

Color and Art: Color in Art



http://tacweb.cs.depaul.edu/sgrais/images/ColorMunsell/munsell_tree.jpg

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TC706 Color Science

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History of Color in Art

John Gage *art historian*

wrote the groundbreaking book *Color and Culture: Practice and Meaning from Antiquity to Abstraction* (1995). Gage discusses how the meaning of color has been shaped and determined by historical and social factors.

Philip Ball *popular and science writer*

in *Bright Earth* (2001) wrote about the relationship between color and paint, skillfully weaving science into art history.

Victoria Finlay *journalist, art writer*

followed with *Color: A Natural History of the Palette* (2002) an informative and entertaining account chronicling her efforts to research the origins of material color.

Hurt, Perry. *Personal interview. NCMA. 18 September 2008.*

History of Color in Art

Perry Hurt *Conservator at the North Carolina Museum of Art* curated *Revolution in Paint*, a recent exhibition (September 17, 2006–February 11, 2007) about color and the Impressionist Movement.

<http://www.ncartmuseum.org/monet/revolution.html>

It was the convergence of The Age of Enlightenment, the birth of Modern Chemistry and the Industrial Revolution that transformed the production and development of colored dyes and pigments, opening up possibilities and forever changing the face of both textiles and art.

Another major factor of change for the artistic painter was the invention of the collapsible metal paint tube by South Carolina artist, John G. Rand which physically freed artists from the studio and drastically extended the life of their paints.

Hurt, Perry. *Personal interview. NCMA. 18 September 2008.*

History of Color in Art

What has created this growing interest in the history of color in art?

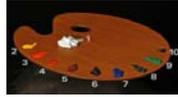
- ~ An interest in craft
- ~ The Modernist and Post-Modernist artist's move away from fine art materials
- ~ The materiality of paint and other material colors

Hurt, Perry. *Personal interview. NCMA. 18 September 2008.*

Artist's Palette



Simulated Traditional Academic's Palette
2006 re-creation of early 1800s palette
Exhibited in *Revolution in Paint*



Simulated Impressionist's Palette
2006 recreation of Monet's palette of the 1870s
Exhibited in *Revolution in Paint*

It was the convergence of The Age of Enlightenment, the birth of Modern Chemistry and the Industrial Revolution that transformed the production and development of colored dyes and pigments, forever changing the face of both textiles and art.

Excerpted from <http://www.ncartmuseum.org/monet/revolution.html>

Types of Traditional Artist Paint

oil *linseed oil*

vegetable-based, slow drying, dries darker, does not warp a surface, excellent for blending, luminous qualities

encaustic *hot beeswax*

pre-dates oil, found in early paintings

fresco *water*

special method involving paint on fresh lime plaster

egg tempera *egg yolk & linseed oil or egg yolk & water*

transparent, quick dry, not good for blending

acrylic *acrylic polymer (plastic)*

quick drying, flexible, matte or glossy, able to be thinned with water, advances from new technological developments, can warp paper and wood

Colour, Feisner p164

Types of Traditional Artist Paint

watercolor *gum arabic, glycerine and/or honey*

cake or liquid form, transparent, also able to be thinned with water, can warp paper and wood

gouache *opaque white plus watercolor*

able to thinned with water

casein *milk-derived polymer*

distemper *water soluble glue or gum*

"poster paint"

Colour, Feisner p164

Major Factors Affecting Color

- binder
- mixing medium
- pigment
- varnish

All of these factors are important to consider when thinking in terms of archival issues and conservation.*

* Hurt, Perry. Personal interview. NCMA, 18 September 2008.

Artist's Palette

Spectrum

- cobalt blue
- dioxazine purple
- titanium white
- ivory black
- cadmium yellow light
- cadmium yellow medium
- cadmium orange
- cadmium red medium
- alizarin crimson
- ultramarine blue

- pthalocyanine (pthalo) blue
- pthalocyanine green

Earth Colors

- burnt sienna
- raw sienna
- yellow ochre
- burnt umber
- raw umber
- iron oxide red

From The Contemporary Oil Painter's Handbook

What Artists Care About

- volume & portability
- solvent
- brilliance
- pigment load
- transparency/opacity
- covering power
- single pigment
- spectrum
- viscosity/consistency
- surface sheen
- stability of color
- cost
- drying time
- toxicity
- environmental impact

Partially adapted from <http://www.winsornewton.com/products/oil-colours/artisan-water-mixable-oil-colour/>

Color Theory Meets Art

Leonardo Da Vinci Italian artist and scientist; wrote Treatise on Painting

Sir Isaac Newton English physicist; discovered spectral lights; created the first colorwheel; pure physics rather than perception

Moses Harris English entomologist and engraver; created first pigment wheel identifying red, yellow & blue as the primaries; wrote The Natural System of Colors

Johann Wolfgang Von Goethe German poet who formulated a color triangle which Albers includes in his Interaction of Color; wrote Theory of Colors

Philip Otto Runge German painter created the first 3-D color model with red, yellow, and blue primaries using white and black to incrementally modify the hues. Has the appearance of a globe

J.C. Maxwell Scottish physicist experimented with the concept of additive color & primaries; pioneer in the field of photography

Colour, Feisner p13:22

Color Theory Meets Art

Michel Eugene Chevreul French chemist determined that hues could be obtained from mixtures of red, yellow, and blue; developed the laws of simultaneous contrast, successive contrast & optical mixing and presented the color harmonies (color schemes)

Ogden Rood American physicist who figured out that colors differed on the basis of three basic characteristics: purity, luminosity, and hue; wrote Modern Chromatics

Ewald Hering German physiologist who used the primaries red, yellow, blue and green to create a diagram based on the perception of color not the physical mixing of colors; CIE color model has roots in Hering's model

Albert Munsell wrote Color Notation where he discusses the three descriptors of color: hue, value and chroma; identified five main hues, red, yellow, blue, green and purple; create the Munsell tree as a 3-D model

Wilhelm Ostwald German chemist developed a color model based on a geometric progression with all of the colors as a combination of hue, black and white

Colour, Feisner p13:22

Color Theory Meets Art

CIE (International Commission on Illumination) standardization of color; chromaticity diagram

Johannes Itten Swiss artist and teacher developed the color star that dealt with six different contrasts of color; wrote *The Art of Color & The Elements of Color*

Alfred Hicethier German painter interested in color reproduction in printing; developed a precise system and method for mixing the primaries cyan, yellow and magenta

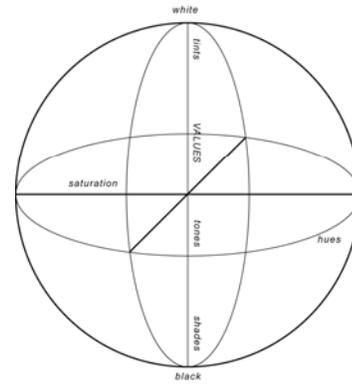
Josef Albers Bauhaus artist & teacher who had an interest in simultaneous contrast; wrote *Interaction of Color*

Faber Birren American art historian who determined the eye's ability to distinguish more colors between red and yellow than between green and violet; wrote more than 24 books on color

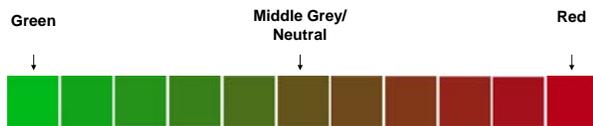
Frans Gerritsen Dutch artist & color theorist who wrote *Theory and Practice of Color and Evolution in Color* in an attempt to place all future color research on a solid scientific foundation; explored red, blue and green as THE primaries

Colour, Feisner p13:22

Artist's Color Model

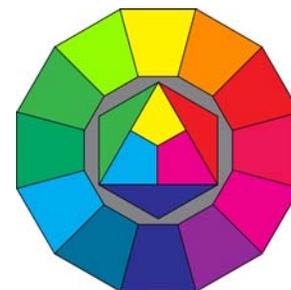


Artist's Color Model



Red-Green Desaturation Scale

Artist's Color Model



Color Wheel

Painters and Color

Leonardo Da Vinci (1460's-mid-1500's)



Jan Vermeer (1632-1675)



Caravaggio - Chiaroscuro (1593-1610)

Rembrandt Van Rijn - Dutch Golden Age (1600's)

Painters and Color

Pre-Raphaelites (1848-1854)

Eugene Delacroix - Romanticism (1770-1840)



Claude Monet - Impressionism
(1870-1890)



George Seurat - Pointillism
(Post-Impressionism)
(1880's-early 1890's)

Painters and Color

Vincent Van Gogh
Modern Expressionism (1880's)



Henri Matisse Fauvism (1903-1908)

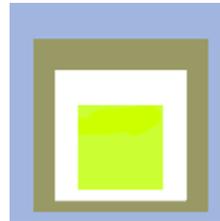


Wassily Kandinsky
Blaua Reiter (1911-1914)

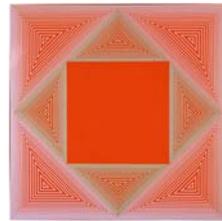
Painters and Color

DeStijl (1917-1931)

Josef Albers Bauhaus
(1919-1933)



Richard Anuszkiewicz
Color Function School
(Yale 1950's)



Op Art (mid-1960's)

Painters and Color

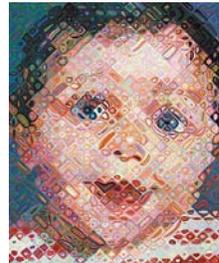
Yves Klein
International Klein Blue



Mark Rothko
Color Field Art/Hard Edge Painting
(mid-1950's-late 1960's)

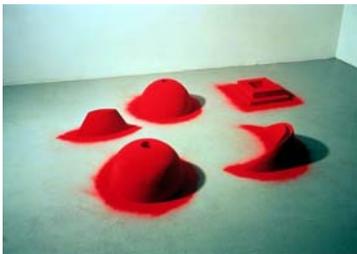


Painters and Color



Chuck Close - Optical Mixing

Painters and Color



Anish Kapoor

Recent Technological Advances

- Iridescent Colors
- Interference Colors
- Phosphorescent Green
- Fluorescent Colors
- Open acrylics
- Water miscible oil paint

<http://www.goldenpaints.com/products/color/index.php>

Bridging the Gap

Between the Worlds of Art and Color Science

Artists and designers need to learn the language and ideas of color theory and color science if only for two reasons:

1. Better control over the medium and over their audience
2. Increased ability to communicate ideas about color in both a meaningful and standard way

Although for the most part color scientists and theorists are concerned with the measurable quantities of color, I agree with Josef Albers. The understanding of the visual perception of color comes best through **PRACTICE** first. So, in order to have better conversations and understanding of the other qualities of color, it is important that color scientists and theorists go beyond light and endeavor to explore material color in its application.

Interaction of Color, Albers p.2
Color, Kuehni p.160

Case in P(a)int



Design Professors needed pure cyan, magenta and yellow paints specifically for mixing for their students.



GOLDEN
ARTIST COLORS®

Golden chemists custom formulated a special set of primary hues based upon the needs & specifications of the NCSU Design School. This formula is designated "Hue," not paint like regular off-the-shelf paints.



A local art supply merchant acts as the supplier.

Color and Art Presently

CMYK

Digital Printing

Digital Imaging

Pantone Color Matching System

The Future of Color and Paint

As color becomes easier and cheaper to obtain via other technological means, painting will become an even more rare practice. Those skills will become more highly prized by those who are informed.

However, amongst the general population, the form that their colored art takes may not be an immediate concern. We can already see strains of this trend in the way that giclee* prints are marketed and sold.

But Philip Ball has a delightfully optimistic view of the future of color and paint. Ball asks what if the next innovation in paint could be liquid crystals that change color with changes in temperature. His position is that "Technology opens new doors for artists." And that technologists cannot predict what the artist will come up with next.

*<http://www.gicleeprint.net/abtGiclee.shtml>
Bright Earth, Ball p.337

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Henri Matisse <http://www.abm-enterprises.net/redroom.jpg>

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Richard Anuszkiewicz http://www.okcmoa.com/~okcmoa/files/u1/Anuszkiewicz_2005_020.jpg

Wassily Kandinsky [http://lh4.ggpht.com/_Dhr2SPP3FyA/R-D3SRzelxI/AAAAAAAAAW0/noWAbiCiDFU/Kandinsky,+Wassily+\(1923\)+Composition+XIII.jpg](http://lh4.ggpht.com/_Dhr2SPP3FyA/R-D3SRzelxI/AAAAAAAAAW0/noWAbiCiDFU/Kandinsky,+Wassily+(1923)+Composition+XIII.jpg)