

10 Unique Pigments That You Have Never Heard Of

Artists used many pigments to create paints and dyes. Some of these came from mollusks, while others came from mummies.



Published: Mar 29, 2024 written by Hannah Lane, BA Painting, BA Art History

Like

Share

Share this article

Cite

Format

MLA AP ACHICAGO

YOUR CITATION

Lane, Hannah. "10 Unique Pigments That You Have Never Heard Of" TheCollector.com, March 29, 2024, <https://www.thecollector.com/hannah-lane/>

Copy Citation

Artists, throughout history, have used various pigments to create colors. Before the invention of premixed paints, most artists had to make their own. First, they went to their local alchemist or pharmacists to get the pigments and then they would take the pouches of pigments back to their studios and mix them into egg tempera, oil, or even gum arabic to create paint. Here are ten pigments that are not widely available anymore.

1. Indian Yellow Pigment



Purree (Indian Yellow) Pigment Specimen, c.1887. Source: The Powerhouse Collection

Made from cow urine, this pigment is currently not sold to the public due to ethical issues. While artists can still buy a pigment/paint called Indian Yellow from mass manufacturers, this paint differs from the original Indian Yellow. The cow urine that was used for making this pigment was special because the cows would be fed mango leaves. This gave their urine an orangey color and the pigment from it a pungent smell.

Trailokyanath Mukharji, a civil servant for the British Department of Revenue and Agriculture in India during 1883, wrote about the origins of these yellow pungent balls. He had tracked them down to a town called Mirzapur. Mukharji spoke of *gawas* (milkmen) in Mirzapur who tended to cows who ate mango leaves. These cows would produce three quarts of bright yellow urine per day. The *gawas* would then collect the urine in pots. They would later boil the urine, strain it, and roll the sediment that was left into balls. The *gawas* would lightly toast these balls over a fire and then dry them in the sun. The Indian Yellow that's available to the public today is made out of some form of cadmium or anthrapyrimidine yellow.

2. Mummy Brown



Mummy, c.18th to 19th century. Source: Harvard Art Museums

While some Mummy browns still exist, they are made from bituminous earth. The original Mummy Brown comes from actual mummies. It is unknown when artists started using the remains of mummies for pigments. However, it was not until the 16th century that the artist Juan Pantoja de la Cruz had it on his art supply list.

Mummy Brown was mainly used as an oil paint. It was allegedly great for glazing. It was not an expensive pigment, but it also was not widely used by many artists. This could be due to its cataloged issues of cracking, shrinking, and changing color. There were more artists who used other stable browns, such as Burnt Umber, Mars Brown, and Raw Umber. Most people who used this paint did not know about the pigment's origins. The painter Edward Burne-Jones gave his only tube of Mummy Brown a proper burial after finding out about its origins.

3. Emerald Green



Emerald Green, 1814. Source: Harvard Art Museums

Otherwise known as Schweinfurt Green, Paris Green, and Veronese Green, Emerald Green contains arsenic that creates this bright green shade. Emerald Green was first found in Schweinfurt, Germany in 1814. The chemists Russ and Sattler created it by combining copper verdigris and white arsenic. First, the copper verdigris was heated up and mixed with vinegar. This mixture was then combined with white arsenic. This sediment would be ground into linseed oil in order to create a paint. Russ and Sattler claimed that this pigment was more lightfast than its predecessor, Scheele's Green. When the paint was mixed with something that contained sulfur, it would blacken. Colors such as cadmium yellow, ultramarine, and vermilion would give Emerald Green this blackish hue.

In 1822, a report on Emerald Green's ingredients shed light on a consumer's long-standing question of why people who wore green or were around it died so young. Even after this report about the toxic arsenic in the Emerald Green, this pigment was still widely used. Emerald Green was cheap to make and highly fashionable. Eventually, the original pigment was banned in the early 1900s. When artists buy a tube of the Emerald Green shade nowadays, it is created from a formula of phthalo green (yellow shade) and white.

4. Scheele's Green



Wallpaper, ca. 1820. Source: RISD Museum

In 1775, a man named Carl Wilhelm Scheele founded Scheele's Green. Scheele was a Swedish scientist studying arsenic. He found a greenish sediment, which he thought could be used in the dye industry. Green dyes were extremely hard to find during this time. While Scheele knew the pigment was poisonous he sold it to dyers anyway.

The Victorians loved this green. From wallpaper to clothing, paints, eyeshadows, and even children's toys, Scheele's Green could be found on anything. It was said that the Victorians loved this shade of green because it reminded them of blooming flowers in gardens.

During the Industrial Revolution, most people living in cities such as Paris and London rarely saw any greenery around them. It was something only the elites could afford to see, as most of them went out to the countryside for fresh air. So a nice, natural-looking green seemed fresh to their eyes. It reminded them of the beauty of nature as they breathed the city's polluted air.



Vernois. Accidents produits par les verts arsenicaux, c.1829-1922. Source: Wellcome Collection, London

The only issue was arsenic poisoning. People who were poisoned would get rashes or they would feel nauseous and delirious. These symptoms were widespread among the people who worked with the pigment. Dyers and painters usually had huge sores on their fingers from working with it, while people who wore Scheele's Green died very young.

Overall, the color began to die out as more and more people realized there were safety issues with arsenic paint. Some governments banned the color entirely. Sweden, for example, was one of the first countries to ban it. Britain, on the other side, never banned the use of arsenic as the government refused to acknowledge any scientific reports. Many British citizens became aware of the toxicity of Scheele's Green through the newspaper. By the 1870s, major wallpaper manufacturers started to create lead-free and arsenic-free wallpapers. However, this wasn't entirely true, as most of these still had faint traces of toxic pigments. Today, Scheele's Green is not publicly available and it is not mass-produced.

5. Lead White



Flake White (Lead White), 1924. Source: Harvard Art Museums

Lead White, also known as Flake White, is still available to the public to a certain extent. Lead White has been used since BCE times. Pliny the Elder describes one of the methods to get it. Strips of lead were put into a specially designed clay pot. This clay pot was then divided into two sections. One section of the jar was filled with lead strips, while the other was filled with vinegar.

The pot was then surrounded by animal dung and buried or put in a shed with a tight door. These pots had to be buried or put in the shed for at least 30 days. After this period was over, someone would be sent to fetch the pots. This person would find all the lead strips covered with a puffy white pigment. The puffy white pigment now attached to the lead strips was formed into patties and sold as lead white carbonate.

Lead White was used on almost everything up until the twentieth century. House paints, wallpapers, and enamels on tiles are just some of the things that were made using lead white. The pigment was widely used because it was cheap. However, the pigment came with a hefty price on one's health. Symptoms of lead poisoning include stomach pains, shortness of breath, constipation, fatigue, and muscle pains. Exposure to lead, usually through ingestion or in makeup, can cause high blood pressure and even damage the brain, kidneys, and reproductive systems. Mothers who wore lead white as foundation would also give their breastfeeding children lead poisoning.

6. Minium



Minium, 1910. Source: Harvard Art Museum

Minium is a lead tetroxide. While Minium can be found in nature, it is usually man made. The process of making it starts the same as with Lead White. Once the lead is pulled out from the pot, it is put on a fire and stirred constantly until it becomes red. Once this happens, you get Minium. Minium was a cheap alternative to vermilion and cinnabar. It still carried the same health concerns as Lead White and it was used cosmetically in ancient Greece and China. The name Minium comes from the river Minus in northwestern Spain. It does not mix well with a lot of other pigments and it was primarily used in illuminated manuscripts.

It was a favorite of Persian and Byzantine manuscript painters. There were even specific names for the people that worked with Minium. A *miniator* worked with the pigment, so the name of the work they made was called a *miniatura*. The *miniatura* was a heading or a symbol in the manuscript. Another interesting fact is the word *miniatura* is where we get miniature from.

While the use of Minium began to die out during the 11th century, this pigment can still be bought for a hefty price.

7. Tyrian Purple



Tyrian Purple, unknown date. Source: The Craft Atlas

Made from mollusks, Tyrian purple was reserved for royalty only. These two mollusks, or shellfish of which Tyrian purple is from, are only found in the Mediterranean. Their names are *Thais Haemastoma* and *Murex Brandaris*. They have spiky shells and sometimes have purple coloring. If cracked open, one can find a gland. This is where the Tyrian purple dye comes from. This gland, when squeezed, produces one drop of clear pigment. After a few seconds in the sunlight, the clear drop of pigment transforms to pale yellow, then it turns sea green, then blue, and finally, it becomes dark purple. Unfortunately for the shellfish, their life is done once their gland is squeezed.

Getting Tyrian purple was a difficult and smelly process since the pigment smells heavily of garlic and the pigment drops from the shellfish were placed in a barrel of urine. The mixture of stale urine and murex drops was fermented for at least 10 days. Cloth would then be put in this mixture to get the color to adhere.

There are many historical tales about the Tyrian purple. One includes Julius Caesar, who gave his newborn son, Caesarion, a toga dyed in this color. Another comes from famous works like the *Iliad* and *Aeneid*. Scholars believe that this purple could have been used as early as the 15th century BCE. The color is still heavily associated with the Phoenicians who gave the pigment its name after the city of Tyre.



Murex Brandaris. Source: Museum of Fine Arts Boston

Archeologists found that Tyrian purple dyeing was done on the city's outer edges. Their evidence was found in the large amounts of shells littered across the coasts of the eastern Mediterranean. Since the process of dyeing was smelly, relocating the dyeing industry to the city's outer edges also made sense.

The large amounts of shells would normally indicate this was a popular color, but Tyrian purple was reserved for the elites. The massive amounts of shells were found because many murex needed to be sacrificed. Around 250,000 murex shells were used to make just an ounce of Tyrian purple. By the middle of the 4th century BCE, the pigment cost as much as silver, and soon after, Tyrian purple cloth would be worth its weight in gold. When Constantinople fell, so did the secrets of Tyrian purple. By 1856, Henri de Lacaze-Duthiers rediscovered the murex shells and their gorgeous purple dye.

8. Egyptian Blue



Egyptian Blue. Source: Prodigal Sons Pigments on Etsy

Egyptian blue, also known as *iryt hsb* by the ancient Egyptians, is an artificially made blue. Scholars believe that this is the first artificial blue that was ever made. In ancient Egyptian *iryt* meant artificial and *hsb* meant lapis lazuli. This blue's chemical name is calcium copper silicate.

To create it, limestone or chalk and a mineral such as malachite and sand were placed together on a fire. These ingredients would have been fired together at around 1,742°F to 1,832°F. So, these ingredients would become a glassy solid due to the high heat. The ancient Egyptians would then ground down this glassy solid and refire the sediment. The refire would occur at around 1,562°F to 1,742°F. This is when the intense blue seen in the pigment would start to show.

Egyptian blue was highly versatile and lightfast, so the sudden petering out of its use makes little sense. Some people believe that this was due to artists favoring ultramarine which was seen as precious since it was made from lapis lazuli. However, the demand for the color blue also decreased, so this might be a good explanation. The demand for blue increased again during the 12th century. Today, this particular color can be bought, but mostly through small businesses.

9. Orpiment



Orpiment pigment. Source: Master Pigments

While artists can still get this pigment, it is not mass-manufactured. Orpiment is also found in nature. The only issue with it is the toxic mineral within it. Orpiment is an arsenic sulfide and it is around 60% arsenic. The artist, Cennino Cennini, in his *Il Libro dell'arte*, warns his readers about putting the pigment in the mouth. In Bali, China, and Java, people took orpiment in very small amounts as purgatives. However, when taken in certain amounts it would make people go mad.

As a paint, Orpiment had its drawbacks. Artists figured it could not be used in frescoes and it dried badly in oils. It had a terrible reaction if it was mixed with any pigments that contained lead or copper. Orpiment

could be used only if it was separated from other colors it could react with. Overall, it is a beautiful color that glitters like gold in its dry-pigmented form. This is what attracted artists and other historical figures to it. For example, there is an allegory about the emperor Caligula and the pigment. It is said that Caligula, greedy for more money, tried to smelt a vast amount of orpiment to get gold out of it. Caligula's experiments ultimately failed and put the lives of his slaves at risk during mining.

10. Verdigris



Verdigris, 1927. Source: Harvard Art Museums

Verdigris is a naturally occurring mineral. It is usually attached to copper and bronze. Verdigris is born when copper or bronze are exposed to oxygen, water, sulfur, or carbon dioxide. It is seen in the patina on the Statue of Liberty and on the tops of copper roofs. We do not know when people started artificially creating this pigment, but we do know that it happened in the field of Arabic alchemy.

Creating Verdigris is kind of similar to the process of creating Lead White. Copper was placed in a pot with lye, vinegar, or even some sour wine. The pots, after being filled, would be left for two weeks. When opened back up, they would take out the sheets of copper, dry them, and then scrap off the patina. This powdered pigment would then be molded into cakes and sold.

Verdigris was hard to work with, however. Due to the acid from the vinegar or the sour wine that would help create the patina on the copper, verdigris was naturally acidic. This meant that it was hard to put verdigris on paper or any substrate. It was also fickle regarding other pigments that it could interact with.

When oil paint became popular, the problems of verdigris became more apparent. Verdigris in egg tempera becomes opaque and in oils, it becomes transparent. While Verdigris is good in oils for layers and tinting, it worked terribly as a base color due to its transparency. Once it was mixed with turpentine resin from pine trees, Verdigris' oil transparency issue was fixed. However, artists started to worry about mixing it with Lead White due to the turpentine. Eventually, people stopped using Verdigris when other green

pigments became available. Now, when modern artists buy verdigris, it is usually a hue made with phthalo blues and greens.

11. Lead Tin Yellow Pigment



Genuine Lead Tin Yellow Lemon Pigment (Type 1). Source: Prodigal Sons Pigments on Etsy

A researcher at the Doerner Institute in Munich, Richard Jacobi, found tin in multiple samples from many paintings in 1940. Jacobi was only finding the tin within the yellow that was on the paintings. So he tried to recreate this pigment by heating three parts of lead oxide to one part tin dioxide. However, the heat at which the mixture was made determined the type of yellow. If the lead oxide and tin dioxide mixture was heated between 1,202°F and 1,292°F, Jacobi saw a ruddy yellow. If heated between 1,328°F and 1,472°F, Jacobi was presented with a bright lemony yellow. During his research, Jacobi also found that the pigment was cheap to make, opaque in oils, and steadfast in light. In 1941, he finally published his findings to the world.

Scholars do not know why artists switched from Lead Tin Yellow to Naples Yellow. From the 1400s to the mid-1700s, Lead Tin Yellow was the main yellow used in paintings. The first appearance of Lead Tin Yellow in an artwork dates to the 14th century. Artists like Peter Paul Rubens, Giotto, Tintoretto, Titan, and Rembrandt all used Lead Tin yellow in their pieces. The usage decreased around the 1750s, while the Naples Yellow stayed popular. Art historians still don't know why Lead Tin stopped being heavily used. While Lead Tin is not mass-produced today, artists can still buy it as a dry pigment or an already mixed oil paint.

<https://www.thecollector.com/pigments-you-have-never-heard/>

