

The Alchemical Imitation of Gemstones

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Gemstone are mineral crystals which are cut into jewelry. They are valued because of their luster or other physical properties that have aesthetic value. Gemstones are precious and durable. The color of a gemstone is due to the nature of light itself. They form inside the Earth under high temperatures and pressure. Their scarcity makes them even more desirable.

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Science and Superstition

Theophrastus (ca. 372-287 B.C.), a student of Plato and successor to Aristotle as head of the Peripatetic school of philosophy, is credited with writing the first known treatise dedicated to gems. Of his *Peri Lithon (Of Stones)* only a fragment of the original work is preserved. This Aristotelian mix of physics and metaphysics is credited as the source for much of the lore passed along in latter works.

The Roman author and historian Gaius Plinius Secundus, a.k.a. Pliny the Elder (23-79 A.D.) also wrote about gemstones based on various sources. Pliny is credited with his attempts to classify gems according to color and observable external characteristics.

Aside from these scientific approaches, there were also old beliefs that precious stones possess some sort of supernatural powers or significance.

Besides the great value of the stones and their rarity, there were also their astrological and magical properties. Gemstones and metals were connected to planets. For example, gold, sapphire, diamond and carbuncle (a mythical stone) were considered the most brilliant and related to the sun. Copper and amethyst

were associated with Venus, while silver, glass, crystal and diamond were associated with the moon, and emerald with Mercury.

These astrological theories also applied to the human body. Each member or organ of the body also was linked to a planet. It was believed that the stones had therapeutic properties in them. A person had to carry such a gemstone which radiated the power of the planet influencing the diseased part. The greatest scholars of the Middle Ages agreed on this, such as Isidore of Seville and Vincentius Vaal. The Church usually condemned such superstitions, but made exceptions. A large poorhouse in Troyes (France) had written in its constitutions (in 1263): "Religious people may not wear rings or precious stones, except because of illness".

Precious stones were not only thought to be healing, but they also had other, more magical properties, described in some popular books.

Albertus Magnus (1193-1280) Bishop of Ratisbon, teacher and lecturer, devoted a chapter on gemstones in his *De Mineralibus* that enlarged at length on their mystical and wonder-working powers and virtues. Albertus Magnus claimed to have seen with his own eyes how a sapphire healed ulcers.

Alfonso the Learned (1221-1284 A.D.), King of Castile and Leon, composed the first major work on astrology and gemstones. He connected gemstones and other minerals to celestial bodies. The astrological tables he devised were based on Arabic translations and were calculated for the Toledo Meridian. These tables, however, became the standard for all of Europe for centuries. Alfonso classed gems by color and placed each under one of the twelve zodiac signs. Remarks on properties, uses, and medicinal virtues for each stone were included with attention paid to how these virtues are influenced by the planets and stars.

Alchemists were also interested in gemstones. Some alchemists had certain philosophies about how gemstones came into existence, their growth inside the Earth, and the colors they gained by virtue of light.

Alchemists, Glass and Gemstones

Alchemy is an art, as alchemists tried to imitate Nature and produce perfection out of imperfection. In ancient times, glass itself was already held in high esteem. A durable transparent solid was produced out of sand, and it was ideal for making their alchemical apparatus.

The alchemist had to make glass in order to carry out his experiments. The aludel, which was used for sublimation, was made of thick glass. Still flasks, pelicans, condensers, alembics, separating basins were also made of glass. According to Geber, no other material was sufficient, since "glass is not porous and can therefore contain a volatile substance without letting it escape". However, he did not limit himself to raw glassware, but also wanted to imitate precious stones. He believed that elements, such as gold, but also gemstones, grow slowly inside the Earth. The alchemist could accelerate that process inside his glass

vessels.

Glass could be used to make imitations of gemstones by adding metal compounds to create colors. This was an art by itself, and because real gemstones were rare and expensive, imitation glass gemstones were at the same time profitable.

Alchemical Beliefs of Origin of Gemstones

The 9th century alchemist Geber believed that "gemstones grow slowly inside the Earth". This theory of "generation" was still current in the 17th century, when alchemist Etienne de Clave explained it in his *Paradoxes ou Traitez philosophiques des pierres et pierreries* (1635), in which he gave his point of view on the nature and definition of minerals and their mode of formation. It is based on spirit as a seed to give form to substances.

De Rosnel, goldsmith and jeweler to Louis XIV, wrote in the *Le Mercure Indien* (1672, p. 12): "The ruby, in particular, gradually takes birth in the ore-bearing earth; first of all it is white and gradually acquires its redness in the process of ripening. Thus it is that there are some which are completely white, others half white, half red. . . . Just as the infant is fed on blood in the belly of its mother so is the ruby formed and fed."

Bernard Palissy (1510–1589), the alchemist who developed the famous *rusticware* ceramics, also believed in the maturation of minerals: "Like all fruits of the earth, minerals have a different color at maturity from that at their beginning".

Some alchemists thought that gemstones, like minerals and metals were thought to be composed of the four Elements. This four Elements composition is one of the central concepts in alchemical philosophy. Benvenuto Cellini (1500-1571), who was regarded as the most important Renaissance era goldsmith, has a slightly different slant on this in his *The Treatises of Benvenuto Cellini on Goldsmithing and Sculpture*, Chapter 4 *On Jewelry*: "Now let us discuss jewelry, and of what pertains to precious stones. Of such there are four only, and those four are made by the four elements, the ruby is made by fire, the sapphire most obviously by the air, the emerald by the earth, and the diamond by water." With this he meant that nature incorporated the colors of the four elements in the four noblest gemstones.

The Philosopher's Stone and The Elixir of Life

Gemstones were closely associated with alchemical teachings. The philosopher's stone was sometimes described as a very rare diamond, an extraordinary ruby or a carbuncle. Clovis Hestean de Nuysement, a French adept and poet likened the philosophical red stone to a king who wears a brilliant carbuncle, obtained by projection from rock crystal. In poetical form he let the Stone say:

"I fill the poorest minds with treasures,
I fill the weakest bodies with health.
I increase the glow of the rarest gems:
Universal in strength and unique in properties".

Dom Pernety in his Dictionnaire mytho-hermétique tells us that the alchemists symbolized the white and red philosopher's stone with gemstones:

"Among the labors of Hercules is his victory over the Amazons, and from their Queen he removed the harness adorned with diamonds and rubies. The Alchemists believe that by this harness, we must understand the philosopher's stone and the white and red medicine, signified by the whiteness of diamonds and the red color of rubies."

The diamond stood the the Great Work at the second stage of Whiteness, and the ruby for the third stage of redness.

In alchemical writings we also find that the elixir of life possesses, among other powers, the power to transmute glass into gems. Since ancient times, glass was also regarded as a mysterious and wonderful substance because of its hardness, translucency and other qualities. Glass was often connected to alchemical practices and in its connection to the philosopher's stone or the elixir of life.

Haudicquer de Blancourt, an alchemist-glassmaker, was still convinced in 1699:

"We shan't repeat here the Virtues Glass is capable of acquiring, (whereof we make mention in several places) by the Grand Elixir of the Philosophers, (which makes it Malleable, and Converts Crystal into Precious Stones) as also by several other ways. We'll only add, That there are several other less and particular Secrets, by which it may be made soft and fusil like Wax, and afterwards reduced to its former hardness in Water; but these are little Curiosities that serve to no purpose." (*The Art of Glass: Shewing how to Make All Sorts of Glass, Crystal and Enamel ...* By Jean Haudicquer de Blancourt)

Glass-based Gemstones

When alchemists were 'making' gemstones, they were using purified glass and melted rock crystal which they colored with various metal compounds. They would then use the names of gems for these imitations. The most common method of coloring glass was to add metal oxides to the paste. For example, glass can be colored blue or green with a copper dioxide; with gold, glass is colored red, with silver it becomes yellow.

The ancient Greco-Egyptian alchemists were already very skilled in the art of imitating gemstones. Olympiodoros wrote a letter to the Armenian king Petasios on *The Divine and Sacred Art*, in which he explained how to make emeralds and sapphires with rock crystal and copper. Identical processes can be found in the

treatise on *The coloring of stones, emeralds, carbuncles and amethysts* , which must be very old as it refers to *The Book of the Most Holy of the Temples*, one of the almost legendary Egyptian works in which the priests of the Pharaoh recorded the revelations of Hermes-Thoth. In it, it is noticeable that the same terms are used for making emeralds and for producing a transmutation. In both cases a projection powder is used, a coloring agent that has remained mysterious. The origin of the counterfeiting of emeralds may have to be sought in Egypt.

A recipe in the 4th century Stockholm papyrus for "making emeralds" states that the product will be "like the natural" stone.

The 1st century Roman historian Plinius remarks that to tell genuine from false gems was extremely difficult:

And further, there are treatises by authorities, which I at least shall not deign to mention by name, describing how by means of dyestuffs, emeralds and other transparent colored gems are made from rock-crystal, or a sardonyx from a sard, and similarly all the other gemstones from one stone or another. And there is no other trickery that is practiced against people more profitably.

Usually we find a lot of monarchs who were interested in transmutation efforts, but their interest for making imitation gemstones seems to have been minimal.

We do find in [*Notice des Emaux, Bijoux, et Objets divers exposés dans le Musée des Galeries du Louvre*](#) (1854), page 439, a curious note from the year 1556:

1556. For charcoal supplied to Mr. Halbert Foullon to make alchemical medals and precious stones, for the service of MS (=Monsignor). (Royal accounts.)

17th century Italian grand duke Francesco II de' Medici said he liked to "work" precious stones and amused himself with making fake jewels.

Luminous Stones

Alchemists are people who like to experiment, and since ancient times some of them found the secret of producing luminous stones.

There are records mentioning the Nightshining Stone, a Syrian product, and western sources tell of precious stones luminous in the dark. Maybe it was chlorophane, which is a rare variety of the mineral fluorite with the unusual combined properties of thermoluminescence, thermophosphorescence, triboluminescence, and fluorescence. It will emit light in the visible spectrum when exposed to ultraviolet light, when heated, and when rubbed. It is sometimes called pyrosmaragd, but is not an emerald or beryl but a fluorspar, of which many varieties have strong phosphorescence and fluorescence on being heated or scratched in a dim light.

The various phenomena of fluorescence and phosphorescence undoubtedly explain at least some of the legends regarding luminous stones. A luminous or

phosphorescent stone, which has been named the Bologna stone, is the subject of a treatise published by the physician Mentzel in 1675. The writer describes various experiments made to test the peculiar qualities of this mineral, which is partly a radiated or crystalline barium sulfate, and phosphoresces when calcined (heating in air). It was sometimes called the *lunar stone* (lapis lunaris), because, like the moon, it gave out in the darkness the light it received from the sun. Mentzel also relates that the stone was first discovered, in 1604, by Vincenzo Casscioroli, an adept in alchemy, who believed that it would be a great aid in the transmutation of the baser metals into gold, on account of its solar quality. The place of its occurrence was Monte Paterno, near Bologna, where it appeared in the fissures of the mountain, after torrential rains.

The properties of certain minerals to give off light in the dark was probably known by the alchemists of ancient times.

The priests of Memphis, Egypt were famous for making a preparation which produced emerald glass. They might have made the column Herodotus saw in the temple of Hercules at Tyre:

I made a voyage to Tyre in Phoenicia, hearing there was a temple of Hercules at that place, very highly venerated. I visited the temple, and found it richly adorned with a number of offerings, among which were two pillars, one of pure gold, the other of emerald, shining with great brilliancy at night. (from *Histories of Herodotus* by Herodotus (c. 484 - 425 BCE))

There are Syrian and Byzantine alchemical texts that give receipts on how to color glass. Ostanes, a Hellenistic writer, spoke of the preparation of a precious stone that could emit light at night "so that those who possess it can read and write, and make anything like daylight. Indeed, each carbuncle (tint) can be seen separately at night, with its own size and purity, whether the stone is natural or artificial. One can navigate using the light thus emitted, by virtue of the property of these stones to shine at night."

Emerald Glass

The production of high quality green glass that looked just like emerald seemed to have been known in the ancient cultures, but was probably a secret to be used for special occasions, to inspire wonder and awe.

Pliny the Elder (1st century) also mentions the emerald pillar in the temple of Hercules at Tyre, among other emerald objects. He says in his *Natural History*, § 37.19.1-2:

Theophrastus records that in Egyptian records are to be found statements to the effect that to one of the kings a king of Babylon once sent as a gift a 'smaragdus' measuring four cubits in length and three in breadth; and that there existed in Egypt in a temple of Jupiter an obelisk made of four 'smaragdi' and measuring forty cubits in height and four cubits in breadth at one extremity and two at the other. He states, moreover, that at the time when he was writing there existed in

the temple of Hercules at Tyre a large square pillar of 'smaragdus,' unless this was rather to be regarded as a 'false smaragdus'; for, according to him, this is another variety that is found.

He mentions also that there was once discovered in Cyprus a stone of which half was a 'smaragdus' and half an 'iaspis,' because the liquid matter had not yet been completely transformed. Apion, surnamed Plistonices, or 'the Cantankerous,' has lately left on record the statement that there still exists in the Egyptian labyrinth a large statue of Serapis, nine cubits high, made of 'smaragdus.'

A cubit is 1.5 feet or 44 cm, that gives you an idea how large these emerald objects were. The statement that "the liquid matter had not yet been completely transformed" suggests that we are dealing with emerald green glass.

Emerald is often mentioned in relation to hermetic/alchemical knowledge. The famous *Emerald Tablet of Hermes* is a summary of alchemical thought, which exists in Arabic and in Latin versions. It cannot be taken in any way as citing early works of Hermes, but it has its roots deep in Graeco-Roman alchemy. In one Latin version the translator tells us that the precious sentences of Hermes were found by Galienus Alfachim, or the Physician, on a plaque of emerald in a cave, which was clasped in the hands of the corpse of Hermes Trismegistos. Variants of the legend declared that the emerald slab with its precepts inscribed in Phoenician characters was found in Hermes' Tomb by Alexander the Great; or that a woman Zara, at times identified with Sarah, Abraham's wife, took the table from the hands of the dead Hermes in a cave near Hebron some ages after the Flood.

One green glass artifact that passed for emerald that survived the centuries is the Sacro Catino:



The Sacro Catino

The Sacro Catino (the Holy basin) is a plate, now in the subterranean Museo del Tesoro of the cathedral of St. Lawrence (Cattedrale di San Lorenzo) in Genoa, Italy. It is hexagonal and it measures 50 cm (20 inches) of diameter. It also has two handles.

According to the chronicles, it was brought to Genoa by Guglielmo Embriaco in 1101, upon his return from the first Crusade and the conquest of the city Caesarea (Lebanon).

A legend arose around it, claiming that the plate was used by Jesus to eat the Easter lamb served at the Last Supper. In a chronicle of Genoa written at the close of the 13th century, Jacopo De Fazio (Italian chronicler and archbishop of Genoa), believing the vessel was indeed made of emerald, linked it to one of the Grail traditions. He cited certain English texts that claimed that Nicodemus had used an emerald vessel to collect Jesus's blood when his body was placed in his tomb and that these texts called it "Sangraal".

The fact that it was shaped as a faceted gemstone reinforced the belief that it was made of emerald.

Archbishop William of Tyre (Tyre was an archbishopric in the Kingdom of Jerusalem) noted circa 1170 that this precious object was "a vase of brilliant green shaped like a bowl" and that "the Genoese, believing that it was of emerald, took it in lieu of a large sum of money and thus acquired a splendid ornament for their church."

At the start of the 19th century, Napoleon requested that it be brought to Paris, where it was studied and proven to be made of blown glass and not of emerald. Its manufacture is said to be of 9th century Egyptian or Islamic origin. It is most likely that it was made by alchemist/glassmakers who had mastered the emerald green color of glass, and the technique for producing this thin glass facets. Flat glass for windows was still rare at this time, and only used for ecclesiastical buildings.

Sacro Catino has signs of breakage and a piece is missing. The origin of this damage varies with different stories.

In 1726 a strange event occurred, as Gaetano di Santa Teresa described it as 8 ounces Genoese (16 cm) tall, while the one on display today is only 9 cm high. This may be proof that the Sacro Basin currently in the museum could be a copy, while the original would be hidden in a secret place.



These 'emerald' and 'amethyst' glass eardrops in the Renaissance style were presumably assembled in the second half of the 16th century. The mounting is partially silvered copper. The green glass 'gems' are 6 mm in diameter. Courtesy

of a private collection near Rome, Italy; photo by Carlotta Cardana.