

# Description of the painting and lighting processes invented by Daguerre and applied by him to diorama paintings.

These processes were mainly developed in the paintings of the Midnight Mass, the Landslide in the Goldau Valley, the Temple of Solomon and the Basilica of Sainte-Marie de Montréal. All these paintings were depicted with day and night effects. To these effects were added decompositions of forms, by means of which, in the Midnight Mass, for example, figures appeared where one had just seen chairs, or, in the Valley of Goldau, crumbling rock replaced the appearance of the ripening valley.

## **Painting process.**

As the canvas is painted on both sides, as well as being lit by reflection and refraction, it is essential to use a very transparent material, the fabric of which must be as even as possible. Percale or calico can be used. The fabric you choose must be very wide, in order to have as few seams as possible, which are always difficult to conceal, especially in the bright lights of the painting.

When the canvas is stretched, at least two layers of parchment glue should be applied to each side.

## **First effect.**

The first effect, which must be the lighter of the two, is executed on the front of the canvas. The line is first drawn with lead pencil, taking care not to dirty the canvas, whose whiteness is the only resource we have for the painting's lights, since no white is used in the execution of the first effect.

The colours we use are ground in oil but used on canvas with spirit, to which we sometimes add a little fatty oil, only for the vigour, which in any case can be varnished without inconvenience.

The methods used for this painting are entirely similar to those for watercolour, with the only difference that the colours are ground with oil instead of gum, and spread with spirit <sup>1</sup>instead of water. It is conceivable that neither white nor any opaque colour whatsoever can be used in layers, which would make, in the second effect, more or less tinted spots, according to their greater or lesser opacity. The vigour must be left to the first stroke, in order to destroy the transparency of the canvas as little as possible.

## **Second effect.**

The second effect is painted behind the canvas. During the execution of this effect, there must be no light other than that which comes from the front of the painting through the canvas. By this means, the shapes of the first effect can be seen in transparency; these shapes must be preserved or cancelled.

First, a layer of transparent white, such as Clichy white, ground with oil and soaked in spirit, is applied to the entire surface of the canvas. Brush marks are removed with a badger brush. This layer can be used to conceal the seams a little, taking care to apply it more lightly to the edges, which are always less transparent than the rest of the canvas. When this layer is dry, trace the changes you want to make to the first effect.

In the execution of this second effect, only the modelling in white and black is dealt with, without worrying about the colours of the first painting, which can be seen through the transparency; the

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<sup>1</sup> The French word is "essence" which can mean petrol, or other fluids based on oil. We translated it as "spirit" to avoid referring to an exact product.

modelling is obtained by means of a tint of which white is the base and into which a small quantity of peach black<sup>2</sup> is added to obtain a grey, the degree of intensity of which is determined by applying it to the back layer and looking at the front to make sure it is not visible. The tints are then degraded by the degree of opacity of this tint.

The shadows of the first effect will interfere with the execution of the second. To remedy this inconvenience and to conceal these shadows, the value can be adjusted by using a tint that is thicker or thinner, depending on the strength of the shadows that Ton wants to destroy.

You can see that it is necessary to push this second effect to the greatest vigour, because it may happen that you need light where there is vigour in the first.

When this painting has been modelled with this difference in opacity of tint, and the desired effect has been obtained, it can then be coloured using the most transparent colours ground in oil. This is still watercolour painting, but less spirit should be used in these glazes, which only become powerful when they are repeated several times and more fatty oil is used. However, for very strong colours, spirit alone is enough to spread the colours.

### **Lighting**

The effect painted on the front of the canvas is lit by reflection, i.e. only by the light coming from the front, and the second receives its light by refraction, i.e. only from behind. In both cases, both lights can be used to modify certain parts of the painting.

The light that illuminates the painting from the front should, as far as possible, come from above; the light that comes from behind should come through vertical crosspieces<sup>3</sup>; it goes without saying that these crosspieces must be completely shut when only the first painting is seen.

If the light from behind needed to change a part of the first effect, it should be framed in such a way that it hits that part only. The crosspieces must be at least two metres away from the painting, so that the light can be modified at will by passing it through coloured media, as required; the same method is used for the painting in front.

It is recognised that the colours that appear on objects in general are produced only by the arrangement of the molecules of these objects. Consequently, all the substances used for painting are colourless; they only have the property of reflecting this or that ray of light, which itself carries all the colours. The purer these substances are, the more they reflect the simple colours, but never in an absolute way, which, moreover, is not necessary to render the effects of nature.

To illustrate the principles on which the above-mentioned Diorama paintings were made and illuminated, here is an example of what happens when light is decomposed, i.e. when part of its rays are intercepted:

Put two very bright colours on a canvas. The red colour will reflect its own rays and the green colour will remain black. If you substitute a green medium for the red, the red will remain black and the green will reflect the green. But this only happens completely when the medium used denies the light the passage of all but one of its rays. This effect is all the more difficult to obtain entirely, since in

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<sup>2</sup> silky matt black pigment made by carbonising peach stones. (<https://www.kremer-pigmente.com/fr/shop/pigments/12010-noir-de-pche.html>)

<sup>3</sup> It is not clear from the text what type of light and position is meant. It could be sidelights in a vertical row on both sides, or standing in the back. The sidelights seem more likely, as one would avoid hotspots on the canvas. Seen the date of the text, the type of light would be candle or gaslight.

general colouring materials do not have the property of reflecting only one ray; nevertheless, in the result of this experiment, the effect is well defined.

To return to the application of this principle to the Diorama paintings, although in these paintings there were only two painted effects, one of day painted from the front, and the other of night painted from the back, these effects, passing from one to the other only by a complicated combination of the media through which the light had to pass, gave an infinite number of other effects similar to those presented by nature in its transitions from morning to evening, and vice versa. It should not be assumed that it is necessary to use media of a very intense colour to obtain great changes in colour, because often a slight shade is enough to bring about many changes.

From the results obtained in the Diorama by the decomposition of light alone, we can understand how important it is to observe the state of the sky in order to appreciate the colour of a painting, since the colouring matter is subject to such great decomposition. The best light is that of a whitish sky, because when the sky is blue, it is the blue tones and generally the cold tones that are the most powerful in colour, while the coloured tones remain dull. - On the other hand, when the sky is coloured, it is the cold tones which lose their colour, and the warm tones, yellow and red for example, which acquire great vivacity. It is easy to conclude from this that the intensity relationships of colours cannot be maintained from morning to evening; we can even say that it is physically demonstrated that a painting cannot be the same at all hours of the day. This is probably one of the causes that make good painting so difficult to do and so difficult to appreciate; for painters, misled by the changes that take place from morning to evening in the appearance of their pictures, falsely attribute these changes to a variation in their way of seeing, whereas they are often caused only by the nature of the light.

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