

# Inspection of the picture production by the tempera technique ②

## – Study of the tone in the picture using the tempera technique from a use example of hatching and the sfumato –

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### Summary

It is said that the tempera paint has difficulty in performing sfumato technique from the material characteristic. Of the light part with the white pigment general for the technique letting have a change of the gradation by repeating hatching when face it to describe it. However, it may be said that it is necessity for a producer to inspect the strength of aptitude and the technique of the luminosity because there is the example that a light part is produced by repeating several levels of sfumato. I perform the consideration about the production method on the basis of hatching and a characteristic of the technique of the sfumato while inspecting a production example in this report.

### Key Words

tempera, hatching ,sfumato,tone, density

### Introduction

As for the tempera technique that is one of the picture technique, general an egg being described mainly by the paint which is composed primarily, and was kneaded a mixture of with a color moderately of the medium. It turns out that I described “Birth of Venus” and “spring” in technique called *tempera grassa* where Botticelli soaked an egg with for oiliness. It is common to be essential oil of vegetable drying oil and the resin such as the Venice tele pin which decocted flax and a poppy seed in the present age with this oiliness minute. In part I give paint fluidity, and a merit to mix for oiliness with an egg is that handling of brush gets smooth. The second is the point that a film of the drawing layer is flexible

and becomes solid. However, these two merits compared it with the tempera technique that assumed only an egg a medium and do not arrest you as the process when a technique improves towards an oil painting image progressively. It is different, and, as for the oil painting image and the tempera painting, the mixed art by both is established, for example, for technique simply because I put both material characteristics together reasonably. With the exception of the W/O type (oil-based) that temporarily appeared in the 19th century, the tempera technique is basically the O/W type (water-based). The medium used in the tempera technique includes those using whole eggs, egg yolk only, and *tempera grassa* containing oil. A rigid material, such as wood paneling, that is less susceptible to impact is desirable. In terms of drawing methods, water-soluble paints have the characteristic of being difficult to express tone gradation.

The reason why tempera grassa is relatively easy to express a wide range of tones is that it contains an oily component. Although there are restrictions on the base material and drawing method, one of the reasons why the tempera technique has been handed down as a painting technique to the present day is probably the brightness and brilliance peculiar to the screen resulting from such a limited expression method. Restricted expression is a method of connecting tone gradations by overlapping fine touches such as hatching. The overlap of hatching brings about a different color development from sfumato, which overlaps and blurs thin layers like an oil painting. In tempera painting, sfumato is technically possible, but it is difficult to achieve the smoothness of oil painting. For this reason, hatching is an indispensable drawing



**Plate 1** Leonardo da Vinci, *Mona Lisa*, 1503 – 1506

method in the tempera technique.

In the process of creating tempera paintings, imprimatura such as reddish brown is applied to the base surface of the chalk ground, etc., and the light areas are painted. This is called white embossing. After this, white embossing is performed again while applying a colored transparent layer or scramble layer. Repeating this is the method of drawing with tempera paint.

On the other hand, sfumato, which is one of the representative techniques of oil painting mentioned above, is a technique in which oil paint and melted oil are blended in an appropriate manner so as to blur the surface. Leonardo da Vinci (hereafter Da Vinci)'s "Mona Lisa" shows the remarkable characteristics of this technique (Plate 1, 4). Da Vinci's early work, "The Baptism of Christ" (Plate 2, 5), a joint work with his teacher Andrea Bellocchio, is the angel on the left side of the screen, which is the representative part of Da Vinci's work, and the work Ginevra de' Benci, a work in the



**Plate 2** Andrea del Verrocchio, Leonardo da Vinci *Baptism of Christ*, 1475



**Plate 3** Leonardo da Vinci, *Ginevra de' Benci*, 1474 - 1478

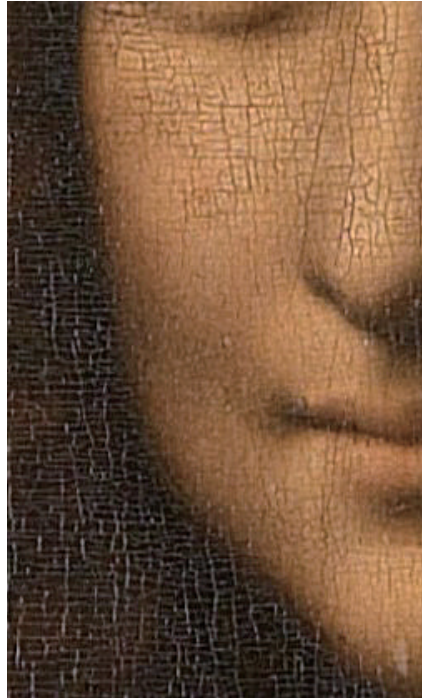
middle of the 20s (Plate 3). Portrait on De' Benci does not show its conspicuity (Plate 6). The “Mona Lisa”, which is said to have begun to be painted around 1503, is considered to be a work of Da Vinci’s second Florentine period, and was drawn during his maturity as a painter. It can be said that the technical difference between these two periods lies in the treatment of contours that separate the inside and outside of the shape.

In Mona Lisa, the model's body is drawn so that it blends into the background, rather than the presence or absence of outlines.

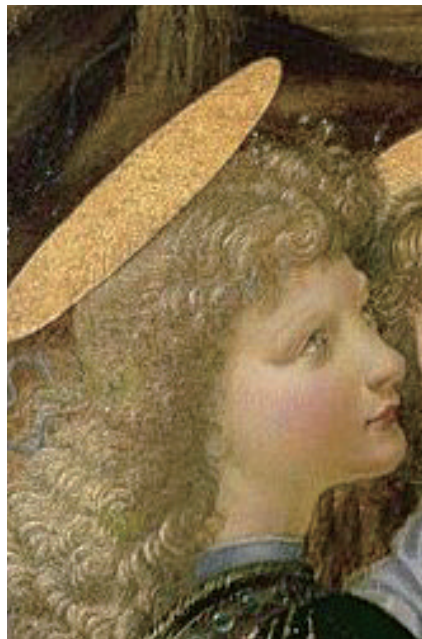
In his maturity, da Vinci found in Sfumato the decisive difference between the tempera technique and oil painting, and worked on works such as “Mona Lisa”, The Uirgin and Child with St. Anna, and Saint John the Baptist guess what. Da Vinci’s paintings, which used a lot of sfumato, eventually brought chiaroscuro to the screen and lost its brightness.

From the above, it can be seen that there is a large technical difference between tempera hatching and oil painting sfumato. In order to rationally connect the tone

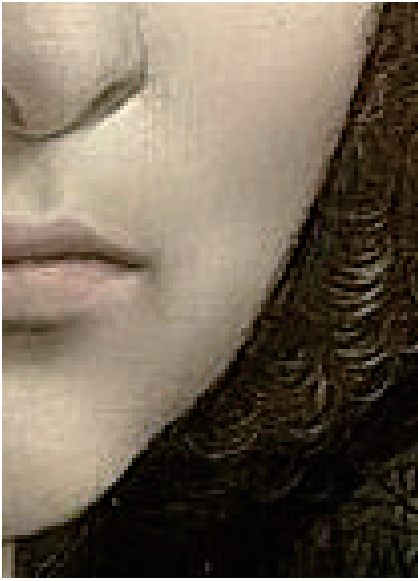
and color gradation on the screen, it is necessary to grasp the characteristics of each technique and material.



**Plate 4** Part expansion of Plate 1



**Plate 5** Part expansion of Plate 2



**Plate 6 Part expansion of Plate 4**

### **Purpose**

In this paper, I consider the rational combination and drawing method of sfumato and hatching in the mixed technique that uses both tempera paint and oil paint, which are the main materials in my work. Although the tempera technique is limited by the base material and drawing method, I think it has many possibilities depending on the tone and color gradation method. I would like to analyze the drawing method of the author's past works and consider the relationship and appropriate combination of both.

### **Object**

The objects of consideration are as follows.

1. Partial copy of Giotto's Scrovegni Chapel "Nativity-Birth of Jesus", golden background tempera, 2000
2. "Still life", mixed technique of tempera and oil painting, 1988
3. "Paradise", mixed technique of tempera and oil, 2023

### **Consideration 1**

Giotto's "Nativity-Birth of Jesus" is a fresco made in the Scrovegni Chapel in the early 14th century (Plate 7-9, 11, 13). Fresco painting is a technique in which plaster is applied to the mortar-like surface of the wall, and pigments dissolved in water are used to paint on it. Water does not contain glue. Fresco means fresh in English, and the name derives from the need to paint while it is literally fresh. *Giornata*, which means 'a day's work' in Italian, means a day's worth of fresco work, which must be painted before the paint has dried, and the next day, the same place is painted. It means that you can't get enough. To be precise, it is not the paint that dries, but the place where the paint is applied, that is, the plaster that dries, and the calcareous substance inside confines the paint and adheres it. Once the plaster has dried, it is impossible to add more paint. In other words, fresco painting requires an accurate drawing and the ability to quickly draw according to the drawing. Giotto's murals depict the lives of Christ and saints. Most of them are expressed in three-dimensional space, and you can feel shadows and volumes in each shape. At the beginning of the 14th century, although a theoretical perspective method had not yet been established, the minimum prescription that could explain perspective intuitively was used. In 2000, the author attempted a partial copy of "Nativity-Birth of Jesus" (Plate 10). The base material was a solid wood panel, and the base surface was sheeted with cheesecloth, then plastered and polished. The aura of the Virgin Mary has a golden background, but no plaster buildup is applied in this reproduction. As far as the brushwork is concerned, it can be seen that Giotto painted Maria's face, hair, neck, and clothes in a short period of time, using grey-brown (probably tail belt and ocher) and white. She uses gray-brown to roughly express the shading, and then she uses white to paint the light areas. Fresco paints are made by dissolving pigments only with water, so if you adjust the amount

of water, you can express a certain degree of color gradation, but if the amount of water is too high, the intonaco (lime applied) will fall off. Also, after drying, harmful effects such as not developing as a color occur.

Quick sfumato is necessary to create a gradation that continuously gray-brown and white in a short time, but due to the characteristics of the base surface of the fresco and the water-soluble paint, it is difficult to achieve a smooth gradation like oil painting.



**Plate 7** Giotto di Bondone - No. 17 Scenes from the Life of Christ-1. Nativity-Birth of Jesus 1305



**Plate 9** Part expansion of Plate 7



**Plate 8** Part expansion of Plate 7

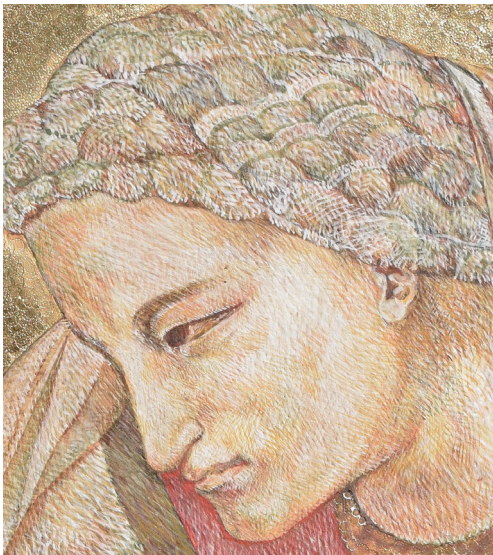


**Plate 10** Masashi Yamamoto Copying of Giotto's Nativity Birth of Jesus mixed art (tempera, oil painting) on gypsum groundwork, 41.0x31.8cm, 2000

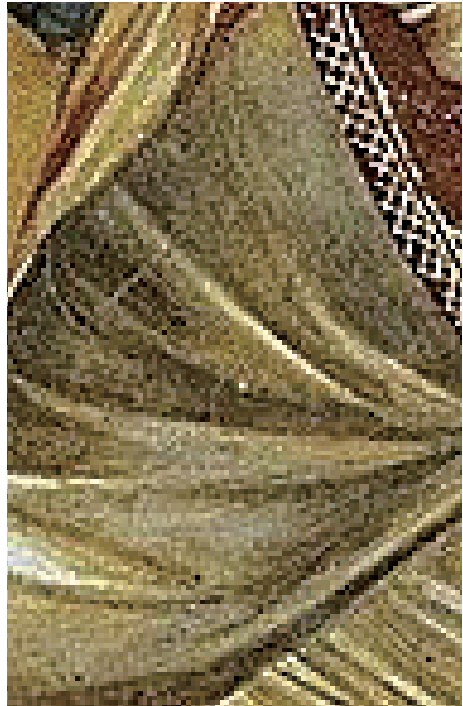
The author's intention in copying the fresco work with tempera is to draw Giotto's work, which depicts the difficult sfumato in clear gradation, with hatching, so that the difference from the screen using sfumato can be seen from a visual point of view. This is because I wanted to consider from.



**Plate 11** Part expansion of Plate 7



**Plate 12** Part expansion of Plate 10



**Plate 13** Part expansion of Plate 7



**Plate 14** Part expansion of Plate 10

I hatched Maria's face, hair, neck, and clothes (Plate 12, 14). I haven't reached the point of grasping large forms using sfumato like Giotto did, but I was able to interpret detailed forms. However, the density of the hatching brush strokes was not sufficient, and her clothes had a texture that gave the impression of fur. In this case, even if the hatching is temporarily collapsed, I think it was necessary to re-capture the shape with Sfumato as a production step. Also, we can see that Giotto's Maria's hair is covered with a thin translucent veil. It is difficult to express such a transparent or translucent texture with hatching. In my verification, I thought that sfumato is an element related to shadows and volumes necessary for form expression. As a result, it became clear that hatching can flexibly respond to the interpretation of the shape to some extent, but it is not sufficient in expressing the texture.

## Consideration 2

This work is painted in a mixed technique of tempera and oil. A dried lemon is placed on a table covered with a white cloth, and a thumbhole-sized canvas is leaning against the white wall behind it (plate 15). Since the motif is entirely covered in white, I used a brush on the reddish-brown Imprumatura to create a white embossment on the front of the screen. The white embossing was done so as to fit in the dark to medium light gray tones, and the bright areas were drawn with tempera hatching. Since the table surface and the back wall are flat, I tried to smooth out the white embossed by the brush that serves as the base. Although sfumato using brush strokes was not performed, the space where the table surface and the back wall meet was verified by hatching and sfumato using a slap brush (Plate 16). The lower part of the screen corresponds to the front side of the table, and the original white relief applied to the impulmatura remains intact (Plate 17). He was careful not to draw too much hatching so that the sides would

stand up.

The sfumato in this painting is done with a hammering brush, which is effective in that it can distribute a uniform tone throughout the painting. However, due to the shape of the tapping brush, it is difficult to determine the edge of the image and the continuity of tone gradation inside and outside the outline. In that case, for example, after intentionally weakening the outline with white relief using a hammering brush, it is necessary to use hatching to strengthen one shape.



**Plate 15** Masashi Yamamoto, *Still life*, tempera and oil painting on wood panel, 38.0×45.5cm, 1988



**Plate 16** Part expansion of Plate 15



**Plate 17** Part expansion of Plate 15

### Consideration 3

In this work, motifs such as leaves, flowers, branches, and birds are packed into the entire screen, and it was difficult to create a sense of space with the white relief (Plate 18). Before setting up sketchy areas such as light and dark areas, I put a specific color on the motif, and then performed white relief with texture. The unit of each shape was small, and there were few shapes that could simplify the drawing of the inside.

In other words, since the space for brush strokes is small, I proceeded with fine hatching without using sfumato.



**Plate 18** Masashi Yamamoto, *Paradise*, tempera and oil painting on wood panel, 33.0×24.0cm, 2023

The theme of this paper stems from the fact that the size of the brush used to draw the work is similar, and

the roles of hatching and sfumato are mixed up, because the work in question is a small piece. do. The problem of the method of expression related to the texture that I had already experienced in the above-mentioned reproduction of Giotto became apparent in this work as well. The reason why the inherent colors were placed prior to the white embossment was that it was necessary to arrange colors that were directly related to the texture. In this work, the glazing of the oil painting was applied to each unique color, and the white hatching and the application of thin layers of chromatic colors were repeatedly applied. The fact that it is a small piece also adds to the element, and I was able to express the hatching that creates the form and the texture separately (Plate 19).



**Plate 19** Part expansion of Plate 18



## Conclusion

Tonal gradation in tempera painting is created using sfumato and hatching. Due to the material characteristics of water-soluble paints, it is difficult to obtain the smoothness of gradation with sfumato like that of oil paintings. Gradation by hatching must be done so as not to impair the texture of the object. From the imprimatura, sfumato is effective for grasping the overall space and form first. After that, hatching supplements the connection of gradation that was not obtained with Sfumato, and helps to draw the shape. The artist must draw while complementing each other's characteristics. It is permissible to interpret sfumato in an enlarged way, as in the painting of Plate 15, in which the overall tone is adjusted using a hammering brush. When drawing a shape, I repeat sfumato and hatching while keeping in mind the texture of the object. Not everything is rationally completed, but it is important to draw according to the expression desired by the subject.

Plate 18 It is photographed all the writer

Plate 19 It is trimmed the image Plate 18

## Plate source

Plate 1 Public Domain, via Wikimedia Commons

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Plate 3 Public Domain, via Wikimedia Commons

Plate 4 It is trimmed the image Plate 1

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Plate 9 It is trimmed the image Plate 7

Plate 10 It is photographed all the writer

Plate 11 It is trimmed the image Plate 7

Plate 12 It is trimmed the image Plate 10

Plate 13 It is trimmed the image Plate 7

Plate 14 It is trimmed the image Plate 10

Plate 15 It is photographed all the writer

Plate 16 It is trimmed the image Plate 15

Plate 17 It is trimmed the image Plate 15