Colour Theory: An Aesthetic Perspective
• Though not amenable to definition, art can be analyzed under various headings — representation, coherent form, emotive expression and social purpose.

• Aesthetics is the philosophy of art.
Egyptians had 17 pigments/colours.
Egypt

All pigments are mineral painted by “outline scribes” paints are mixed with gums degraded after tombs are opened
Plato:

colour is mixture

“Double vision”

light is made out of particles that emanate out “like fire”

**small**: white as emission causing dilation & increasing visibility

**large**: black as **intake** contraction
A thing is not seen because it is visible, but conversely, visible because it is seen.

we don’t see any of the colours as PURE, only the mixtures
Aristotle:

FIRE is precondition (dynamis) of vision

Light is ENERGEIA of fire

Colour (opacity) is transition from dynamis to energeia

= colour reflects not apperance, but condition of things
diference of objects depends on shadow light & angle
painted sculptures interior walls
Pliny "Natural History"
there are only 4 colours *

White from Milos
Red from Sinope and Black Sea
Yellow Attic
Black "Atramentum"

*make 819 tonal variations
used by Appeles- the most celebrated Greek painter
Blue is made out of black + white

4 basic Pigments are related to 4 HUMORS (elements)

Empedocles:
Mixing colours is a TEMPLE = OFFERING
Irreversible process

Latin: TEMPERA = MIXING
(Temple- tempera- temperament- temperature)
Spring = Red
Summer= Yellow
Autumn= Black
Winter= White

circle icosahedron water green
triangle pyramid fire red
square cube earth yellow
octagon octahedron air blue
Pompeii

Mount Vesuvius August 24th 79, AD revealed 1709

PAINTING:
Colour didn’t reflect the things as they are, but the way they appear

Encaustics:
mural earth and mineral pigments mixed with lime & soap & wax, burnished with metal trowel.
Nec vita nec sanitas nec pulchritudo nec sine colore iuvenus

(without colour there is neither life nor health, neither beauty nor youth)
I ching:
infinite order

The magic square
Numbers +
colours
mandala as a “schematic representation of the universe”
Islam:

4 elements

4 states of matter

4 colours
Metaphysics of colour:

Conscience
Knowledge
Light
Vibrations

Physics:

Relations
Energy
Movement
Matter
Oriental Illuminations

Blue ultramarine from Afghanistan was more expensive than gold
Japanese prints
background versus foreground
zodiac
Emanation

Creation

Formation

Action

colour as symbol
Byzantine Icons (eikon = image),
hierarchical colour harmony
the spirituality of colour
Colour lies at the intersection of
mind & matter
perception & world
metaphysics & epistemology
Divine Revelation

Transcendental Empiricism

Actual reality
24K gold
as background light
colours of the old world
WHITE

Emperors wear white robes

Pitagora asked students to wear white

Altar was always made of white marble

Dead are buried wrapped in white cloth

White is luminous & pure Divine light
BLUE

Colour of mystery, revelation, transfiguration; spiritual and infinite

Egypt: immortality, fidelity

Old Testament: introduced only one blue-sky (divine blue)
RED

Active & radiant

Hebrew: “dam”=red=blood=life

Greek: divination & sun

sacrifice

eternal fire
PURPLE

controverse, cold and warm at the same time

Important, rich, affinity with dead

mixed with magic, religious, dignity

Kings vests (expensive origin)
GREEN

Greek “chloros”

nature & vegetation

youth, growth and fertility (hope)

water (Posaidon)

calm & neutral but sometimes playful
BROWN

Mixed by red, blue & green (some black)

reflects density of matter

different browns have different meaning

ochre = happiness

dark brown = poverty & rejection of pleasure
BLACK

absence of light

Egypt: underworld, condemned, sacrifice

Christianity: sin, death

Optics: zero, absence, inertia
YELLOW

Archaic Greece: gold as the only yellow (light itself)

lemon yellow: sadness, gossip

Gold: Amon Ra (Sun),

Helios (divine light)
Boticelli: colour as transcendent between symbol and real
Jan van Eyck: Oil painting reverses the process of painting from light to dark; master of tonal gradation
Leonardo:
chiaroscuro
master
(light & dark)
monochrome
browns
Plato + Leonardo = colour as daytime colour scheme
Aerial perspective:
Sfumato and
Tuscan landscape
Tenebrist’s theatre:

Caravaggio introduced a workable formula, simplifying colour to chiaroscuro. Tone was divorced from colour, readily lending itself to engraving and teaching.
El Greco: dark studio
drama and metaphysics
phosphorescent qualities of paint suggest the otherworldly
Titian was the first artist to create such a spatial structure with colour alone. He created a pictorial unity from colour relations — modulating and picking up the same colour in various tones and hue variations.
Rubens factory:
manufactured portraits
primary colours
Velasquez appeared to be using chiaroscuro but in fact uses greys as colours, hovering between warm and cool to create space.
Vermeer: camera obscura

Reality of daylight

Vermeer often brought primaries (yellow and blue) together in a focus of interest and then spread them out into other parts of the painting.
Ingres: looking back to Greeks for inspiration:

Zeus
Ingres: Napoleon (self proclaimed emperor)
Delacroix worked out his colour schemes prior to painting, often years before. Commonly he used the greatest tonal contrast when colour was diminished, and vice versa (i.e. using strong colour contrast when tones were equal).
Goya: May 3rd: beginning of revolutions (gunfire)
Newton’s memory confusion is expressed as destroyed poetry of the rainbow. He made his private rainbow in a dark room. The souls of 500 Isaac Newtons would go to the making of one Shakespeare. Bar codes in the stars

Richard Dawkins
Newton used alchemy and music to divide prism
Real rainbow is circular, and we see only the part over the horizon. The size of rainbow is small, as it looks like “projection” in the sky. Rainbow is immovable and relevant only to a viewer.
Thomas Young (1773-1829) discovered that by combining just three of the seven colours; red, indigo and green; the result was white light. From these experiments, these three colours were considered primaries.

**ADDITIVE** theory uses light as pure colour.

Many scientists damaged their eyes permanently while observing the afterimages of the sun.
Allergic to any relapse into magic, art is part and parcel of disenchantment of the world. (Adorno)
Obsolete theory:

Chain of Action Between Light And Color Sensation

Light (1) reaches an object. A portion of the light is absorbed, eliminated, i.e. transformed into heat (2). The non-absorbed portion, the residual light, is reflected as color stimulus (3) in the observer's eye (4). After completion of the physiological adjustment processes, namely Adaptation, Conversion, and Simultaneous Contrast, an electrical code is generated on the retina for every scanning element and transmitted through the nervous system (5) to the brain. From these colorless data the multicolored three-dimensional field of vision is built as consciousness (6).
Theory on light “pollution”: distorted, corrupted, changed, reflected... leftover.

Incident sunlight on a green leaf.

The reflected portion of light which enters the observer's eye as color stimulus. The color stimulus is residual light.
We perceive ONE out of 69 octaves of “registered” frequencies.
Bee see +
This theory states that some of the light that strikes an object is subtracted because it is absorbed by the object. The colour that we see is what is reflected back to the eye.

impurity of pigments creates “MUD”
Setting a palette - portrait mixtures

- Phtalo Green
- Viridian
- Raw Umber
- 4 Neutral Greys
- Blk+Wht
- Raw Umber+Wht
- Aliz+Virid+Wht
- Cad. Red+touch Raw Sienna+Wht
- Raw Sienna+Cad. Red+Wht
- Raw Sienna+Wht
- Yell. Ochre+Wht
- Cad. Red Light
- Cad. Yellow Medium
- Naples Yellow
- Yell. Ochre
- Raw Sienna
- Ultra Blue
- Ivory Black
- Zinc White
Goethe: Scientific lectures should be attended to renew the stock of metaphors. Mysteries do not lose their poetry when resolved. Studying a flower should not detract from its beauty.

contrast is primary
colour is secondary

colour circle

Goethe: philosopher is worse than a bull in front of red cloth.
Chevreul: 72 colours for tapestry + 14,400 chromatic tones + discovered simultaneous contrast used by impressionists
First colour theories
invention of photography
(devils workshop)
Painting: moving away...Monet: capturing the drops of light
blue shadows and yellow light
new light sources
Cezanne created pictures with a single, dislocated plane, orchestrating colour and simplifying shapes to do so.
Matisse argued that if the precise character of sensations could be represented by colour, then the procedure could be reversed, pictorial colour creating its own sensations.
Matisse: Japanese backgrounds
Seurat and the Pointillists distinguished between colours — direct reflected light, partially reflected/absorbed light, local colour & ambient complementary colour.
Picasso

Cubists used the simple shapes but opened up depth again by colour.
Mondrian: pure puritan
Franz Baader:

Colour is cosmology- new phenomena, not simple manifestation of the unchangeable.

Reflection is origination.

Nature is divine prism refracting the ray of divine light.
Shelling:
Colour is the ultimate unity between light (spirit) and body (matter).

Flesh is true CHAOS of colours
Saussure:
Colour behaves same as language- it binds thought with a sound. (if you cut paper, you cut both sides)

Sartre:
colour doesn’t represents reality. It contains the essence of objects (smell, temperature, taste...)

Derrida:
Colour still has not being named. The difference & spacing (difference et espacement) stabilizes dynamics of structural relations.
Yellow warm, cheeky and exciting, disturbing, typical earthly color, compared with the mood of a person it could have the effect of representing madness in color [...] an attack of rage, blind madness, maniacal rage loud, sharp trumpets, high fanfares

Kandinsky: Concerning the spiritual in art (phenomenon of synaesthesia-permutation of senses)
blue\deep, inner, supernatural, peaceful; Sinking towards black, it has the overtone of a mourning that is not human. typical heavenly color light blue: flute darker blue: cello darkest blue of all: organ
red= alive, restless, confidently striving towards a goal, glowing, *manly maturity* Light warm red: strength, energy, joy; vermilion: glowing passion, sure strength Light cold red: youthful, pure joy, young *sound of a trumpet, strong, harsh*” Fanfare, Tuba deep notes on the cello high, clear violin
Erklärung: Die 3 Grundfarben gelb, rot, blau verteilt auf die angeführten 3 Grundformen gleichmäßig. FLÄCHENINHALT, VOLUME, QUANTEN, KATEN. Radiert die einschränkten Formen, Tetraeder, Kubus, Kugel.
Wilhelm Ostwald, the Nobel-prize winner for chemistry, compiled his Die Farbenfibel (The Colour Primer) in 1916/17 in the hope of developing a better understanding of their perceived harmonies.
Colour today: CONSUMERISM + INFORMATION

Bridget Riley:

We should distinguish between pictorial colour (colour needed to make a picture) and perceptual colour (everyday experience of colour: as it actually is). Artists work with both.

Colors are composed by brain, not eyes, Cornell experiment shows
Trompe ‘l oeil = trick the eye
Kant: if we assume colours are vibrations of aether, they could be ranked as intrinsic beauties (as music).

Wittgenstein: make order to colour is like an ox in front newly painted doors (not recognizing his own home).

Itten: Eye wants balance: simultaneous contrast.
Josef Albers: different primaries
colorist (artist, designer) = R G Y
physicist = R G B
psychologist = R G Y B + B & W
Aemilius Müller pointed out that the gradations of colour-hue, often appearing monotonous, can be made more attractive by allowing them systematic deviations.
afterimage
Consumers judge an environment or object within 90 seconds of initial viewing and most of that assessment is based on color.
According to the UK's Dr Catherine Jansson, from London Metropolitan University, we are more likely to find green products faster than any other in busy retail environments such as supermarkets or shopping malls....
red
hot, stop, aggression, lushness (red velvet), error, warning, fire, daring
pink
female, cute, cotton-candy
orange
warm, autumnal, Halloween
yellow
happy, sunny, cheerful, slow down, caution
brown
warm, fall, dirty
green
envy, jealousy, a novice, spring-like (fertile), pastoral
blue
peaceful, water, sad, male
purple
royal
black
evil, ghostly, death, fear, mourning
gray
overcast, gloom, old age
white
virginal, clean, innocent, cold
experience

Bold, clean, exciting brights energize the senses. These unconventional colors allow us to experiment with color and provide a sense of the unexpected.
Access

These warm neutrals were inspired by the evolving face of technology. No longer do we have to feel overwhelmed by the computer age, rather we bask in the social side of our personality it has rekindled. We find renewed importance in our relationships, feel a common link with people around the world, and reconnect with our own humanity.

By Foot

Wireless

Reach
Ground

These traditional colors keep us grounded in this changing world. Rich reds, olives and golds provide confidence and strength because, after all, the more grounded we are, the more we are free.

Virtue

Constant

Philanthropic

Inherit
These cool, attractive blues and grays are soothing psychologically. These serene hues in the form of lavender and aqua lend peace in a moment of self-reflection. In an era of high-energy, calmness is embraced.
OFFSET PRINTING
- Red, Green, Blue
- Best for computer hardware but not humans
Look at the chart and say the **COLOUR** not the word

**YELLOW**  **BLUE**  **ORANGE**
**BLACK**  **RED**  **GREEN**
**PURPLE**  **YELLOW**  **RED**
**ORANGE**  **GREEN**  **BLACK**
**BLUE**  **RED**  **PURPLE**
**GREEN**  **BLUE**  **ORANGE**

Left – Right Conflict
Your right brain tries to say the colour but your left brain insists on reading the word.
Mood Hues

- Hot
- War
- Anger
- Cold
- Surprise
- Warm
- Love
- Cool
- Jealousy
- Peace
- Serenity

21 Century

Coming **colour theories** will be shaped by:

- media & technology
- pigment innovations
- new printing processes & surfaces
- displays
- aesthetic norms (taste + fashion)
- visual customization
- information delivery
Color healing, known as Chromotherapy, can be implemented in a number of ways. The ancients built great halls of color healing, where individuals entered and were bathed in light that was filtered through various colored glass panels or windows.
trace map interface

dynamic film recomposition
retrievr sketching search engine

ujiko visual search engine
color changing concrete
blogosphere linkology

day to day data exhibition
weather toaster

Water temperature
kotohana emotion flower

coulheur
target interactive breezeway

public storyboard
dermal nanotech display

thermochromic tiles
Egg days

Eye display
Open & close

skyear
smartmoney stock market radar
Artificial Sun by Olafur Eliasson