although – as discussed later – painting Ariadne obviously caused Titian problems.

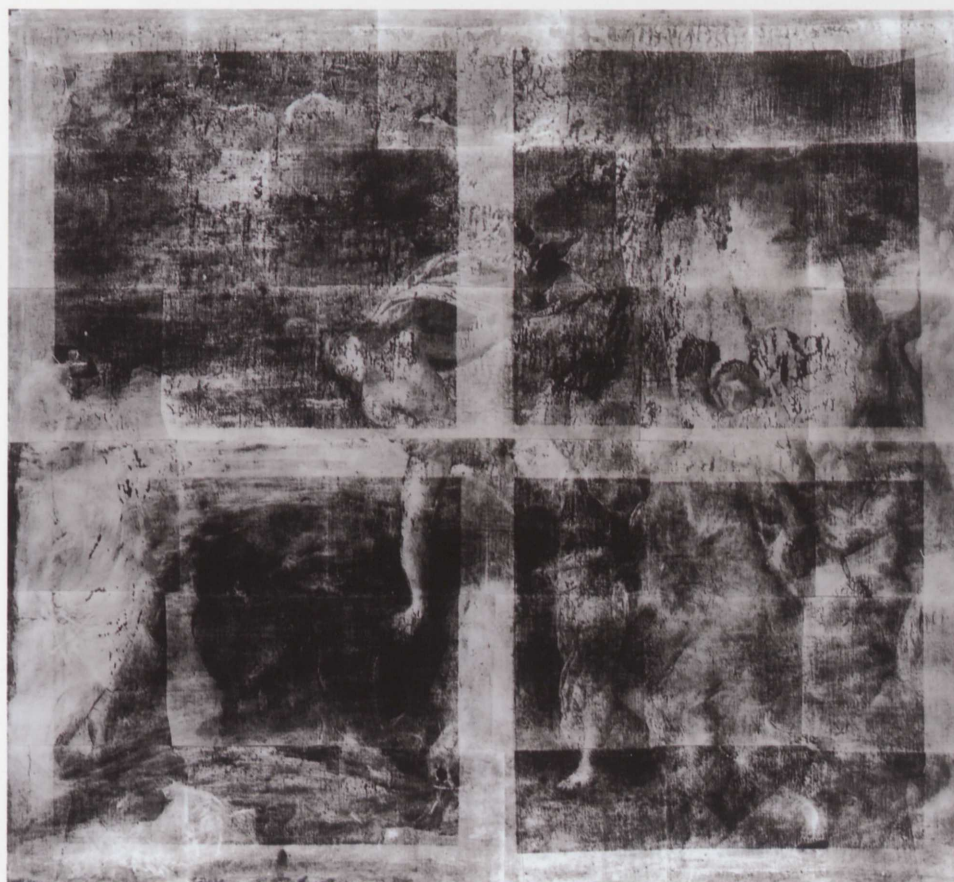
Layer structure/paint cross-sections

Microscopy of paint samples coupled with X-ray photographs gave information about Titian's painting procedure and about his changes of mind during the course of painting (**pentimenti**). The layers in samples from this painting are complex, and cannot be interpreted in terms of the simple and orderly system used by earlier painters – underdrawing, underpainting, main paint layer, final glaze. Three examples are given here.

- Ariadne's scarlet scarf is painted over the flesh of her shoulder, which was painted over the blue of the sea;
- the dark blue drapery of the cymbal Bacchante was originally crimson or dark pink; this original layer was then covered with lead white followed by several layers of dark blue (crimson can still be seen at the bottom of some of the cracks in the blue paint);
- the feathery foliage – once green, now brown – was painted over blue sky; but beneath that was another sequence of green glaze (not discoloured this time, because it had been protected by the paint layers above it) over blue sky.

So the evidence shows that, unlike most early artists, Titian – at least to some extent – worked out his compositions as he went along, using little or no underdrawing.

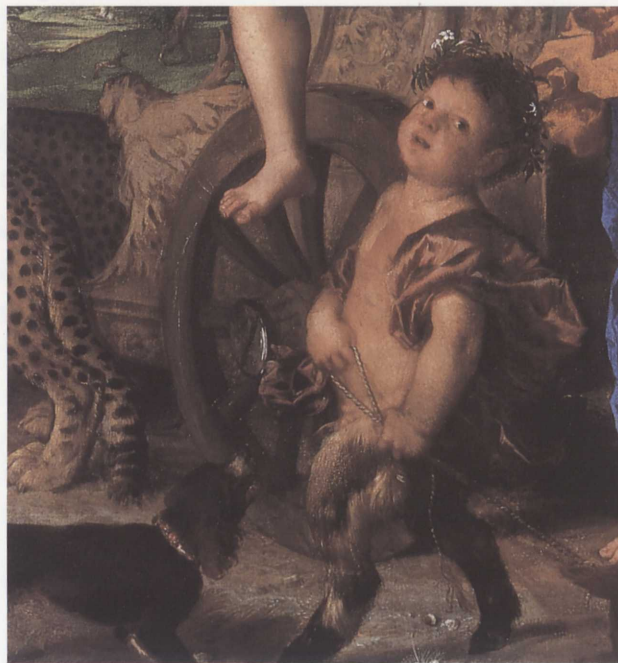
What X-ray images can show is that lead white absorbs X-rays while gesso does so to a much smaller extent. But a very thin lead white-containing layer will not impede the passage of X-rays very much, and a very thick application of gesso or chalk may. So although lead white paint is found in the flesh paint of many thinly painted Virgins (in Italian and early Netherlandish paintings for example) these layers don't register very strongly in the X-ray because they are *thin*.



In the X-radiograph of this painting, Bacchus gives a clear, sharp image, while his cloak shows up dark. What the X-ray reveals is that the cloak was part of the artist's original design; it was painted 'over the gesso' as opposed to 'over the sky', or 'over the landscape'. The paint of the sky and distant landscape contains much lead white, and is denser and more opaque to X-rays, so shows up light in the X-radiograph. The paint of the cloak does

not block the passage of X-rays and therefore shows up dark in the final X-ray image. A cross-section from this area of paint confirms this, showing only some pink underpaint (containing some lead white) between the red paint and the gesso. Also it is worth noting that the cloak is painted largely in a red lake pigment which is totally transparent to X-rays. This area of paint did not block the passage of X-rays and therefore showed up dark in the final image.

Ariadne, apart from her feet and legs, seems to have been less carefully planned. She is very dense in the X-ray because she has been altered so much.



This may be because Titian painted Bacchus early on and then had difficulty in getting Ariadne right. It also appears that the chariot, cheetahs, dog and some of the followers were painted early, direct on to gesso; but the little faun was later. (If you take a close look at the actual painting you can see the chariot wheel *through* the faun's leg).

The tree trunks were painted on gesso, but the foliage on top of blue sky. In all, the X-radiographs confirm the evidence from the paint layers.