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# Quartz and Prehnite: Minerals during the Renaissance

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# Quartz and Prehnite: Minerals during the Renaissance

## **Abstract**

Minerals were displayed in wonder rooms for their beauty and used by apothecaries for their medical properties and artists, for sculptures and pigments. Minerals during the Renaissance were collected and displayed in wonder rooms to illustrate the beauty of nature. Humanists would have categorized minerals by their external qualities- color, transparency, form, luster, and smell. Over time, geologists continue to study these external qualities when they are first analyzing minerals, and the internal properties. Today the six major factors in identifying minerals are cleavage, the tendency of minerals to break into flat surfaces; color; crystal form or how the form of the mineral changes as the mineral crystallizes; hardness, the resistance to scratching to measure its strength; luster, the light reflection; and streak, the color of the streak left when a mineral is grinded on porcelain. [*excerpt*]

## **Keywords**

Quartz, Prehnite, minerals, pigments

## **Disciplines**

Ancient, Medieval, Renaissance and Baroque Art and Architecture | Fine Arts | History of Science, Technology, and Medicine | Industrial and Product Design | Intellectual History

## **Comments**

Produced as part of a collaboration between Kay Etheridge's course FYS-188: Exploration of the Marvelous: Art and Science in the Renaissance, and Felicia Else's course ARTH 284: Wonders of Nature and Artifice: The Renaissance Quest for Knowledge.

Original version online at <http://wonder-cabinet.sites.gettysburg.edu/2017/cabinet/ethiopian-scrolls/>

Includes audio guides for the quartz and prehnite samples.

# Quartz and Prehnite: Minerals during the Renaissance

By Shannon Zeltmann

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Quartz Piece on loan from the Gettysburg College Earth Science Department- Photo by Sydney Gush

## The Science of Minerals

Minerals during the Renaissance were collected and displayed in wonder rooms to illustrate the beauty of nature. Humanists would have categorized minerals by their external qualities- color, transparency, form, luster, and smell.<sup>1</sup> Over time, geologists continue to study these external qualities when they are first analyzing minerals, and the internal properties. Today the six major factors in identifying minerals are cleavage, the tendency of minerals to break into flat surfaces; color; crystal form or how the form of the mineral changes as the mineral crystallizes; hardness, the resistance to scratching to measure its strength; luster, the light reflection; and streak, the color of the streak left when a mineral is grinded on porcelain.<sup>2</sup>



Prehnite Piece on loan from the Gettysburg College Earth Science Department- Photo by Sydney Gush

This can be applied to the quartz and prehnite in the exhibit. For the [quartz](#), it has no cleavage, a colorless crystal with some cloudy white in there, a hardness of seven out of ten scale, where ten is the hardest,<sup>3</sup> a hexagonal crystal structure, a vitreous luster, and a white streak.<sup>4</sup> The [prehnite](#) has good cleavage, with a yellow-green color, a hardness of six,<sup>5</sup> an orthorhombic crystal structure, a vitreous, waxy, and pearly luster, and a white streak.<sup>6</sup>

Humanists did not know how to explain the natural phenomenon of minerals. They could categorize them by their external qualities, but humanists did not know how minerals were formed in the first place. Animals and plants reproduced, so it was possible to study how they formed. Minerals were just found in the earth and took years to form. This process could not be studied by the Renaissance humanists, so they were unsure how exactly minerals could have formed. Because of this, many humanists considered the study of plants and animals to be a more prestigious than the study of minerals.<sup>7</sup>

### **Curiosity Cabinets, Apothecaries, and Alchemists**

These minerals would have been mainly stored in decorative cabinets, which would have been filled with a variety of minerals. To make it more artistic, collectors would create geometric patterns out of the panels that would divide the different minerals, such as the *Collector's cabinet with miniature apothecary*, from the [Rijksmuseum](#).<sup>8</sup> Often, these were complex patterns, similar to the one found in the exhibit.

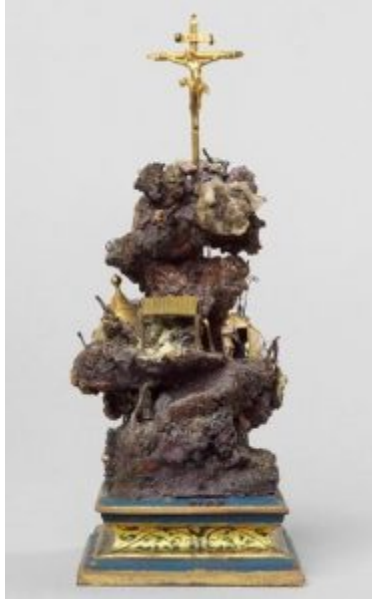


Gems, Precious Stones, and Amulets, [Paper Museum of Cassiano dal Pozzo](#), Royal Collection Trust

Besides being placed in wonder rooms for their aesthetic, minerals were used in medicines by apothecaries. Curiosity cabinets of apothecaries and physicians were filled with stones, plants, and other resources to make medicines. Minerals were the best medicine in most cases. Crushed pearls were mixed with wine, Indian abur stone was a commonly used mineral for those who could afford them, coral, which was believed to be a mineral, was also used.<sup>9</sup> It was common for the royal courts to have their own physicians who would find new medicines. King Phillip II of Spain sent one of his physicians to South America and he came back with an Aztec herbal from 1552 that contained numerous medicines, thirty of which included minerals.<sup>10</sup>

However, they not only prescribed minerals that had been made into medicine, apothecaries gave their patients stones to wear that were supposed to help protect people from illnesses. Turquoise was worn to treat eyesight, and variolites was supposed to protect the wearer from smallpox.<sup>11</sup>

This led into the more mystical properties of minerals. Alchemists more commonly prescribed someone to wear a stone than apothecaries. They believed stones had supernatural properties, such as coral warding off evil and agate being able to turn someone invisible.<sup>12</sup> Several books were published on the alchemic properties of minerals, such as *Varia Medicinam Spagiricem Alchemiam Pertinentia* (Various Notes Relating to Spagiric Medicinal Alchemy).<sup>13</sup> Alchemy was mainly associated with gold as the symbol of perfection, the sun, and the philosopher's stone as it was believed any metal could be produced into gold. However, they also used gems, which had similar properties to gold for alchemists, and silver, which as the opposite of gold and symbol of the moon.<sup>14</sup>



Handstein, Golgotha, from MacGregor, Arthur's *Curiosity and Enlightenment: Collections from the Sixteenth to the Nineteenth Century*.

## Minerals in Art

Minerals for centuries have been used in art for carvings and sculptures. Jade was the most common use of minerals in art as Europeans loved jade pendants created in Asia (see Jade pendant section of our website). Quartz was another mineral that was often used in art due to it being confused with crystal, which represented purity, especially in religious art.<sup>15</sup> Golgotha Schloss Ambras' *Handstein* has quartz scattered throughout this genre religious scene; this quartz would have been there not only for symbolic reasons, but also to make the piece look more extravagant.<sup>16</sup>



El Greco, *Baptism of Christ*, from "Analytical study into El Greco's baptism of Christ: clues to the genius of his palette"

However, minerals were not merely used in sculptures, artists made pigments and glazes with a variety of minerals. In [El Greco's "Baptism of Christ,"](#) he created pigments out of minerals. Lapis Lazuli was used for the sky, river, and clothing. To vary the shades, El Greco mixed it with sulfur and powdered glass to make the light blue sky, pure lapis lazuli mixed with oil binder to

make the royal colored clothing, and a warmer shade of the river was made with lapis lazuli and dark green glass.<sup>17</sup>

Other colors used more of a variety of minerals. The red garment of the angel has traces of organic lake red with yellow ochre, carbon black, and gesso.<sup>18</sup> The dark, blue-greens of the other garments are made layered with gesso ground with indigo, lead white, and finally, green pigments, which have lead-tin yellow, yellow ochre, or yellow lake in them. His other commonly used colors, the yellows and browns, are made with the aforementioned yellows, mineral orpiment, and umber.<sup>19</sup>



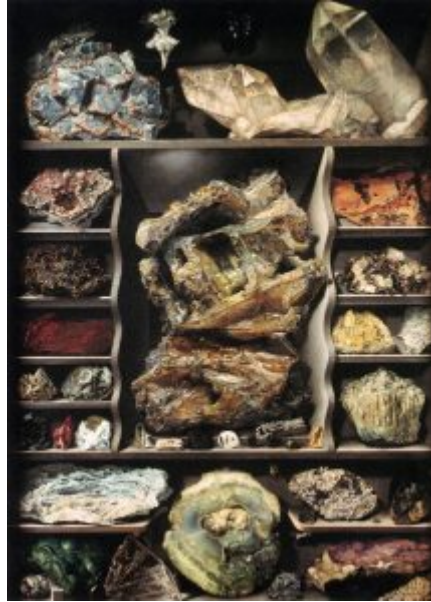
Andrea della Robbia, *Virgin and Child with putti, I, Saillko* CC BY-SA 3.0 [CC BY-SA 3.0](#), via Wikimedia Commons

Moreover, the Della Robbia family of Venice created glazes with minerals. For four generations, the family sculpted white figures with blue backgrounds, and in the later generations other colors, which became known as [“Della Robbia blue.”](#) This blue was made of cobalt from the Erzgebirge Mountains in Germany, as that was the leading producer of cobalt from the 12th to well into the 17th century. In the Della Robbia blue, there are also traces of copper and zinc.<sup>20</sup> This just shows the extent artists went to get the material they needed to create their art. These minerals reveal how El Greco and the Della Robbia family created their pigments and how other contemporary artists created pigments out of the minerals that could be found around Europe.

Although they were not written about as often in comparison to other objects found in wonder rooms, minerals were an integral part of the Renaissance. They were used by a wide variety of people for various reasons, whether for merely display, their medical properties, mysticism, or artistic tool. Prehnite and quartz are just two examples of the endless number of minerals that were collected.

These minerals were donated to Gettysburg College by John Jay Shank, class of 1921. If you would like to learn more about the minerals in the show and other minerals the college owns, visit the college’s Science Center in the Natural Studies department on the ground floor.





Alexandre-Isidore Leroy De Barde [Public Domain], via Wikimedia Commons

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