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## The Dynamic yet Dangerous Color Green

The history of the color green reads like a detective novel, with a blend of danger and beauty. The creation of the color, its mythology, and endless uses are a rich testament to its strong yet difficult temperament. Artists have been using a vast palette of greens for centuries. Green is wild; untamable - broad strokes of green wash across many of the worlds land masses. Green is probably the most organic of colors and yet down through time it has been a difficult color to reproduce and use safely.

For the Ancient Egyptians, green symbolized regeneration and rebirth. They made it with finely-ground malachite mined in Sinai and painted it on papyrus and the walls of their tombs. They spread it on their eyelids creating a pale green shadow which they believed protected them from the glare of the sun. A paintbox with malachite pigment was found inside the tomb of King Tutankhamun from 1323 BC. Egyptians also used less expensive green earth pigment excavated in Spain, or mixed yellow ochre and blue azurite. To dye fabrics green, they first colored them yellow from saffron, and then soaked them in the blue from the roots of the woad plant.

Verdigris (from the Old French, "verte de gris" or "green of Greece"), also known as zangar, was most commonly used by artists in the 15th through the 17th centuries for painting landscapes and drapery. They mixed it with lead white or lead-tin yellow, and because of its transparency, used it as a glaze. After placing a plate of warmed copper, brass or bronze into a vat of fermenting wine for several weeks, they were able to scrape off and dry the oxidation that formed on the metal to make this blue-green powder. It was luscious and inimitable, but unstable if exposed to dampness and didn't mix well with other colors. It was also toxic. Leonardo da Vinci said, "Verdigris vanishes into thin air if not varnished quickly," and warned painters not to use it. In 1859, Guignet of Paris patented a new process for manufacturing viridian (chromium oxide). This green was stable, permanent and nontoxic.

Another green used in the Italian Renaissance and Baroque eras was green earth, a natural-occurring pigment in Verona, Italy. Its prized hues were also known as terre verte, verona green, or celadonite. Artists used this medium as an underpaint for middle and shadowed flesh tones. Michelangelo's The Manchester Madonna in London's National Gallery shows the underpainting of the flesh in terre verte; a practice used as early as the 13th century by Giotto, all the way through to Tiepolo in the 18th century. Green earth is made of hydrated iron potassium silicate containing small amounts of aluminum. The clay was crushed, washed to remove impurities, then powdered. Large deposits of green earth have been found in France and Italy. Another colorant used at that time was malachite, a bright green mineral pigment known also as verdeazzuro.

It was discovered that heating a compound of oxidized cobalt and zinc oxide led to the creation of cobalt green or zinc green. In the mid-19th century, cobalt green was
especially favored with landscape painters. Emerald green, also known as Paris green, was also popular. It was used to color wallpaper as well as to kill rats in the Parisian sewers but was later discovered to release arsenical fumes. Artists at that time applied heat to the paris green creating a rich, deep black. Cezanne often used paris green which couldn't have relieved his suffering from severe diabetes. This highly toxic pigment was not banned until the 1960's.

Van Gogh's thick impasto painting, $A$ Wheatfield with Cypresses, vividly demonstrates his use of green in a light blue sky swirling with white cyclonic clouds. Van Gogh wrote to his brother Theo, "I am crazy about two colors: carmine and cobalt. Cobalt is a divine color and there is nothing so beautiful for creating atmosphere. Carmine is as warm and lively as wine... the same with emerald green." The toxic emerald green.

Joan Mitchell, who greatly admired Van Gogh's work, also painted cypress trees. In her oil painting, First Cypress, Mitchell smears thick, black-infused chrome green into a heavy, lively mass. Chrome green, an inorganic compound made from chromic oxide, is difficult to work with and can be drab looking and sticky, but Mitchell's tree paintings are daring and mesmerizing.

Today's artists are lucky to have safe, nontoxic, stable, permanent greens to work with. And such variety! We have prussian green, sap green, olive green, green gold, emerald green, thalo green yellow, and pale cadmium green. There are also the turquoise greens, like cobalt teal and cobalt turquoise light. It takes the skills of an artist to use this vast palette to differentiate the green of a thistle from that of a ginkgo leaf. Green alga floating in a murky pond is a vastly dissimilar color to a springtime maple leaf. The clear water of the Aegean Sea is a singular green in comparison to that of the blue-green ocean at Waikiki, Hawaii.

The emerald green (now nontoxic) in Clawfoot Master, oil on linen, by Vermont artist Galen Cheney, was chosen to pull the painting together. "I used emerald green to anchor the painting," Cheney said. "Floating over and twisting through other areas of the painting are the more artificial greens - phthalo, deep aqua, and a nearly fluorescent acid lime green. The more natural greens along with areas of brown and ochre can root the painting in an earthbound palette, while the other greens and the shapes that contain them push the painting beyond nature and into abstraction."

Yet another green is chartreuse, named for a French liqueur made from 130 herbs and plants. Chartreuse is a vibrant, electric color, halfway between yellow and green; also described as apple green, lime green, light grass green, light green with a tinge of yellow, and mellow yellow. Paul Schwieder, working in Sweden, gives us a glowing example of chartreuse with his glass sculpture, Stung; Uranium.

The Vermont-based artist, Laurie Sverdlove, paints the intersection between plant life and the wasteland of industrial production, as exampled in her oil painting, Quick Now Here Now. "Green is always part of my palette," Sverdlove said, "particularly blackishyellow green, chrome and chartreuse green, cinnabar and olive green. In this painting, I
used cinnabar green under yellow, cinnabar mixed with black, cadmium green light mixed with ivory, olive green mixed with burnt sienna." Green is so often associated with nature and landscape, yet it also functions on an emotional level as pure color; its own subject.

We seek green as a respite; restful like the shade under a tree or lying in an open field of grass. A gardener has a green thumb and a garden is symbolic of love. The poet Pablo Neruda always wrote in green ink, believing it was the color of hope. Feng Shui claims that green eases absent-mindedness, nervousness and rudeness. The Russian artist Kandinsky believed all colors provoked emotions and that green was peaceful, with inner strength.

Green swirls throughout our lives, whether in the workings of nature, the creations of the artist, or in our thoughts and beliefs. Green is vibrating, light-filled, lush and fecund. Artists have been grappling with its intensity for millennium. As Van Gogh wrote to his brother, Theo, in 1888, describing his work on the painting Night Café: "I have tried to express the idea that the café is a place where one can destroy oneself, go mad, or commit a crime. In short, I have tried, by contrasting soft pink with blood-red and wine-red, soft Louis XV-green and Veronese green with yellow-greens and harsh blue-greens, all this in an atmosphere of an infernal furnace in pale sulphur, to express the powers of darkness in a common tavern." Artists have been using their alchemy to harness the allusive nature of green for centuries.

