

Fresco Painting: The Preparation of the Substratum

The second of a three-part article by Julia Alexandra Mee

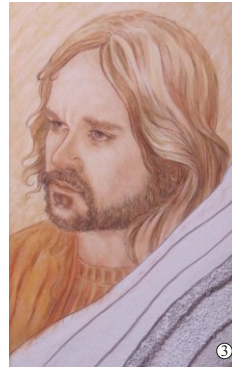


The term '*fresco*' means 'fresh', and refers to painting on wet, that is, 'fresh' plaster. The pigments (those which support the alkalinity of the plaster) are ground into powder, and mixed in water, lime water or lime milk, and are applied onto the surface whilst it is still moist. Subsequently, as the calcium hydroxide (slaked lime) is exposed to the carbon dioxide in the air, it is transformed into calcium carbonate, fixing the colours within a durable surface, a process which is known as carbonatisation ($\text{Ca(OH)}_2 + \text{CO}_2 = \text{CaCO}_3 + \text{H}_2\text{O}$).

In *buon affresco* ('vero' fresco), the preparation of the wall consists of the application of a number of layers of rendering. Over the centuries, the thickness of the ground used in fresco painting has varied. In the ancient wall paintings discovered during the excavations at Herculaneum and Pompeii, at least seven or eight layers of rendering had been applied, whilst during the Renaissance as few as two or three were employed.

The first layer of rendering, known as *il rinzafo* (*il trullissatio* or scratch coat), is applied onto the surface of the wall (which is preferably of bricks or stone) to regularise any irregularities and holes that are present. The mortar is composed of slaked lime and clean river sand of a very large grain (or more traditionally, fragments of terracotta or pozzolana). This rendering is left to dry out completely before the second layer is applied, the so-called *arriccio* (*incrostature* or sand coat), which is formed of a mortar of slaked lime and clean river sand of a large grain. The entire compositional drawing known as the *sinopia* (after the red sinoper pigment used in the process) is executed on this layer. When this has completely dried out, the *intonaco* is applied (the layer to be painted), which is composed of slaked lime mixed with clean river sand of a finer grain or marble powder, upon which the painting is executed. This was sometimes followed sometimes by a thinner layer known as the *intonachino* or *velo*, which contains slightly more lime in the mortar.

The renderings are applied in progressively thinner layers, with more lime added to the mortar with each successive layer, and the use of sand or marble powder of a progressively finer grain. The last layer of rendering, the *intonaco* (and if present the *intonachino*), is applied in relatively small sections which have been predetermined according to the composition of the drawing. At the beginning of the day, one section of *intonaco* is applied which is large enough to be painted and completed before the plaster becomes too dry at the end of the working day, hence the term *giornata* (from the Italian word 'giorno' meaning 'day').



According to the Roman writer, architect and engineer Marcus Vitruvius Pollio, who recommended at least seven layers of rendering in his influential *De Architectura* (c. 15 BC), there should be at least one layer of *rinzafo*, three of *arriccio*, and three of *intonaco*. This contributed towards a greater reserve of moisture in the ground, which allowed more time for the painting process, and as a result the *intonaco* was applied in *pontata* (large sections of plaster which corresponded to the scaffolding), examples of which can be seen in the wall paintings in Herculaneum and Pompeii. In later centuries, such as in the Renaissance, fewer layers were applied, sometimes only one of *arriccio*, upon which the drawing was executed, and one of *intonaco*. Consequently, it was necessary for the *intonaco* to be applied in smaller sections (in *giornate*), since there was less time at the artists' disposal for the painting process.

All of the works of art reproduced here are by Julia Alexandra Mee.

In November: *Fresco Painting, The Painting Process*. [<< home](#)

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1. Fresco demonstration panel of *Una Giovane Donna*, sinopia.
2. Fresco demonstration panel of *Una Giovane Donna* (1911), following the Renaissance technique.
3. Fresco demonstration panel of *Un Ritratto di un Giovane Uomo* following the technique described by Vitruvius.
4. On the left, the full-size drawing for *Il Chitarrista*, and on the right (5), the use of the pouncing technique to transfer the drawing from the *spolvero* onto the *arriccio*. *Il Chitarrista* was painted at the Villa San Rocco Studio, Benabbio, in 2012.

