



Evolving Earth

It is not lost on painters capturing the exposed earth and rocky terrains that define the American West that the yellows, oranges, reds and browns on their palettes are created from the same colored material found in the landscape before them.

This newsletter takes a look at the rich history of the world's oldest group of colored material – earth pigments – and how artists have used these colors for over 40,000 years.

Gamblin's offering of earth colors can be categorized into four groups: **natural iron oxides** (Ochres, Siennas and Umbers), **synthetic iron oxides** ("Mars" colors), **hydrated synthetic iron oxides** (Transparent Earth colors) and **modern earth colors** (earth colors "boosted" in choma with modern organic pigments).

Natural Iron Oxides: There Will Be Haimai

Found all over the earth in various shades of brown and muted shades of red, orange, yellow and green, natural iron oxides, more commonly called "earth" colors, have been on artists' palettes for more than 40,000 years. The cave paintings, still visible today, are a testament to the stability of these mineral colorants. These muted yellow, orange, red and brown hues dominated the work of the Old Masters because earth colors were the only lightfast pigments available.

The range of colored earth is derived from the nature of iron oxide present in the material. Limonite ranges from yellow to brown and contains water in its chemical composition (hydrous ferric oxide). Artists know these as Ochre, Sienna, and Umber. Ochre is clay-colored with hydrated iron oxide. The famous "Terra di Siena" is a hydrated iron oxide from Tuscany. It contains silicates and aluminates that increase the transparency of the pigment. When limonite is heated through calcination, the water content is eliminated, resulting in the red hematite known as "Burnt Sienna." Red earth colors, either natural red oxides or red hematite from roasting, have been used in funerary purposes throughout history because of their close association with human blood. In fact, the word hematite is derived from the Greek haimai, meaning blood.

Umber, from its Latin origins meaning "shade," is found in sites where naturally occurring manganese dioxide combines with iron. Umbers and other pigments containing manganese make quick-drying oil colors.

In the studios of the Old Masters, painters pushed against the limitations of their colors. Sienna and Umber are key colors in creating effects of depth like Caravaggio's chiaroscuro or Leonardo's sfumato with its almost imperceptible transitions from light to dark.



Natural Iron Oxides Dry Pigments: Yellow Ochre, Raw Sienna, Burnt Sienna, Raw UMBER, and Burnt UMBER

Synthetic Iron Oxide: Mars, the Red Pigment

The expanding industries of the late eighteenth and nineteenth century expanded painters' color palettes. This was first seen with the development of synthetic iron oxide pigments, commonly known as Mars colors. Mars colors have a high degree of opacity compared to natural iron oxide pigments. Their strength, one would assume, links them to their namesake, the Roman god of war.

There is some discussion about why synthetic iron oxides were first produced, especially when so much pigment was then available in earth mines. The most logical explanation is commercial painters demanded consistency in color and texture for the emerging house paint industry. The British started to build homes with wood but still wanted their houses to look like brick. Also, through the manufacturing process, shades can be changed. "Mars" was an internationally recognized word for iron.



Mars Colors: Venetian Red, Indian Red, Mars Black

Hydrated Synthetic Iron Oxides: Transparent Earth

A hundred years after the Masters' great era, there was a revival in their techniques. Asphaltum was used when painters wanted to artificially age their paintings to make them look like an Old Master could have painted them. Organic in nature, the original Asphaltum was coal black and crumbly. The pigment was not ground into oil but rather melted into oil and turpentine. Among the few transparent earth colors, Asphaltum was used in glazing and shading. But by the end of the 18th century, painters were dissuaded from using the color because it caused paintings to fade and deteriorate at an alarming rate. Gamblin Asphaltum is made with lightfast, stable pigments, creating a transparent brown with a warm red undertone.

Two hundred years later, painters' interests have turned again toward the techniques of Renaissance masters. Like their predecessors, contemporary painters are pushing against the limitations of their colors. Often painters ask if earth colors

are less transparent today than hundreds of years ago. The answer is YES. Today's earth pigments are more opaque because the once rich deposits in Siena, Corsica and Cyprus are nearly mined out. Today's earth colors must be mined from various locations and mixed together to achieve consistent colors. The bulk of earth pigments are used to color concrete for stucco and other building materials. The result is a rise in cost and a decline in transparency.

The late 20th century has produced the first significant change in iron oxides with the invention of transparent Mars colors for the automobile industry. These colors are made by hydrating earth colors, a process by which opaque colors are made transparent (the same process that turns opaque Chromium Green Oxide into Viridian). As painters we have come full circle. The prized transparent earth reds of antiquity have returned to our palettes.



Transparent Earths: Yellow, Orange, Red, and Asphaltum (shown in glazes)

Modern Earths

A few year back, when Gamblin looked to expand their color offering, a fresh approach to earth colors was taken by boosting the chroma (intensity) of traditional earth colors with modern organic pigments. Gamblin Gold Ochre is a mixture of Yellow Ochre and Indian Yellow to fill an important place within Color Space. Gold Ochre has the appearance of Yellow Ochre in its thicker mass tone, and then the Indian Yellow takes over when it is applied as a thinner glaze, revealing a warm, glowing undertone. Gamblin Brown Pink is a mixture of Transparent Earth Red and Perylene Red to make a contemporary, lightfast replacement of this traditional, fugitive color made from berries.



Modern Earths: Gamblin Gold Ochre and Brown Pink

Even with so many intense colors available today, painters still prize and value earth colors for their beauty, stability and connection to the rich heritage of painting.

For a sample pack of Gamblin Burnt Sienna, Venetian Red, Transparent Earth Red, and Brown Pink, please send a check or money order for \$9.95 to **Gamblin Artists Colors Co, P.O. Box 15009, Portland, OR 97293. Attn: Earth Colors Promo.** Offer available until Oct. 31st, 2009 or while supplies last. For United States and Canada residents only.

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