

The Search for Materials in the Renaissance

Blane R. Hirsh

Introduction

Often when we consider any painting in art history, multiple details come to mind. The artist themselves, the date of creation, the size, medium, patron, and historical contexts. Each one of these can be individually dissected to reveal greater understanding on the whole piece. Moreover, the material of the medium may either limit or accentuate the details of the piece. Similar to how motor vehicles were invented to provide faster transportation for an ever growing industrialized nation, marble sculptures and oil paintings evolved and flourished due to the artistic craving for naturalism. It is no coincidence that Michelangelo chose Carrara marble over bronze, or porphyry for his masterpiece, the *Pieta*. With the goal being to depict forms as gracefully and delicate as ever, tools and nuances of the material had to match Renaissance goals perfectly. The same goes for the rise of oil painting in the North. Recognizing that complex forms, colors, and techniques could not be accomplished by water based paints, pioneers like Vermeer with his *View of Delft* explored oil painting in ways that no one had ever thought before, reaching new heights with the endless possibilities oils provided over their outdated acrylic and fresco counterparts. This craving for picture perfect detail prompted a revolution regarding the way artists utilized their materials to realize goals; presented with this new necessity, new ways were discovered to attain this dream.

Sculpting the *Pieta*

The fact that Carrara marble is the go-to for contemporary sculpture says something about its revolutionary properties in its time. Michelangelo lived in an era surrounded by rapidly changing ideas of what art is and what art ought to be. The Italian Renaissance saw a developing interest in naturalism and the desire to depict objects and icons as photorealistic as humanly possible. While sculpting in the round had been thoroughly practiced in bronze, wood, marble, and porphyry to name the most popular examples, none truly could capture the delicate human guise and remained abstracted. When the demand for a sculpture to be produced worthy in Old St. Peter's Basilica in Rome was issued, Michelangelo would have to utilize a material that would give him an extremely detailed work worthy of residing in the most important structure in the Vatican. The resulting work – the *Pieta* (fig.1) – would be so successful that it would launch Michelangelo's career to amazing heights, crafted from the finest block of Carrara marble Michelangelo had utilized in his career (analysis).



Figure 1

Michelangelo, *Pieta*. 1498
Marble. 5' 9" x 6' 5" St. Peter's
Basilica, the Vatican.

The Right Material

No other material, be it bronze, porphyry, granite, or even another type of marble could reflect the precise nuances shown in the details of the beautiful masterpiece. Firstly, observe the natural glow of the surface of the sculpture. The way the bodies of Christ and the Madonna reflect the light yet absorb enough to give depth to the immense folds in Mary's gown are because of the reflective properties of marble. Among all common stones for sculpting, only marble has a surface properties that allow a slight translucency that is comparable to that of the human skin. This translucency gives a marble sculpture a visual 'depth' beyond its surface, evoking a certain realism when used for Figurative works¹. This sense of humanism adds greatly to the lifelike appearance of Mary and Christ as they are depicted in this extremely poignant and emotional scene, and the sheen of the marble would provide additional detail. The drapery of Mary exemplifies the plasticity and softness of marble as well. While this drapery does serve the practical purpose of enlarging the Virgin so she may cast the illusion of size, it also allowed Michelangelo to display his sublime and deft technique when using his tools to cut deeply yet precisely into the marble. After his work on the marble was complete, the marble looked less like stone and more like actual cloth because of its multitude of curves and deep recesses throughout the Madonna's gown². The reason why this intricate sculpting is possible lies in the material properties of marble. Depending on how the molecules are organized, the physical properties might change, which includes the softness of the rock. A very soft marble such as Carrara would allow Michelangelo to very delicately shave precise pieces of marble off the block every time without fail³. If a lesser quality marble would have been used, each recess and point in the sculpture would be less detailed and therefore not nearly as well convey the message the piece communicated to its viewers. Details of the sculpture even depict the veins on Christ's hand, showing how hard Michelangelo tried to shave small amounts away at the block to mimic realistic aspects of human anatomy. Such a performance warrants a small explanation of how this is even possible to do with marble. Because marble is a metamorphic rock, composed mainly of calcium bicarbonate crystals or calcium magnesium carbonate (soft molecules); it is extensively used for sculpture and as an architectural material, becoming a signifier for refined



Figure 2

Artist Unknown. *Medici Bust*, (1400) Marble, Porphyry.

taste and culture. In addition, white marble is taken to symbolize purity and immortality, two common themes that would be preferably associated with religious icons, in this case the Virgin and Child¹ (World).

The reason why marble is preferable to bronze and porphyry is simple to understand. Porphyry came to be known as royal material and associated with great power and wealth because of its exclusivity to one mountain in Egypt, which made it elusive, as well as an extreme difficulty to work with as a result of a tough crystal structure that makes it brittle yet very dense. One can see that this is quite the opposite of marble! *The Medici Bust* (fig.2) is a perfect example that compares porphyry to its softer cousin, marble. The immaculate detail of the bust's collar and chest plate is quite literally only possible with marble There

¹ "Marble." *New World Encyclopedia*. 2015. Pars. 3-10

² "*Michelangelo's Pieta*." *ItalianRenaissance.org*. 2015. Pars 3-5

³ Kleiner, Diana. "*The Ascent of Augustus and Access to Italian Marble*."

is an observable, awkward contrast between the clearly marble ruffles of the marble collar and chest plate to the oddly smoothed head that lacks wizened detail. From this it's quite easy to see why the royal rock fell out of favor in lieu of elegant and refined marble. Bronze, while being a strikingly powerful medium, does not have the softness of marble, and the way it reflects light is a poor enhancer of surface detail. Bronze is better suited for outdoor conditions as a resilient metal; being resistant to acid rain and wind erosion. The metal does have its place in certain circumstances but lacks the elegance that marble has because of its stiff character, proving the material would not help anyone realize the goal of individualistic details, ensuring marble's reign.

Evolution of Oils

Painting followed a similar transformation fashioned after the idea of naturalism. The Renaissance development of the preferred painting medium is much more linear than sculpting in the round. Over time, Renaissance painters realize their idea of refined naturalism from humble mosaic beginnings to tasteful strokes of oil painting. Johannes Vermeer is a notable



Figure 3

Johannes Vermeer, *View of Delft* 1660 Oil on Canvas.
Mauritshuis, The Hague 3' 3" x 3' 10"

pioneer of superb oil painting technique with his painting, *View of Delft* (fig.3). Vermeer, like many other artists, was presented with a problem. Further detail simply couldn't be achieved through blasé church frescoes and quick-drying tempera on panel works, the body of the suspended pigment simply would not allow it. The *View of Delft's* rich colors and blended scenery is due to the properties of oil and oil alone, in which Vermeer found he could exploit the properties of oil to create naturalistic masterpieces. Tempera paints, for example, are strong and durable but lack the amount of pigment to binder ratio that oil has. This is because when tempera dries, like any other water holding paint, a small volume of solid matter remains to bind the pigment molecules together and is also the reason some paintings appear to dry out and become less saturated as

they age. But, with the siccativ drying property of oils they lose nothing by evaporation and instead has a surplus of oil needed to bind the pigment. Thus a large volume of substance remains that Vermeer has to work with in his rendering of delft. Moreover, he could paint additively, which means the end of the one-and-done stroke that was common with wall frescoes. Observe how he effortlessly blends the sky together in a seamless gradient, as well as utilizing the slow-drying properties of oil to smudge the water to create a lifelike reflection of the buildings above the surface. Also, when water based paints dry, they have matte or semi matte finish, and the layer is porous, unlike oil based paints⁴. This results in richer colors, thicker

⁴ Mayer, Ralph, and Sheehan 1991: 3-5

applications, and vastly more surface detail; this is again visible in the individual bricks in the architecture. One of his most successful uses of oil are noted in the red tilted roofs on the left side and building walls on the right side. He has successfully rendered them utilizing numerous layers of reddish brown combined with multiple dabs of red, brown and blue paint. The dabs are purposefully not blended to suggest the irregularity of the roof, as well as a literal outcropping of oil paint to make the surface of the painting literally rough⁵. Obviously this would not be nearly as feasible with acrylic or tempera, and don't even think about it using fresco. These details are part of Vermeer's goal of using oils to achieve perfect photorealistic naturalism. From flat frescoes to multi-layered oil masterpieces, finding the correct type of pigment medium took quite some time. Walnut to coconut and finally flaxseed oil, the search to find the right base was incredibly influential in the artistic process. There are important advantages that oil paint has as the simple expense of being slightly longer-drying, which can still be considered an advantage because it leave room to edit and blend one's colors to create a multitude of additional hues.

Conclusion

The reason why oil paints and marble are still used as materials today are quite evident when we take a look at the masterpieces that pushed their capabilities to peak performance. Every curve, recess, and reflection in the *Pieta* showcases the softness of marble contrasted with the powerful image it can provide. Seamless blending of colors and textures in the *View of Delft* warrants oils use as a rich medium with great substance and dimension. Each one of these materials developed from the desire to achieve more with detail during the Renaissance period, and it's no surprise that these perfect matches have stood the test of time.

⁵ Wheelock, Kaldenbach. 1982: 16–19.

Works Cited

(Analysis)

"*Michelangelo's Pieta*." ItalianRenaissance.org. <http://www.italianrenaissance.org/michelangelos-pieta/> 13 Nov. 2015. Pars. 3-5

(Mayer)

Mayer, Ralph, and Sheehan. *The Artist's Handbook of Materials and Techniques*. Fifth ed. Print. (1991) Pgs. 3-6

(Kleiner)

Kleiner, Diana. "The Ascent of Augustus and Access to Italian Marble." Yale University, New Haven. Lecture.

(Werner)

Werner, Louis. "Via Porphyrites." *Aramco World* 49.6 (1998). Print. Pars. 3-5

(Wheelock)

Wheelock, Arthur K., and C. J. Kaldenbach. "'Vermeer's View of Delft' and His Vision of Reality". *Artibus et Historiae* 3.6 (1982): pgs. 16-19.

(World)

"Marble." *New World Encyclopedia*. <http://www.newworldencyclopedia.org/entry/Marble>. 28 Oct. 2015.