

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

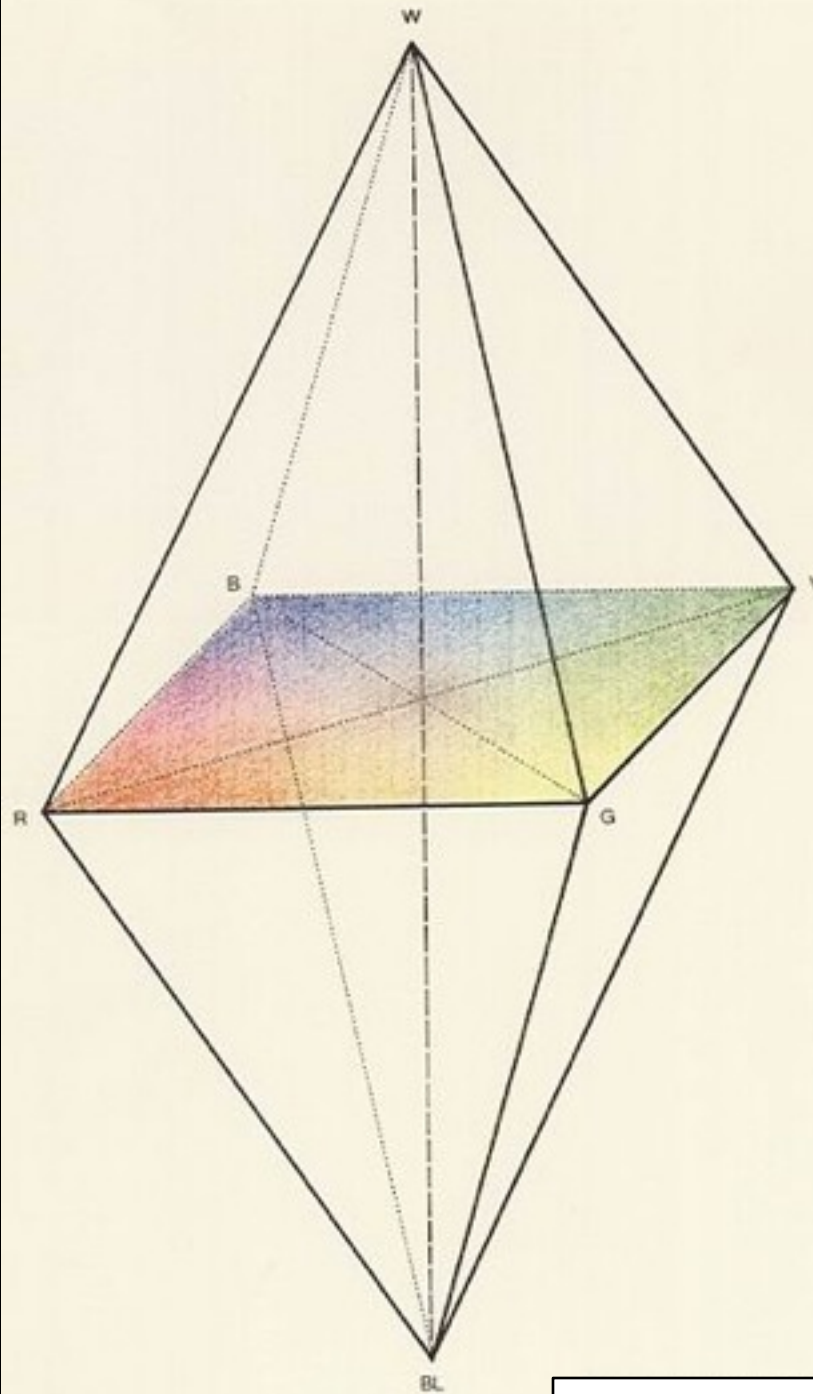
All pigments
are mineral
painted by
"outline
scribes"

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 conversly,
visible because it is seen.

we don't see any of the colours as PURE,
only the mixtures

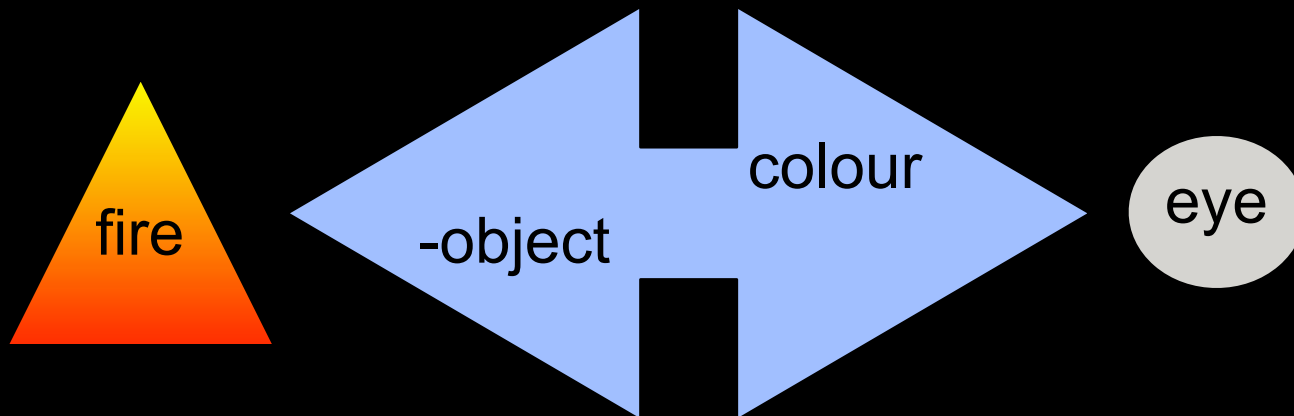
Aristotle:

FIRE is precondition (dynamis) of vision

Light is ENERGEIA of fire

Colour (opacity) is transition from dynamis to energeia

= colour reflects not appearance, but condition of things
difference 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 Appelles- 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)

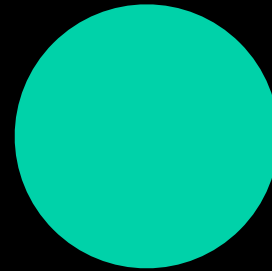
Spring = Red

Summer= Yellow

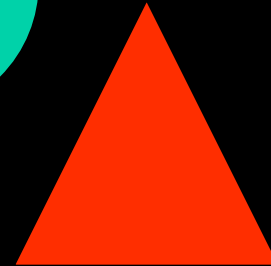
Autunum= Black

Winter= White

circle icosahedon water green



triangle pyramid fire red



square cube earth yellow



octagon octahedon 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:

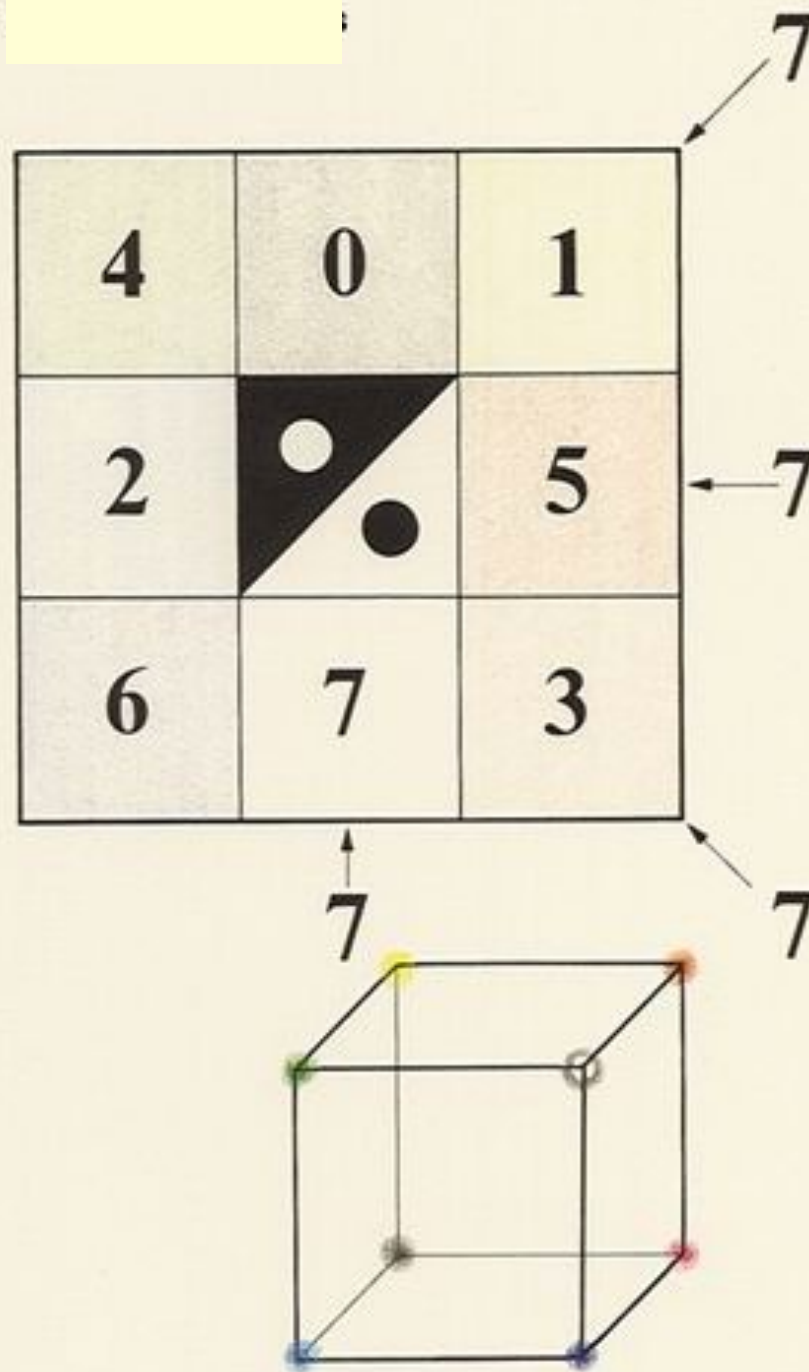
mural earth and mineral
pigments mixed with lime &
soap & wax, burnished with
metal trowel.



Nec vita nec sanitas nec
pulchritudo nec sine colore iuventus

(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”

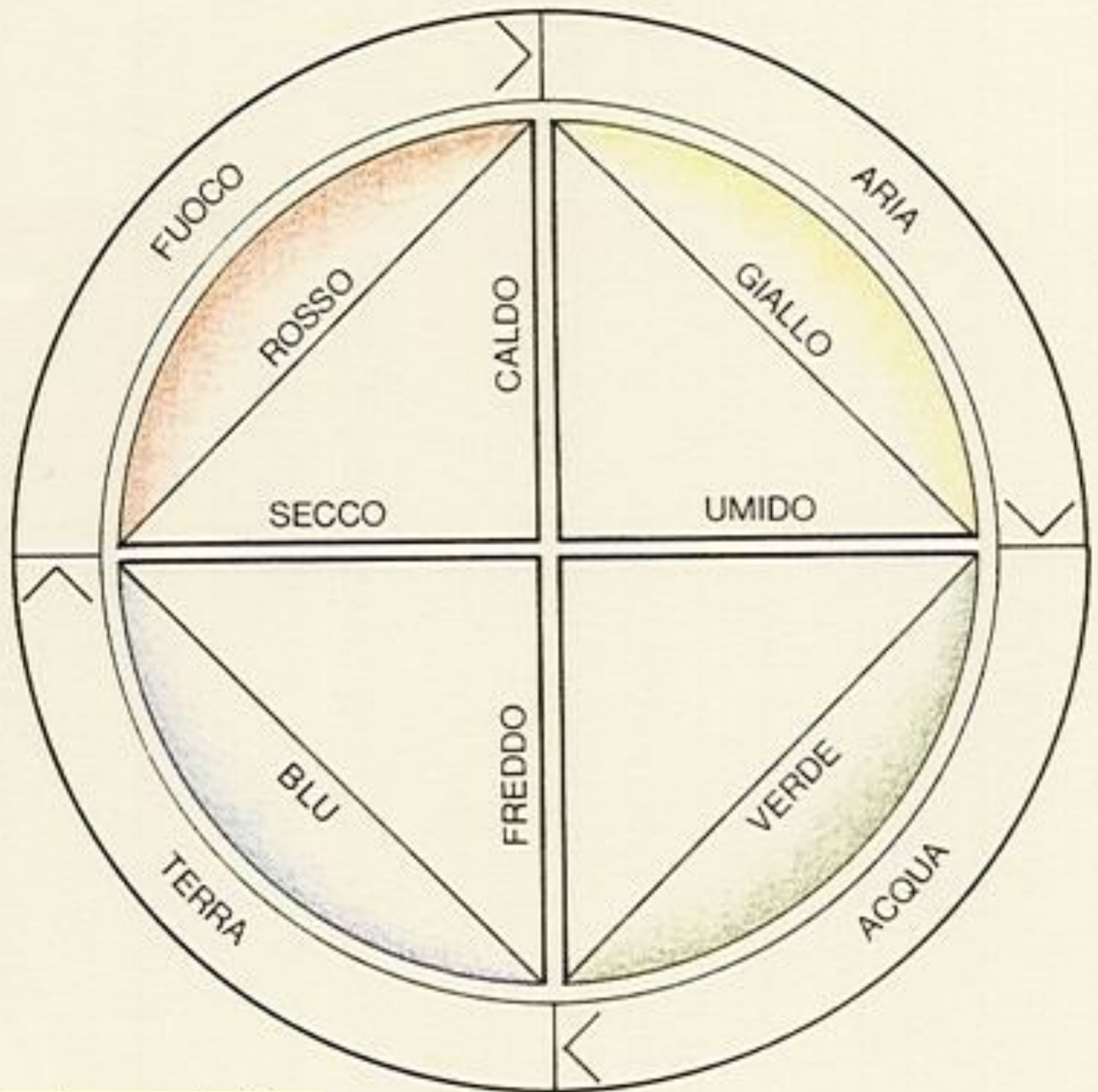


Islam:

4 elements

4 states
of matter

4 colours



non representation

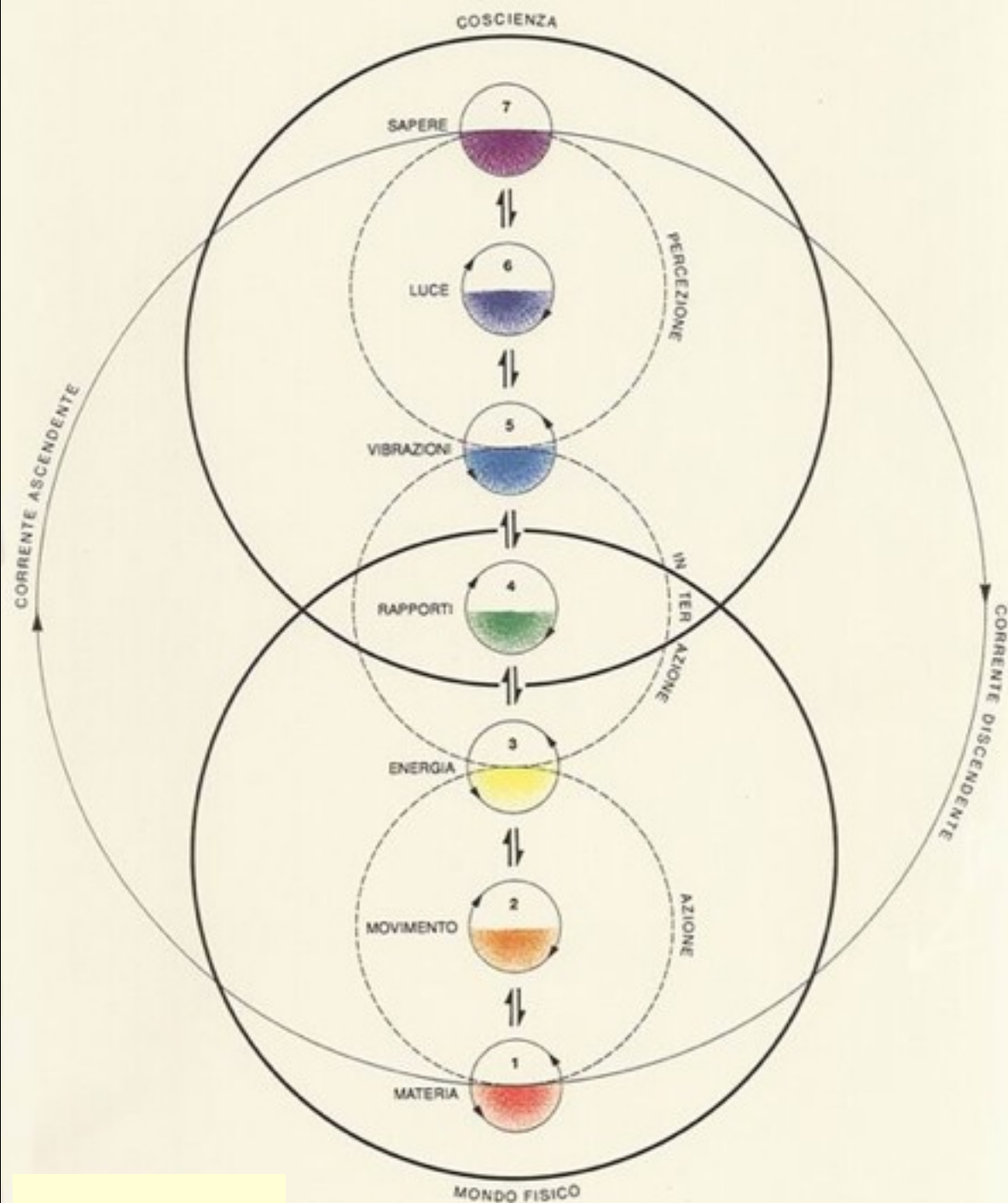


Metaphysics
of colour:

Conscience
Knowledge
Light
Vibrations

Physics:

Relations
Energy
Movement
Matter



Oriental Illuminations

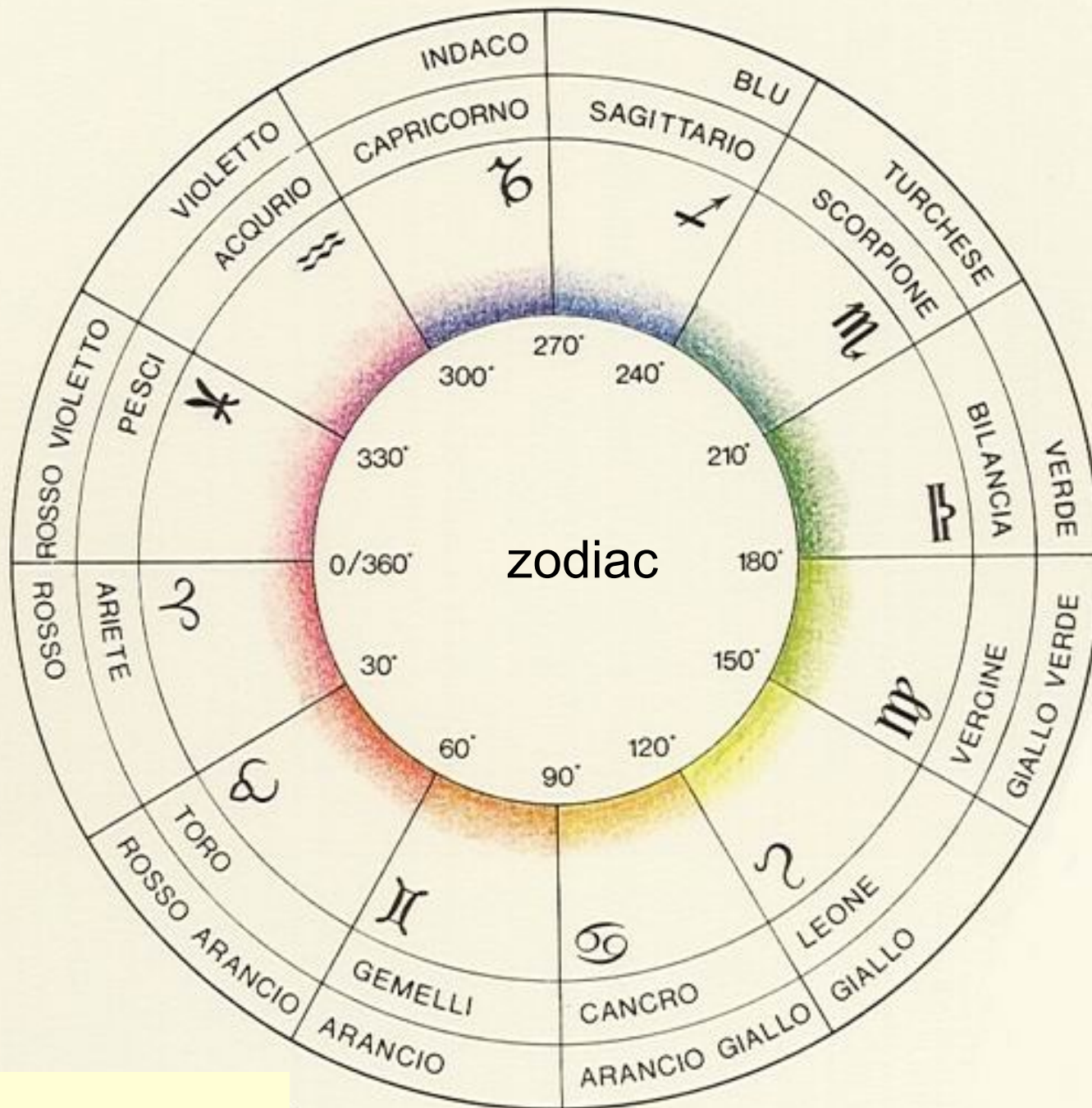
Blue ultramarine
from Afghanistan
was more
expensive than
gold



Japanese prints

background versus
foreground





Hoc est corpus humanum
quod est in terra et in
aerem et in ignem et in
aquam et in omnia.

Tunc est corpus humanum
quod est in terra et in
aerem et in ignem et in
aquam et in omnia.



Corpus humanum
quod est in terra et in
aerem et in ignem et in
aquam et in omnia.

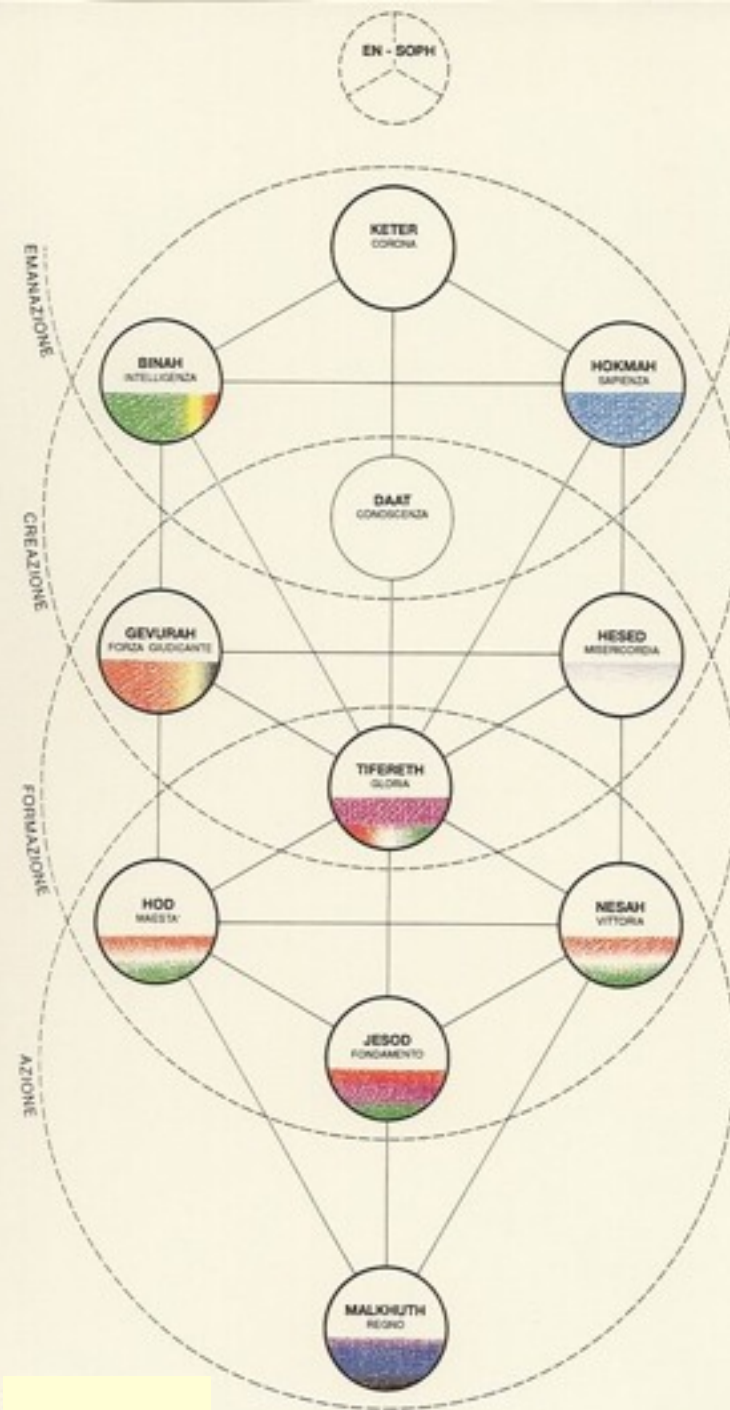
Corpus humanum
quod est in terra et in
aerem et in ignem et in
aquam et in omnia.

Emanation

Creation

Formation

Action



colour as symbol

Byzantine
Icons (eikon = image),

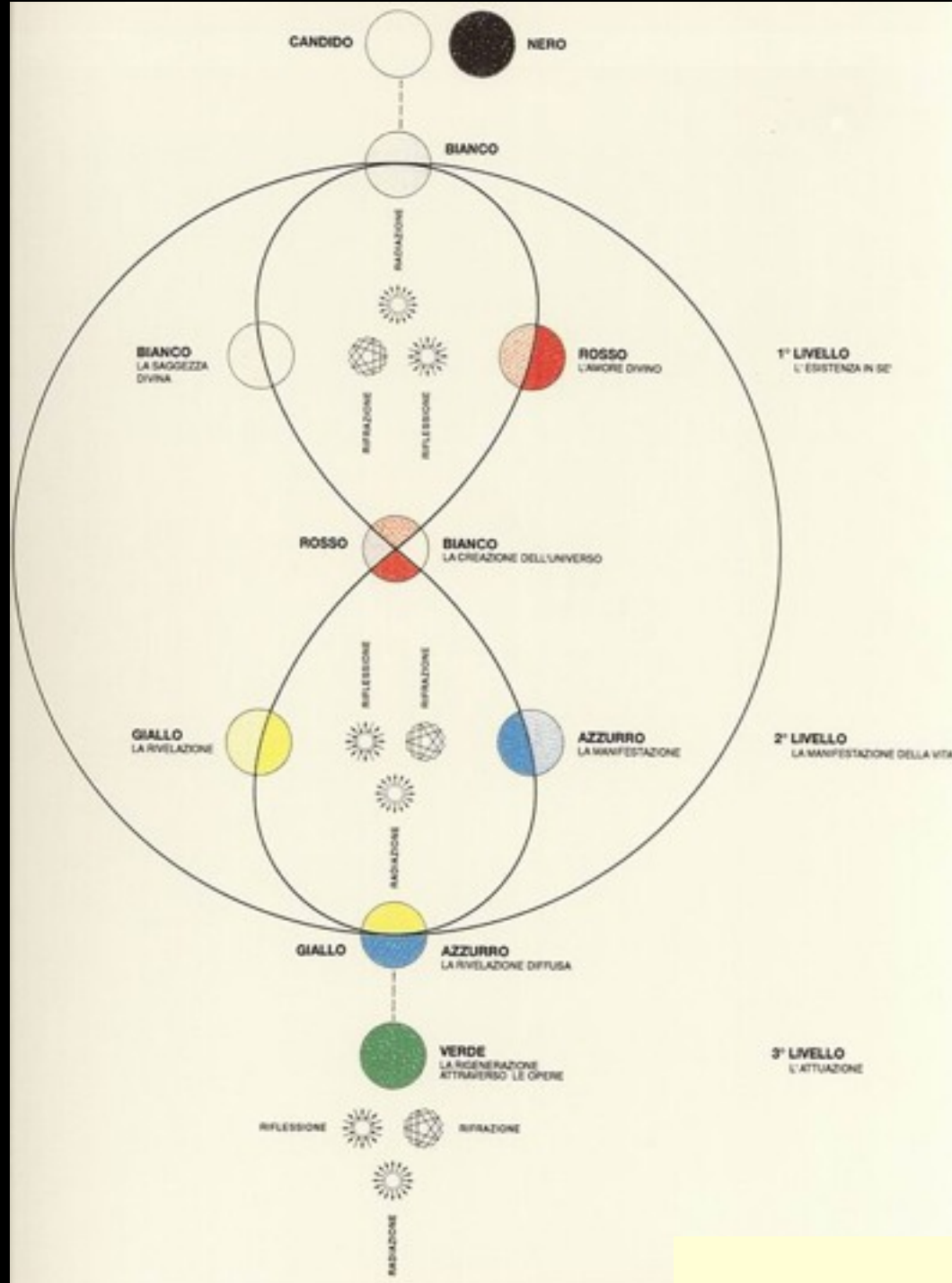
hierarchical colour harmony

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

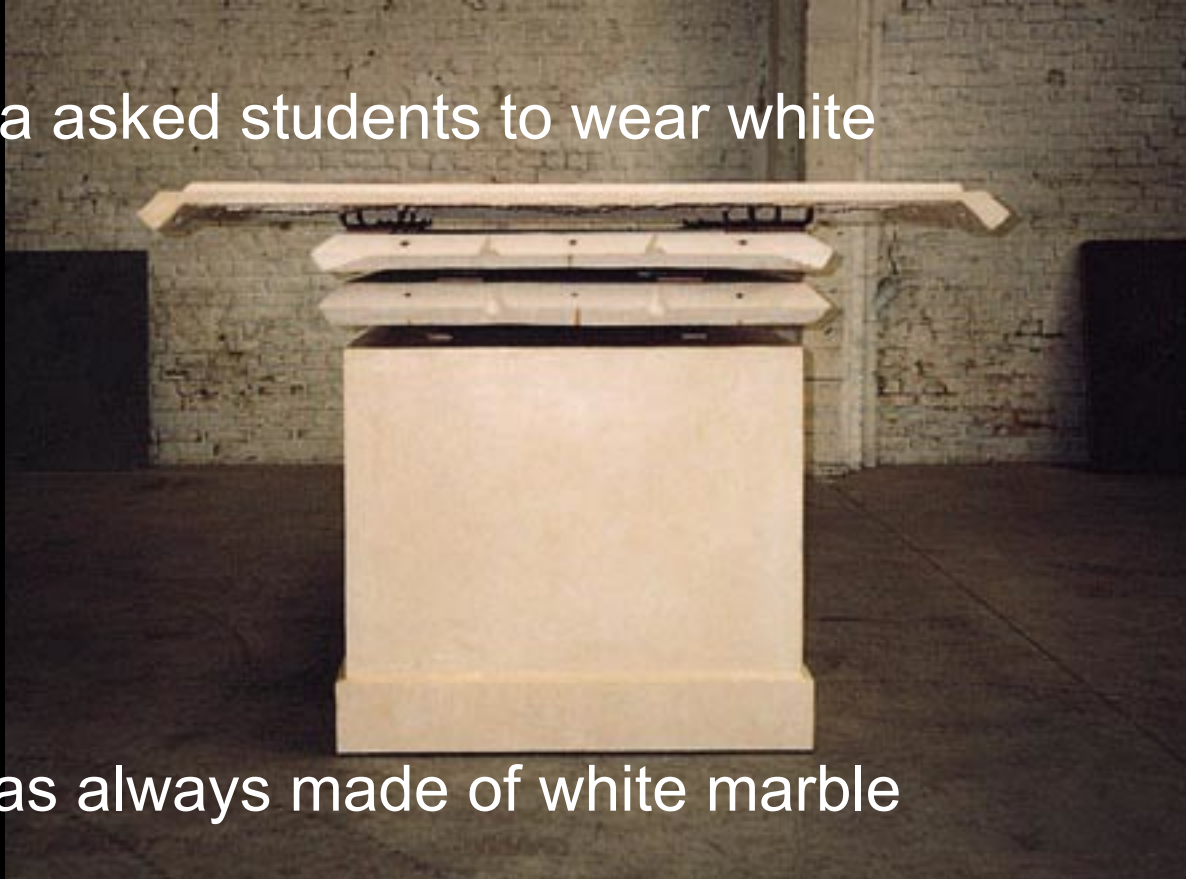


colours of the old world

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

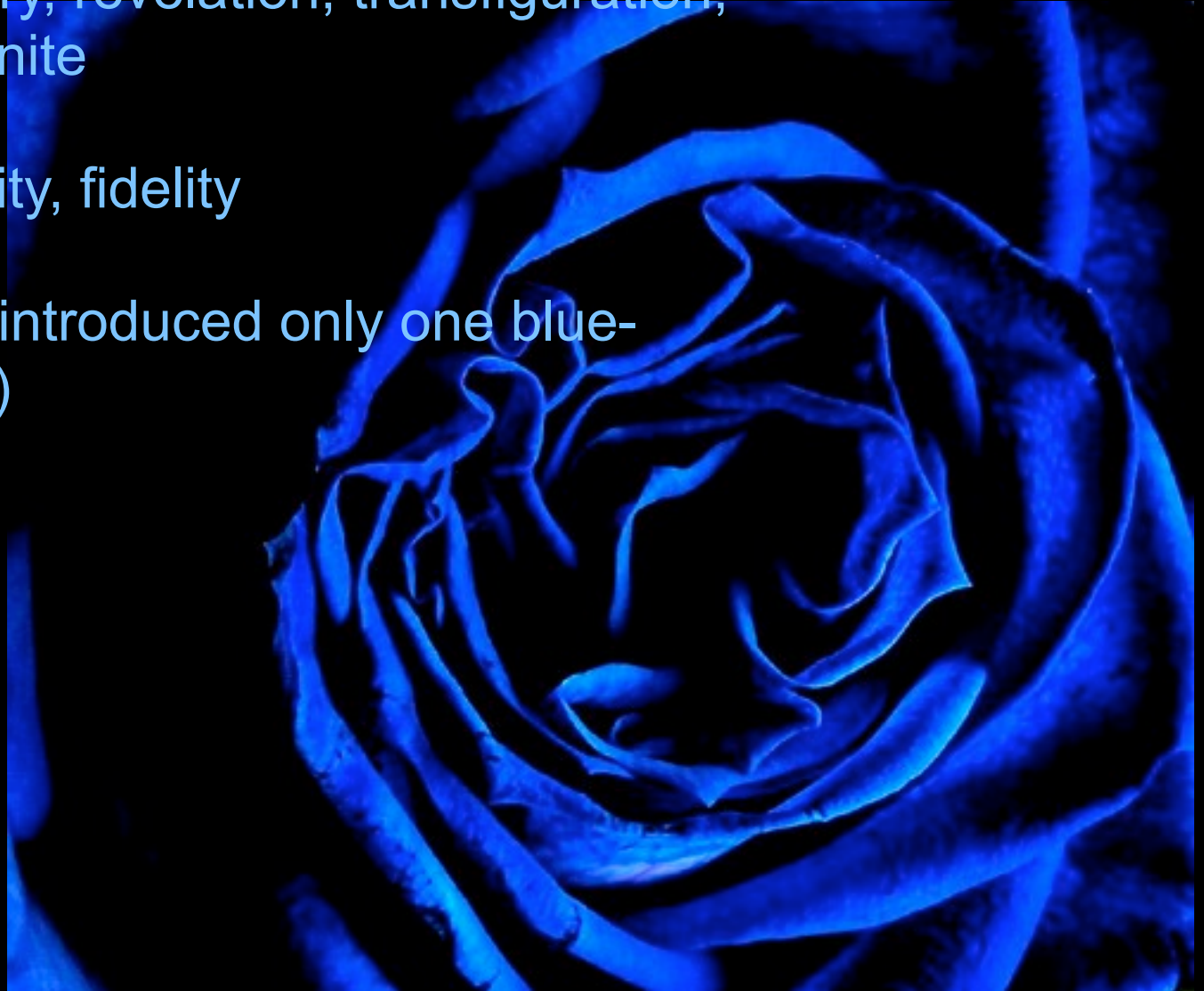
White is luminous & pure Divine light

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

controversial, cold and warm at the same time

Important, rich, affinity with death

mixed with magic, religious, dignity

Kings vests (expensive origin)



GREEN

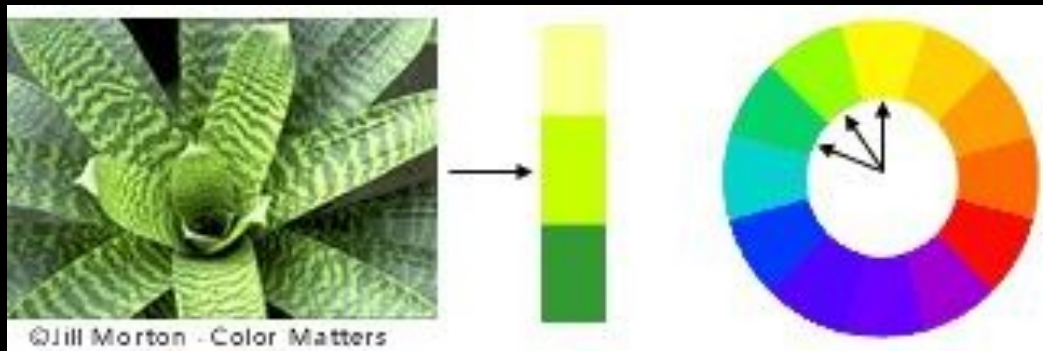
Greek “chloros”

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

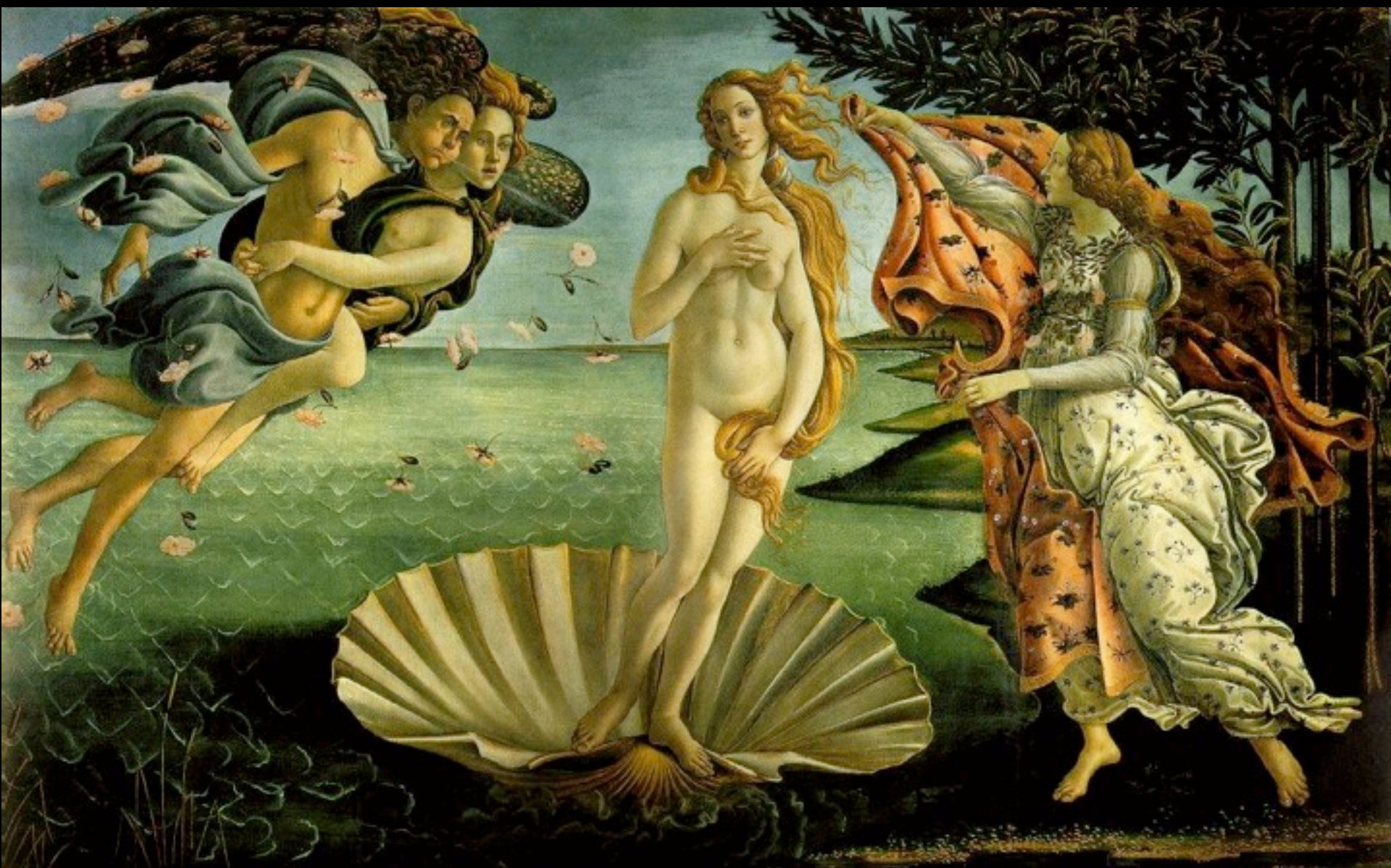
Archaic Greece: gold as the only yellow (light itself)

lemon yellow: sadness, gossip

Gold: Amon Ra (Sun),

Helios (divine light)





Botticelli: colour as transcendent between symbol and real

Renaissance



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

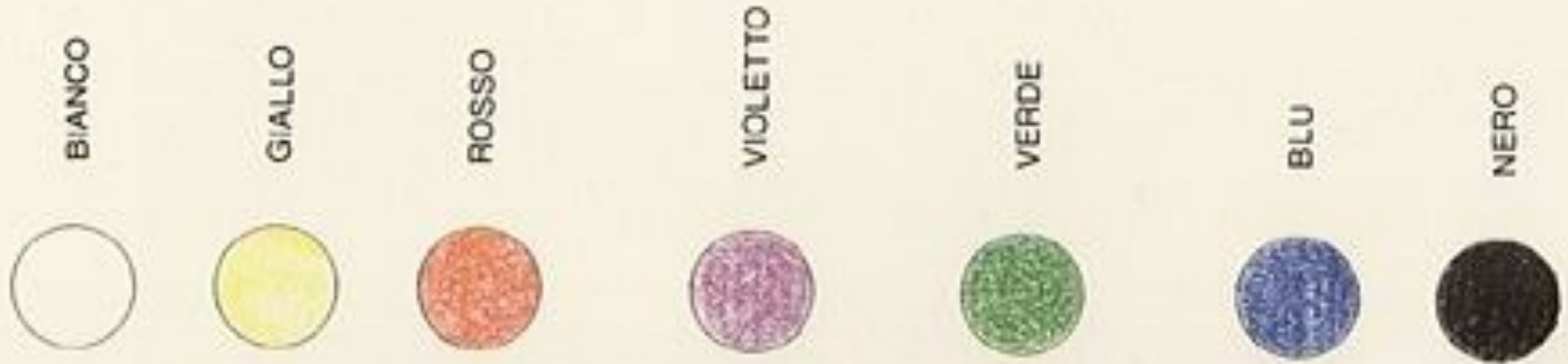


morning

noon

evening

night



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)

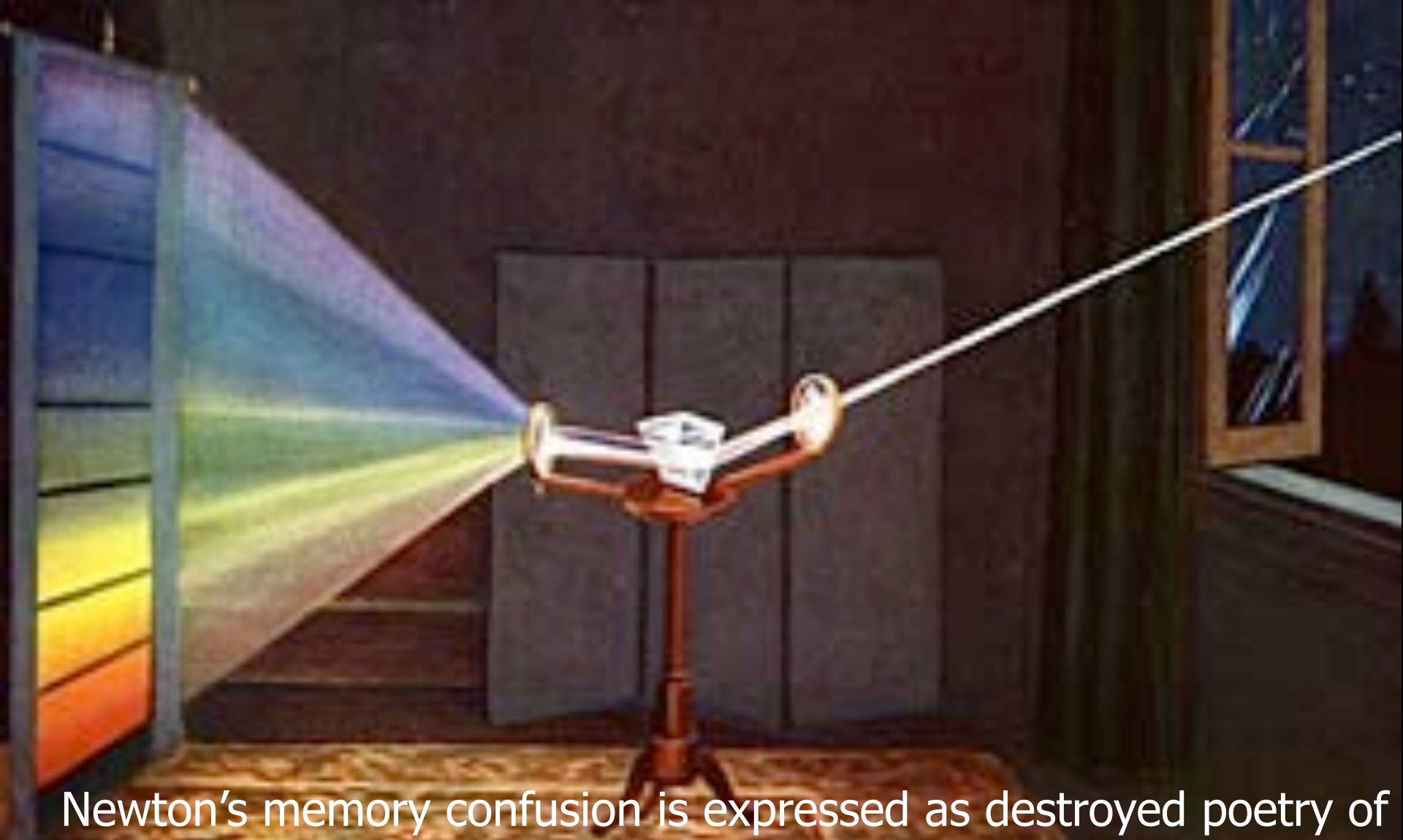


Delacroix worked out his colour schemes prior to painting, often years before. Commonly he used the greatest tonal contrast when colour was diminished, and vice versa (i.e. using strong colour contrast when tones were equal).



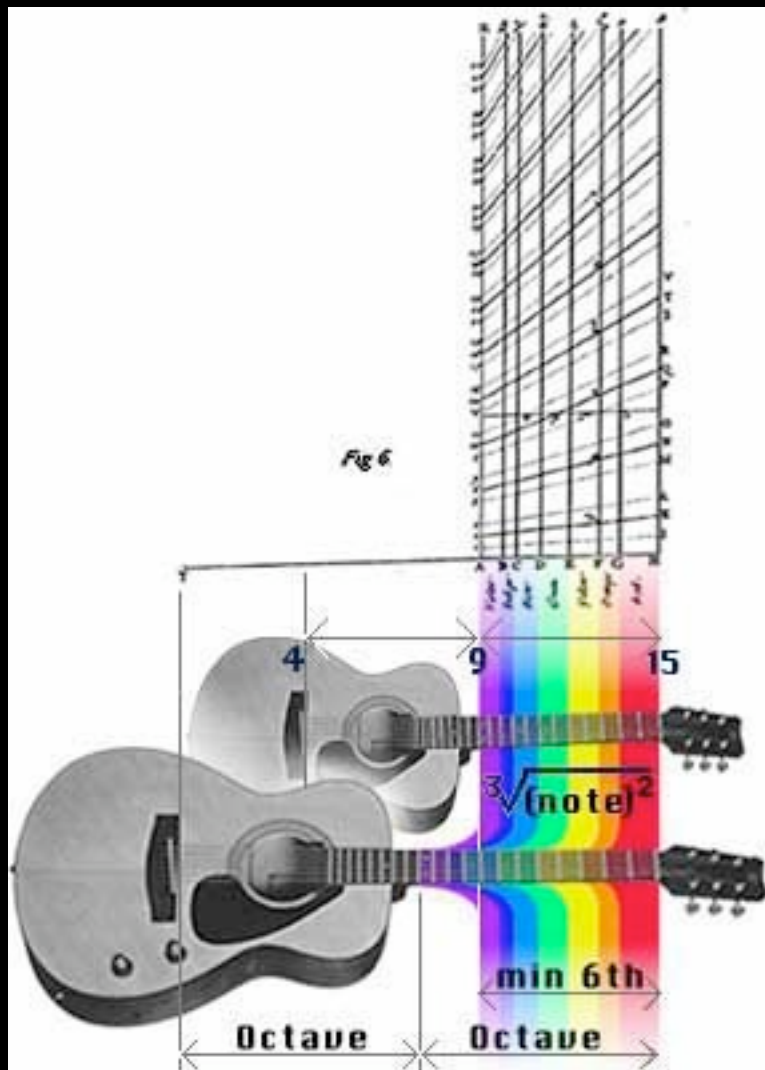
Goya: May 3rd: beginning of revolutions
(gunfire)

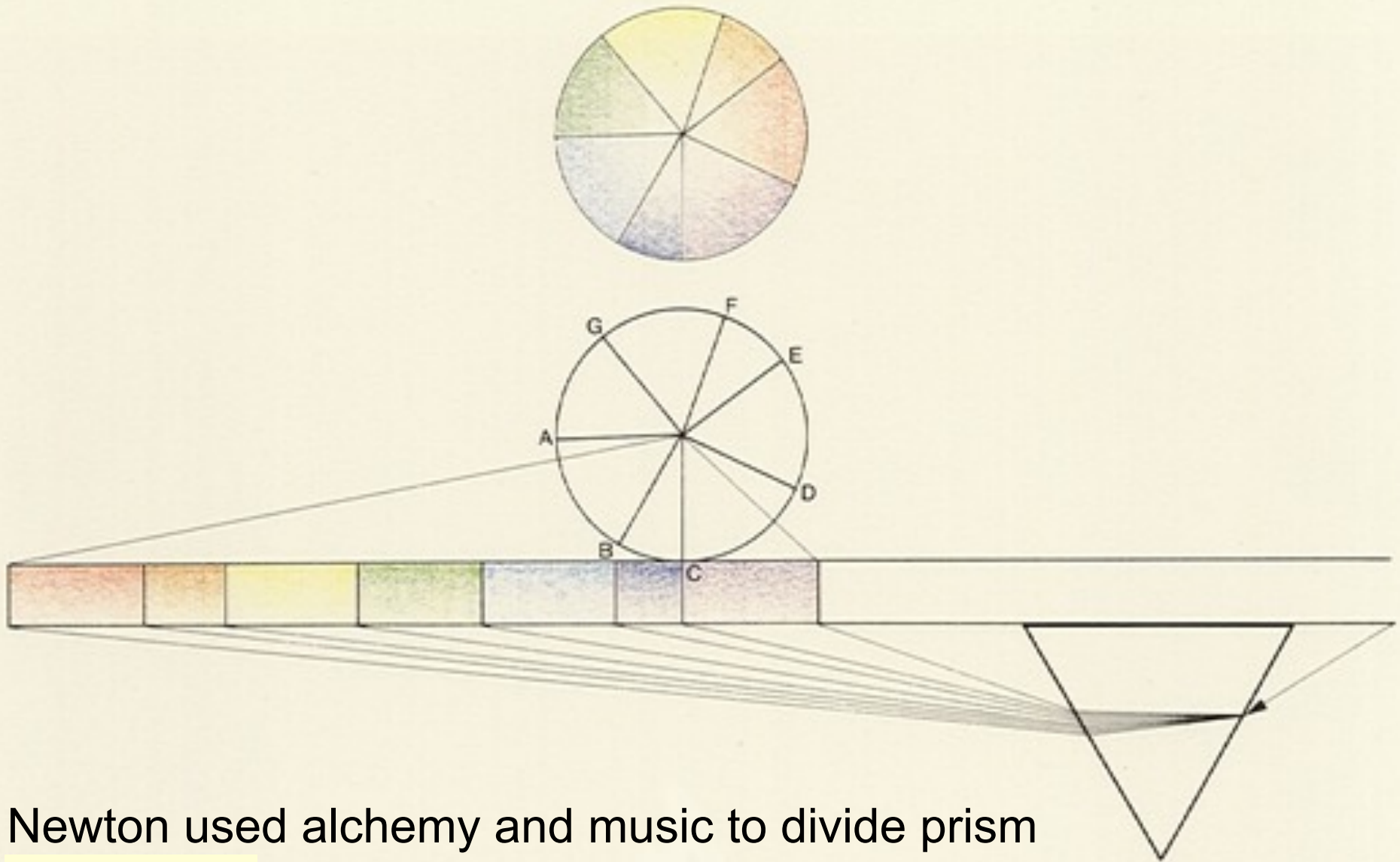




Newton's memory confusion is expressed as destroyed poetry of the rainbow. He made his private rainbow in a dark room. The souls of 500 Isaac Newtons would go to the making of one Shakespeare. Bar codes in the stars

Richard Dawkins





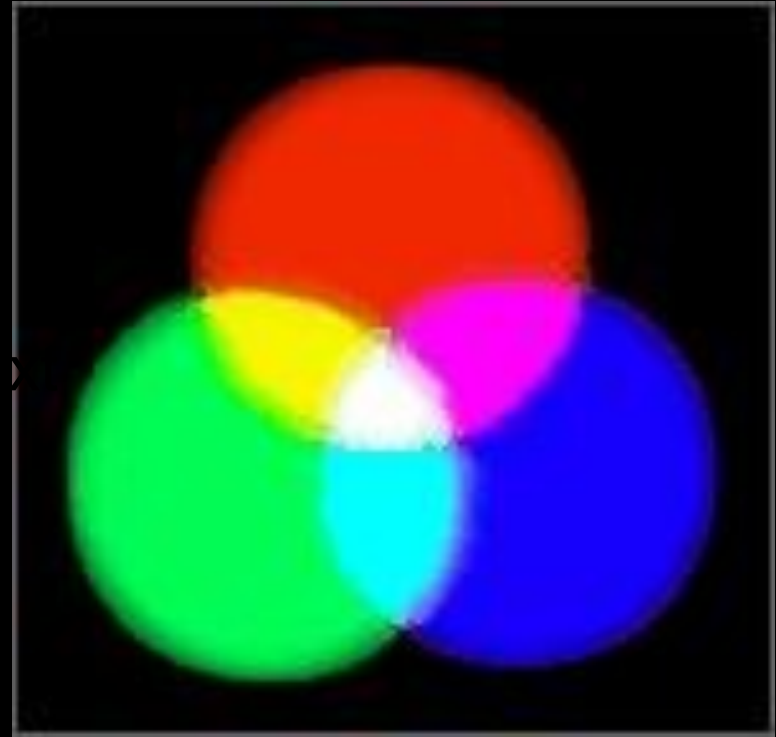
Newton used alchemy and music to divide prism

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.

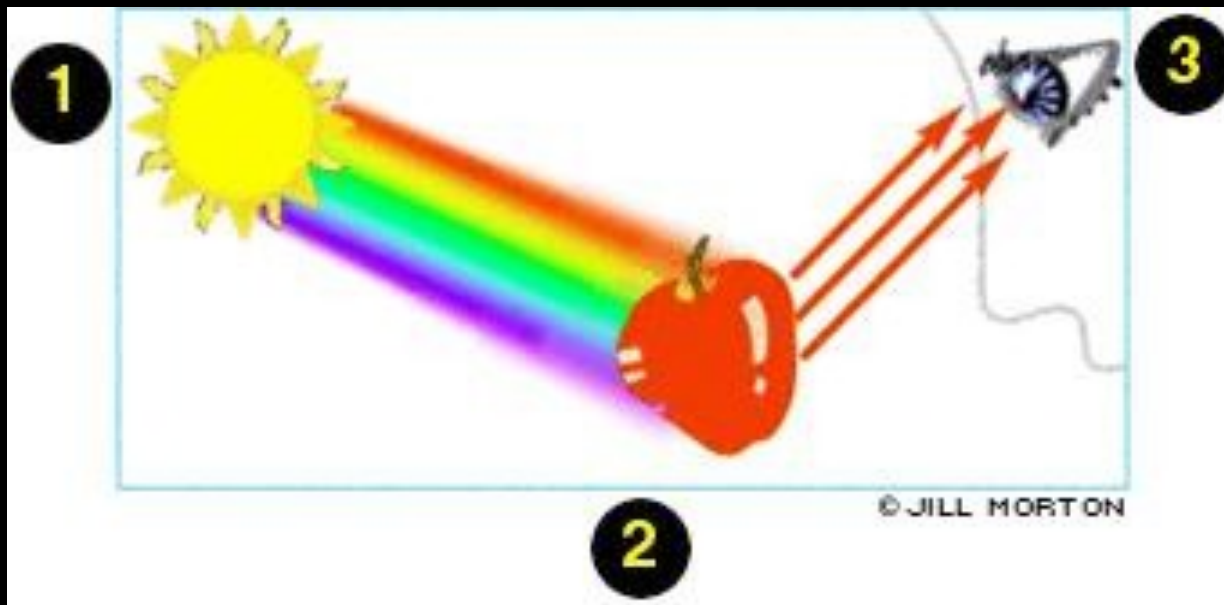
Thomas Young (1773-1829) discovered that by combining just three of the seven colours; red, indigo and green; the result was white light. From these experiments, these three colours were considered primaries.

ADDITIVE theory uses
light as pure colour

Many scientists
damaged their eyes
permanently while
observing the
afterimages of the sun.



This is “REALITY”?



Allergic to any relapse into magic, art is part and parcel of disenchantment of the world. (Adorno)

Obsolete theory:

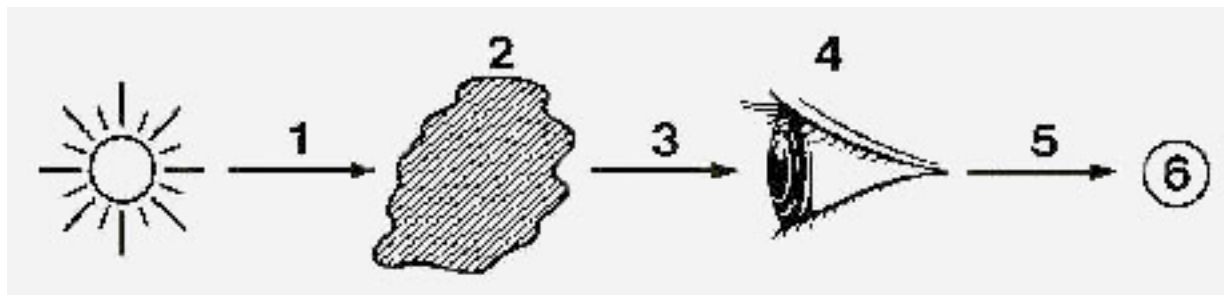
Chain of Action Between Light And Color Sensation

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**.

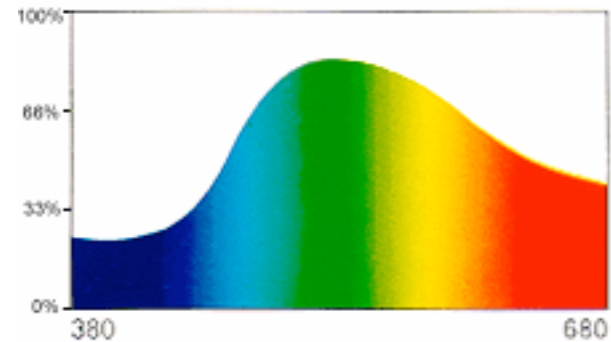
From these colorless data the **multicolored three-dimensional field of vision** is built as **consciousness** (6).



Theory on light “pollution”:
distorted, corrupted, changed, reflected...leftover.

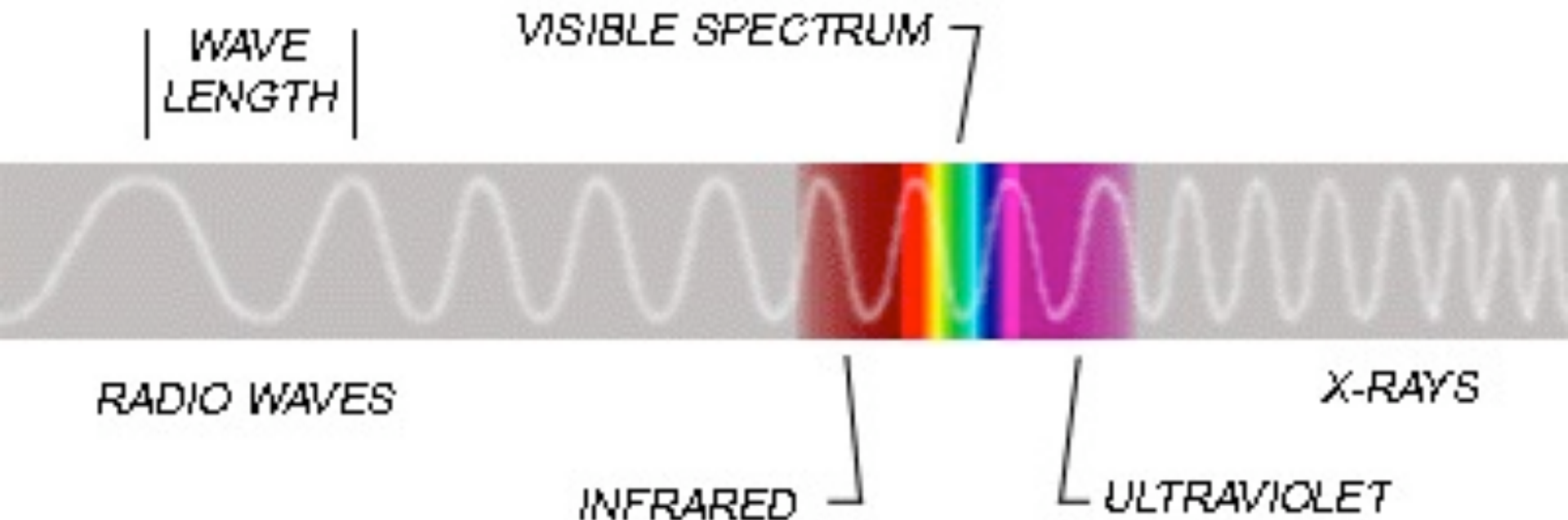


Incident sunlight on a green leaf.

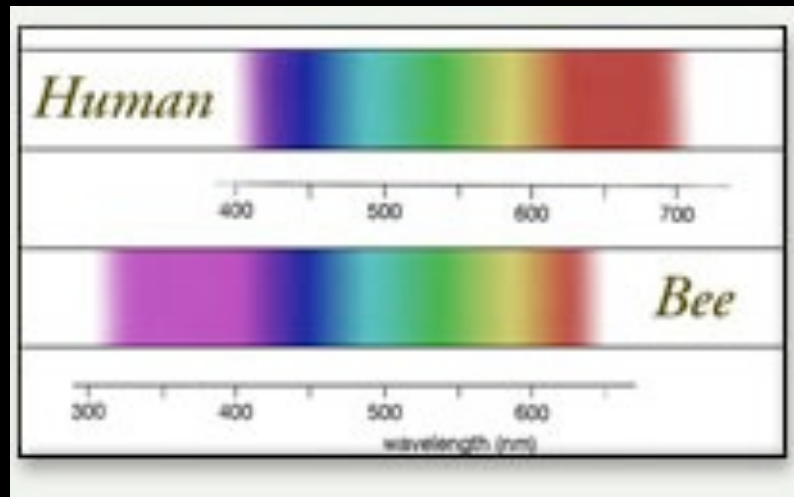


The reflected portion of light which enters the observer's eye as color stimulus.
The color stimulus is residual light.

We perceive ONE out of 69 octaves of “registered” frequencies



Bee see +

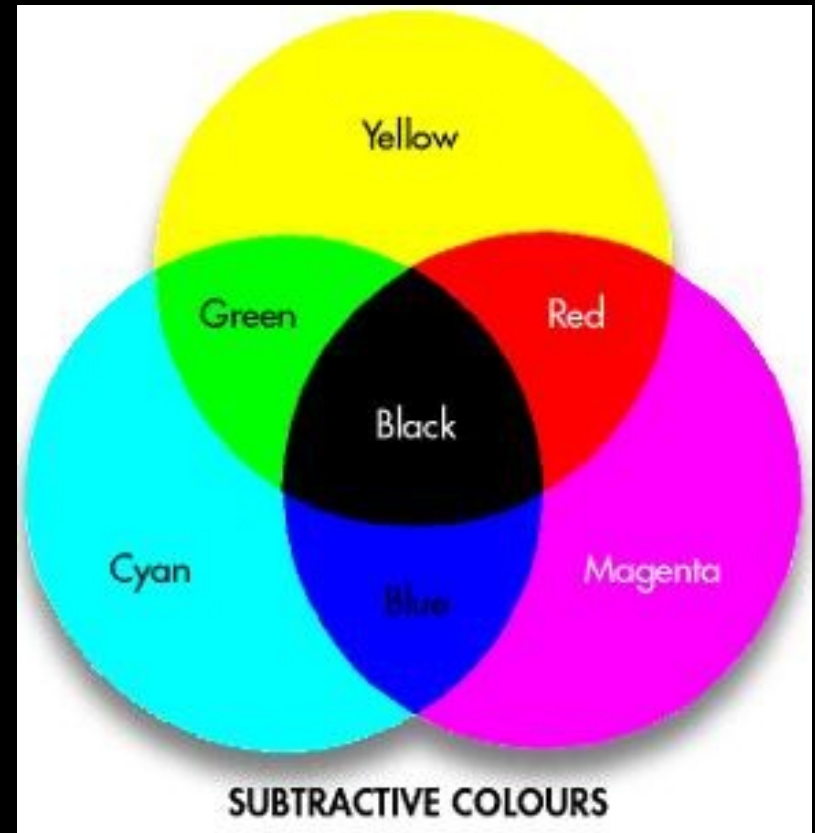






SUBTRACTIVE

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



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.





Goethe, 1810



lucid



reflective



serious



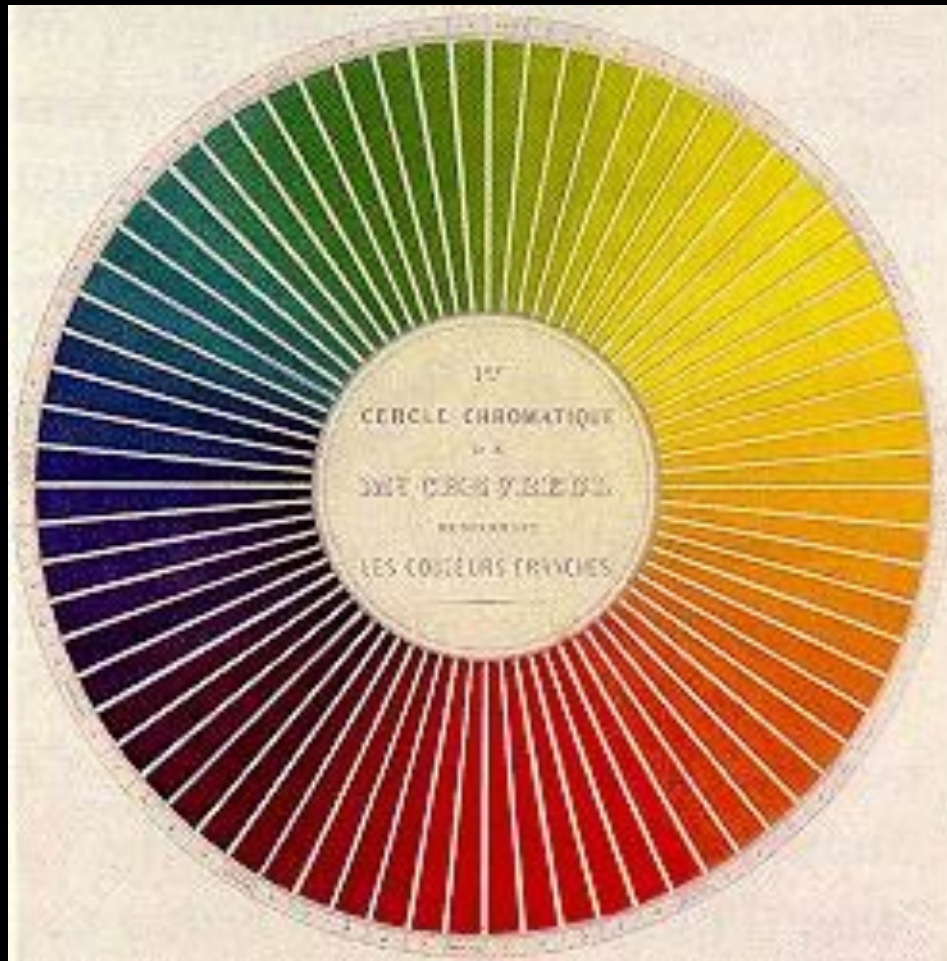
serene



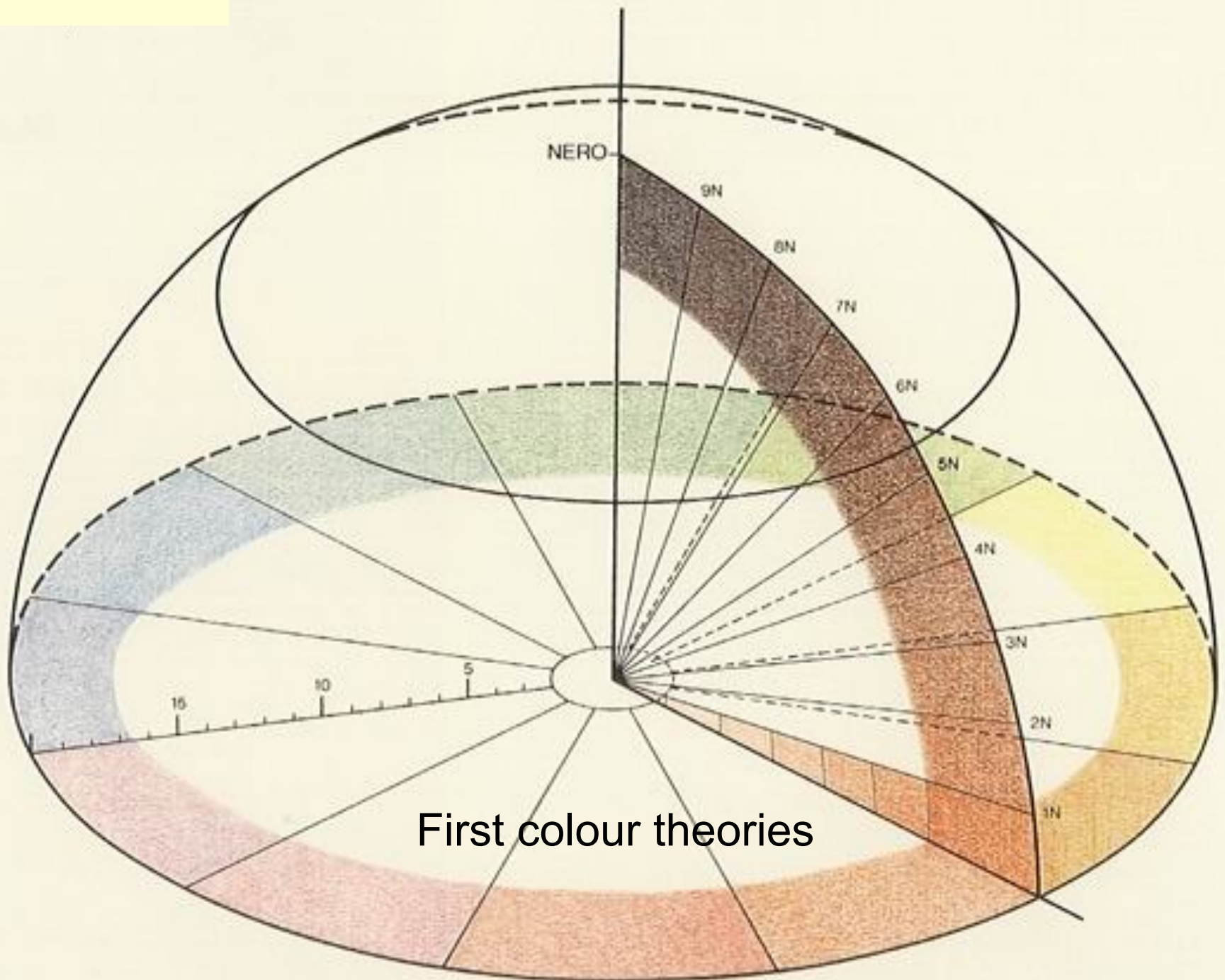
mighty



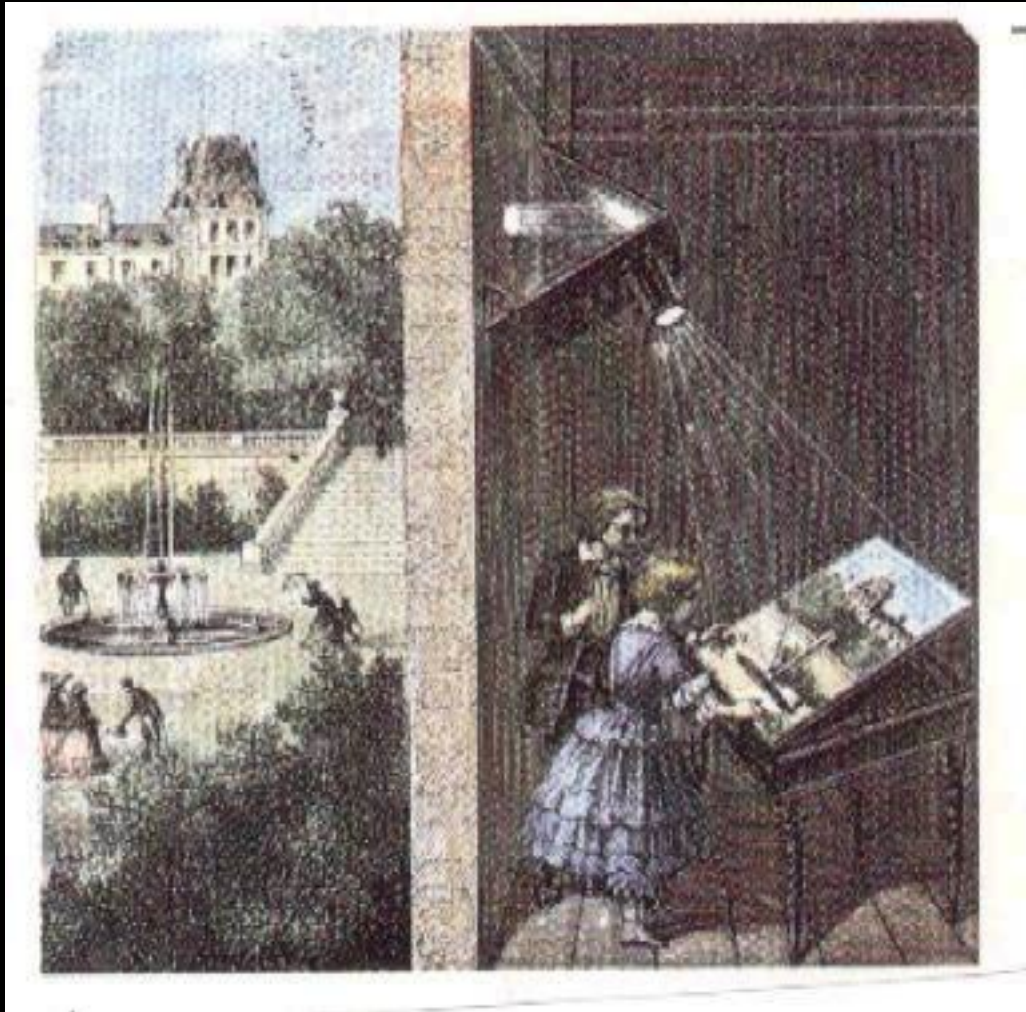
melancholic



Chevreul : 72 colours for tapestry + 14.400 chromatic tones
+ discovered simultaneous contrast used by impressionists

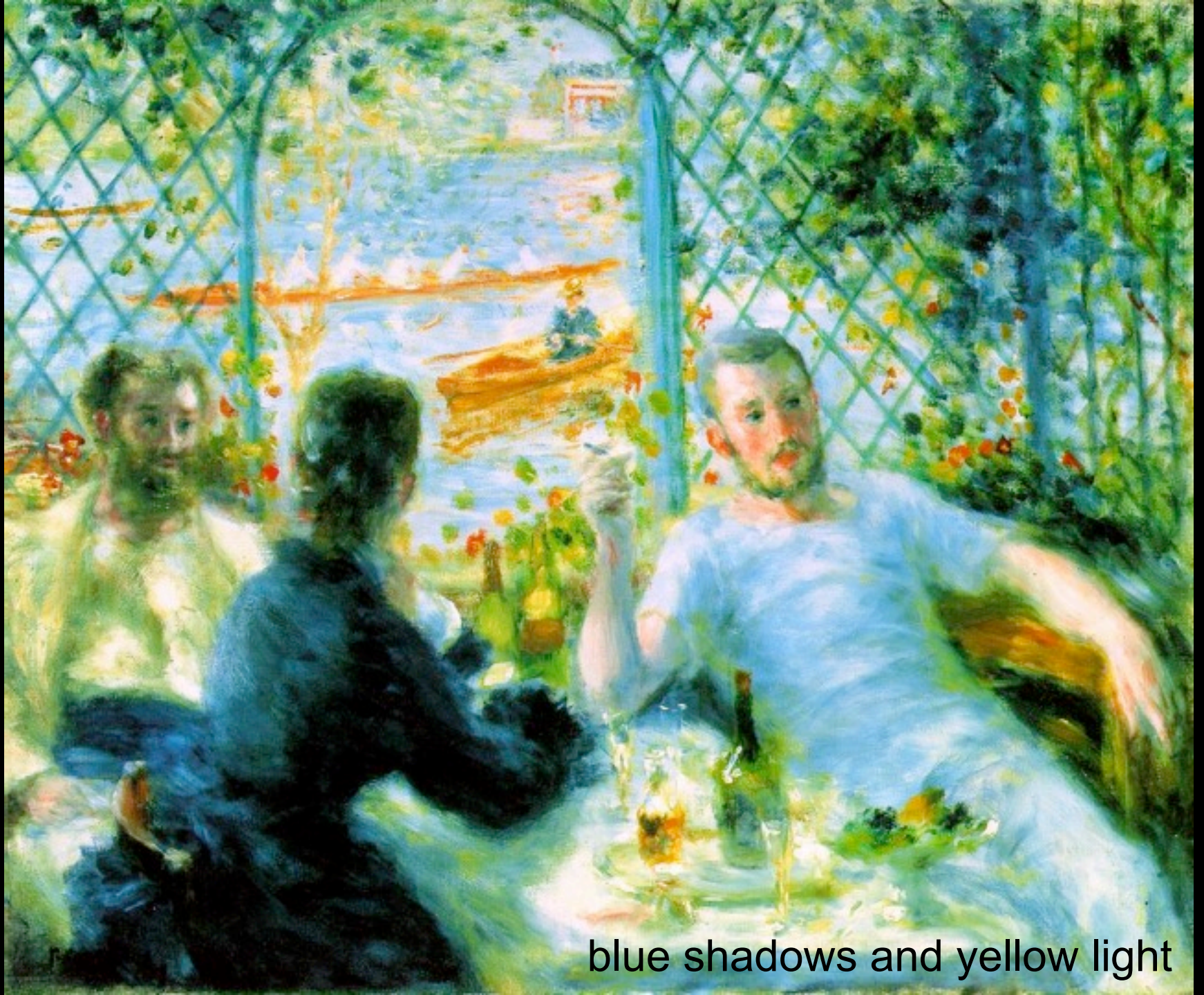


invention of photography (devils workshop)





Painting: moving away...Monet : capturing the drops of light



blue shadows and yellow light



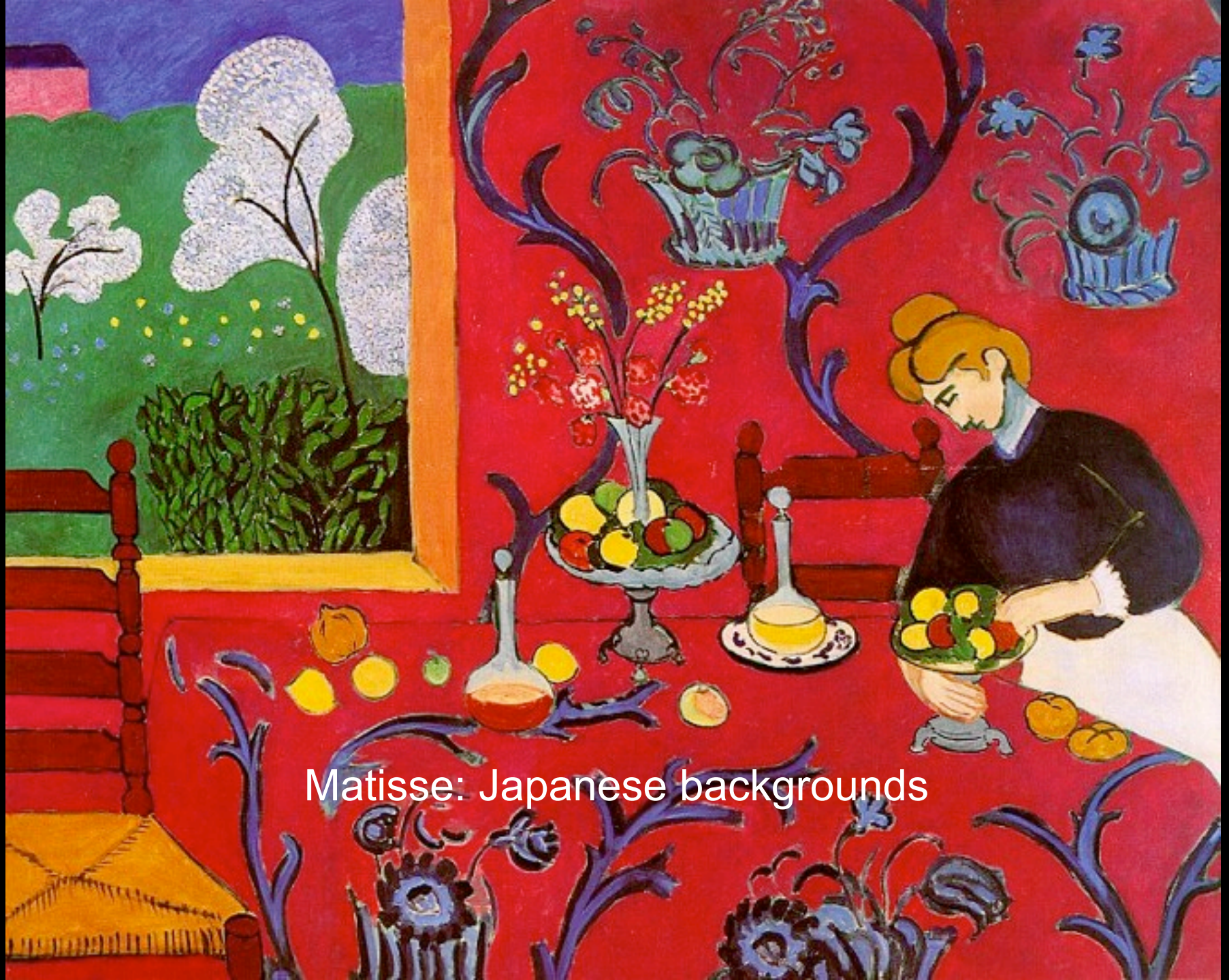
new light sources

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.





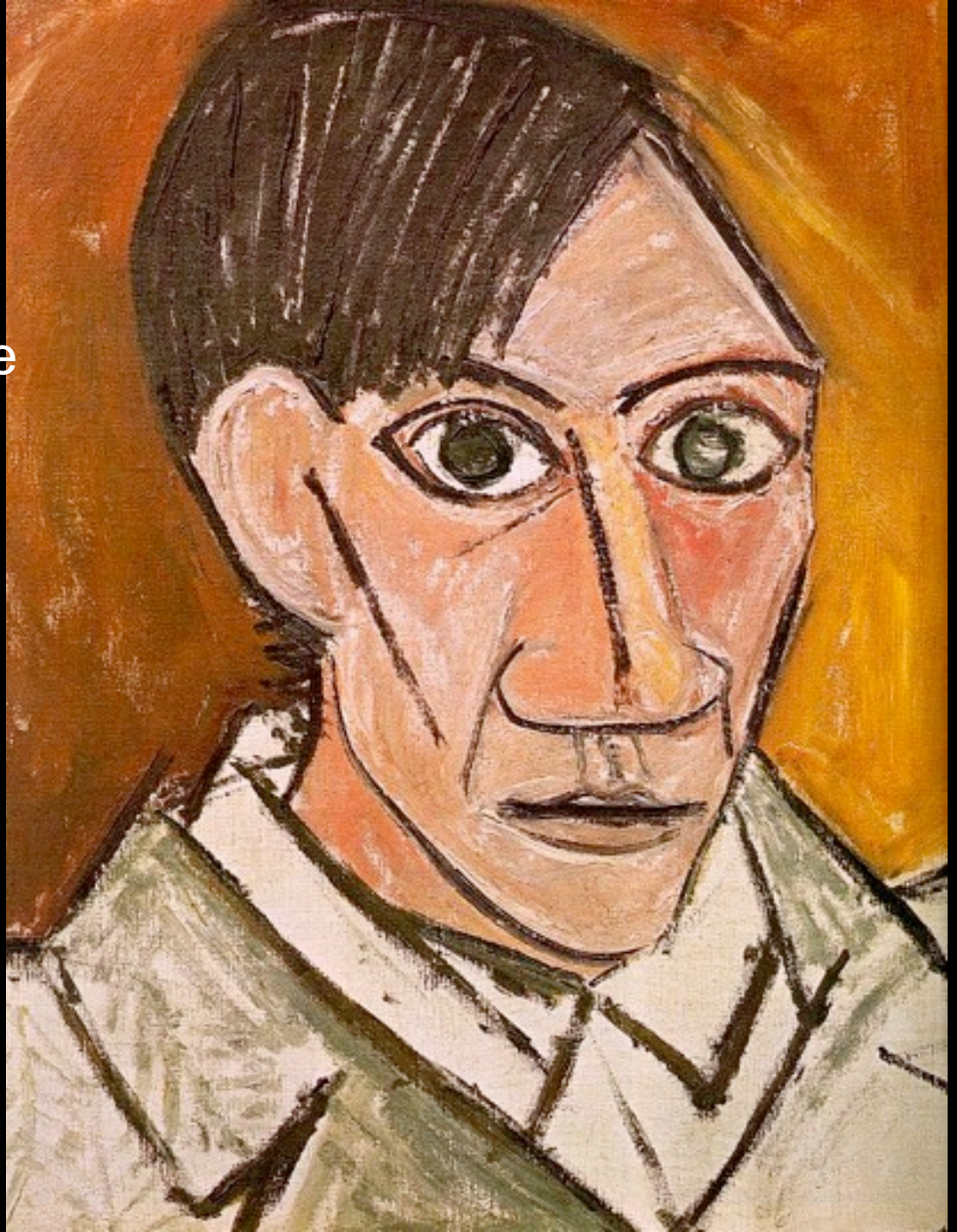
Matisse: Japanese backgrounds

Seurat and the Pointillists distinguished between colours — direct reflected light, partially reflected/ absorbed light, local colour & ambient complementary colour

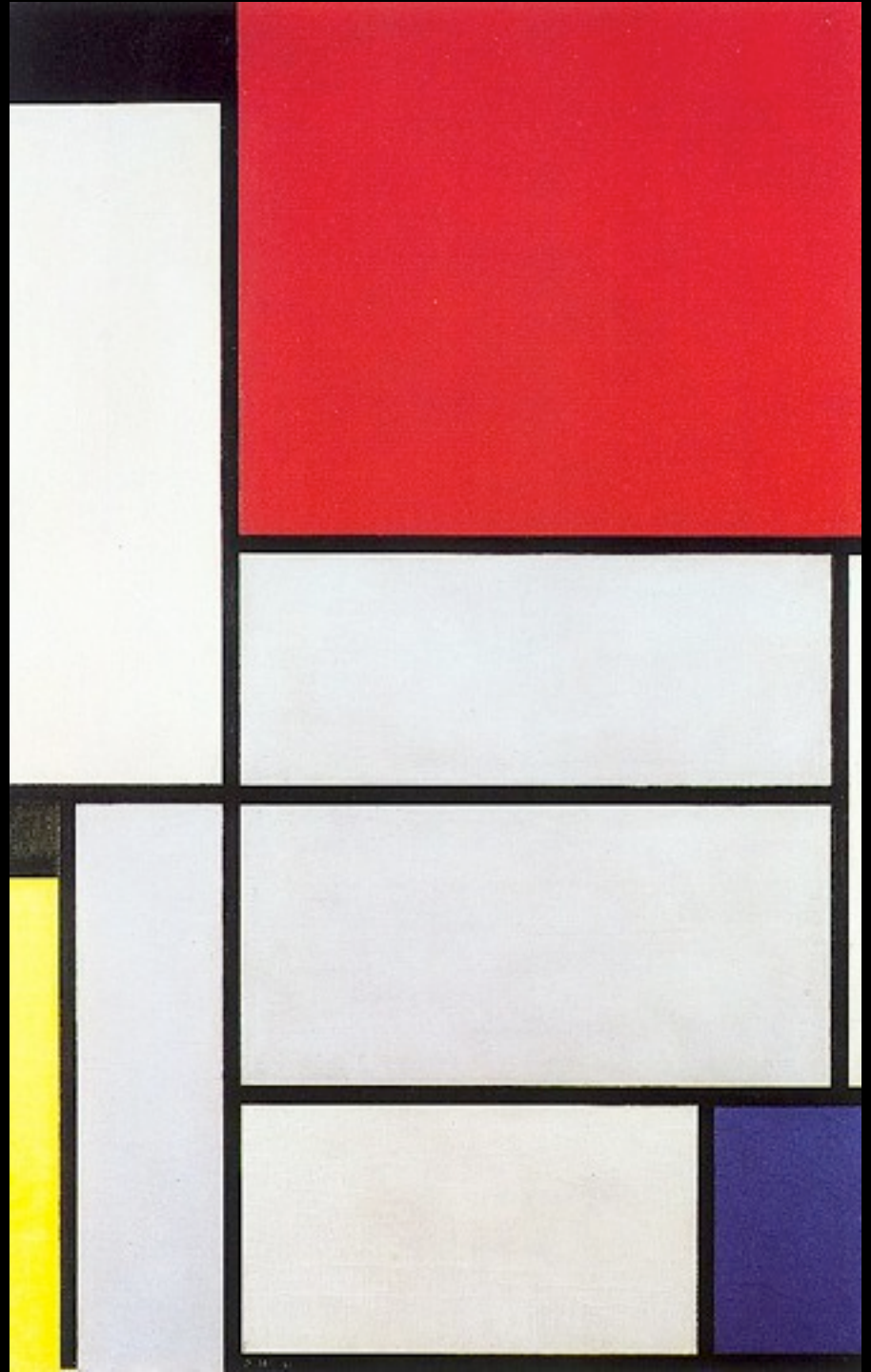


Picasso

Cubists used the simple shapes but opened up depth again by colour.

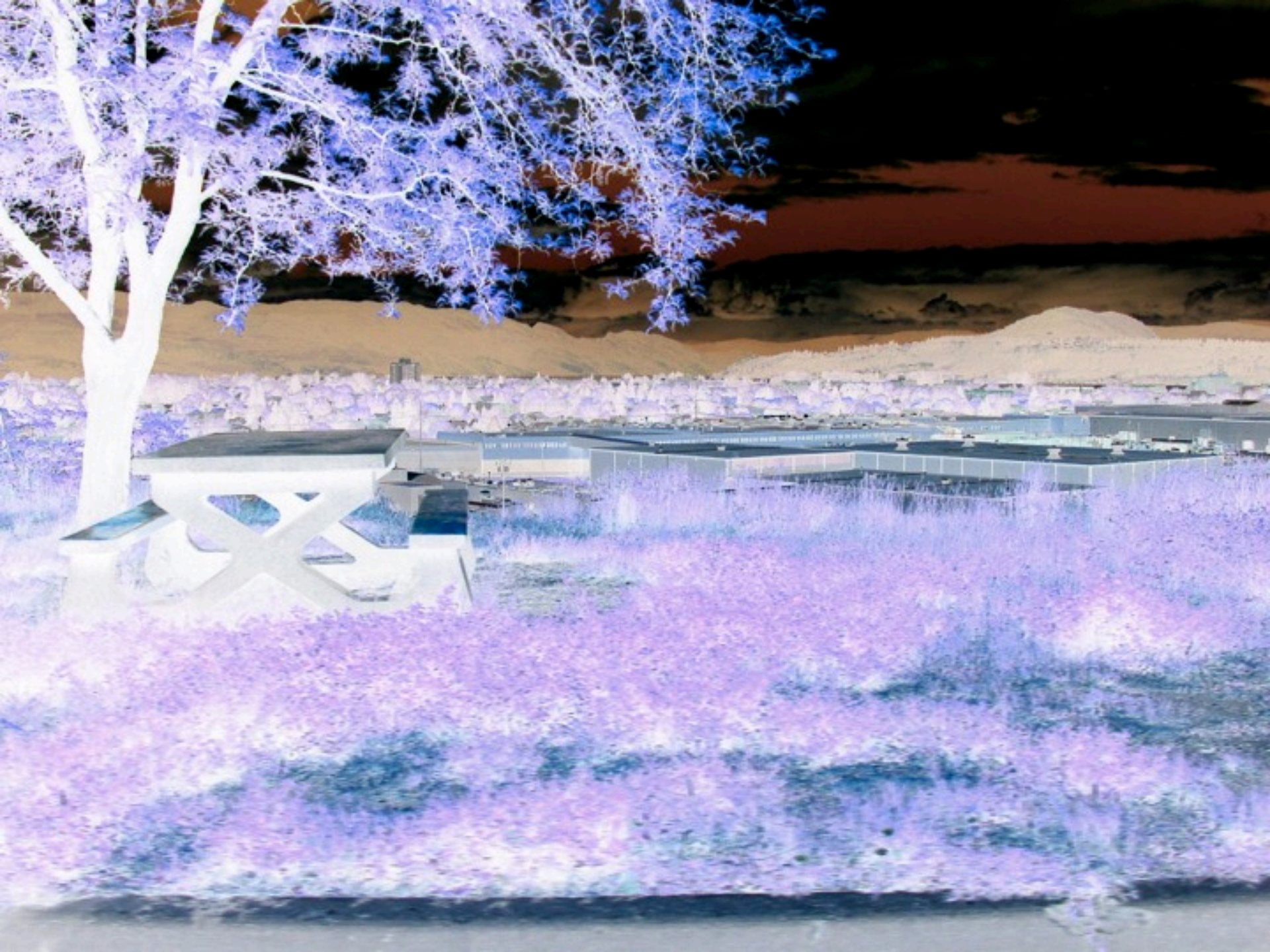


Mondrian: pure puritan

















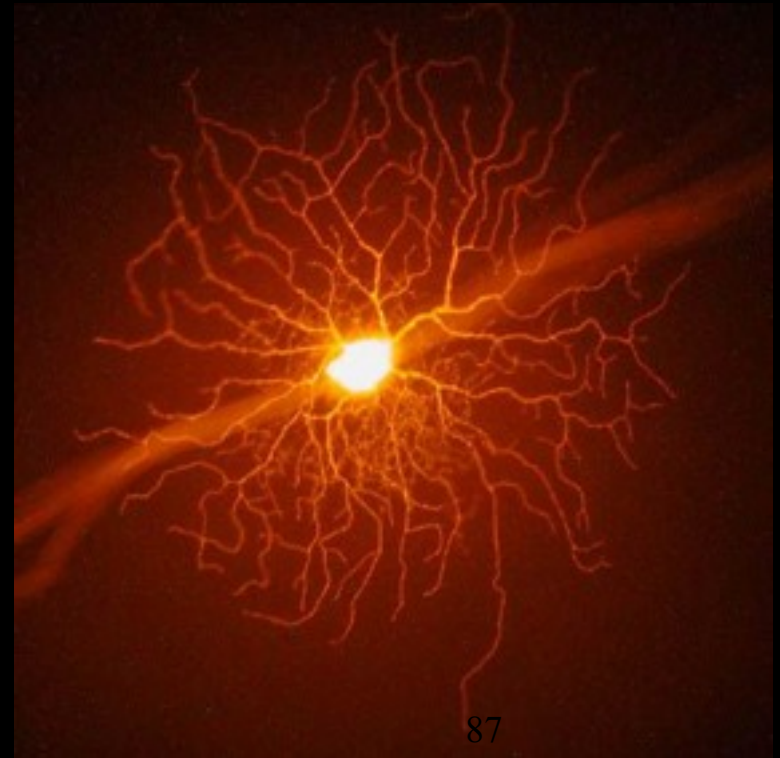


Franz Baader:

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)

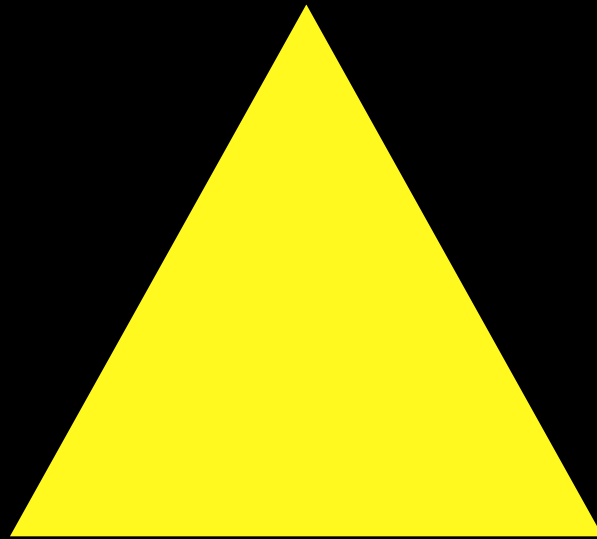
Sartre:

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

Derrida:

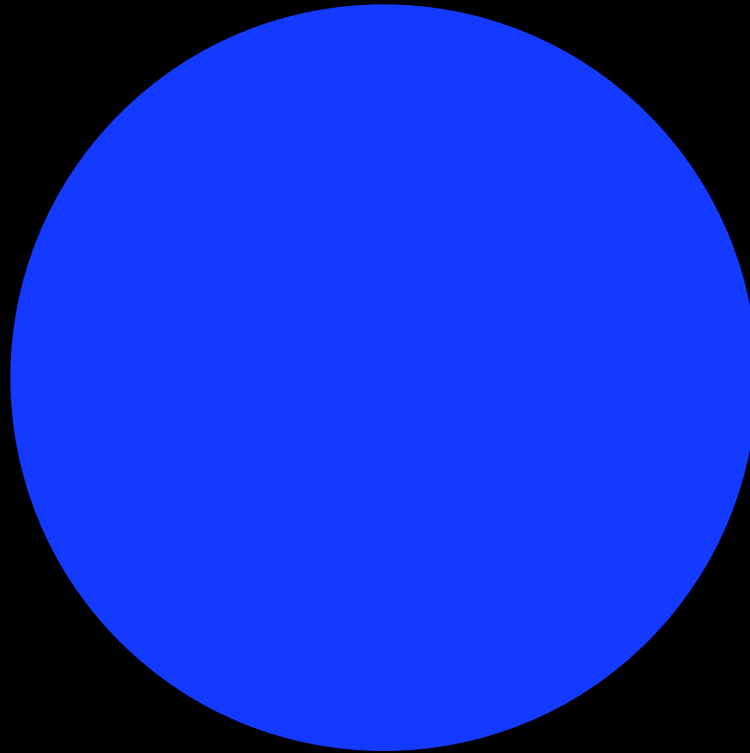
Colour still has not being named. The difference & spacing (difference et espacement) stabilizes dynamics of structural relations.

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

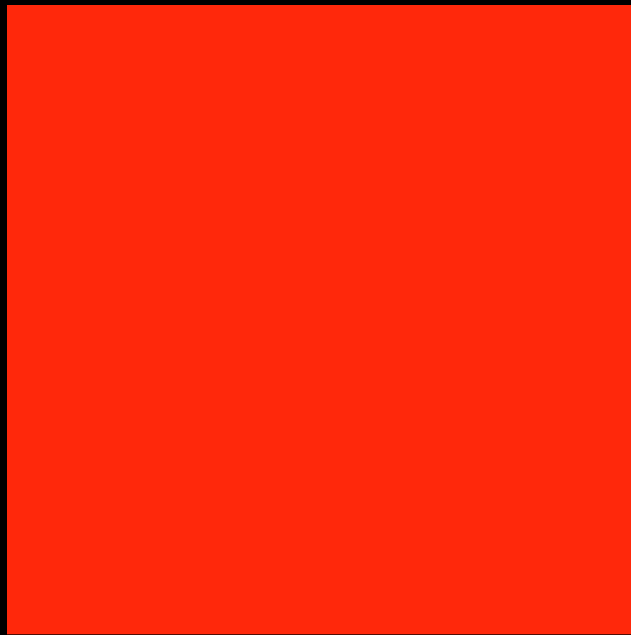


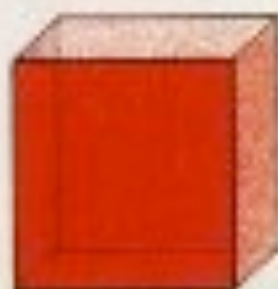
Kandinsky: Concerning the spiritual in art
(phenomenon of synaesthesia-
permutation of senses)

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

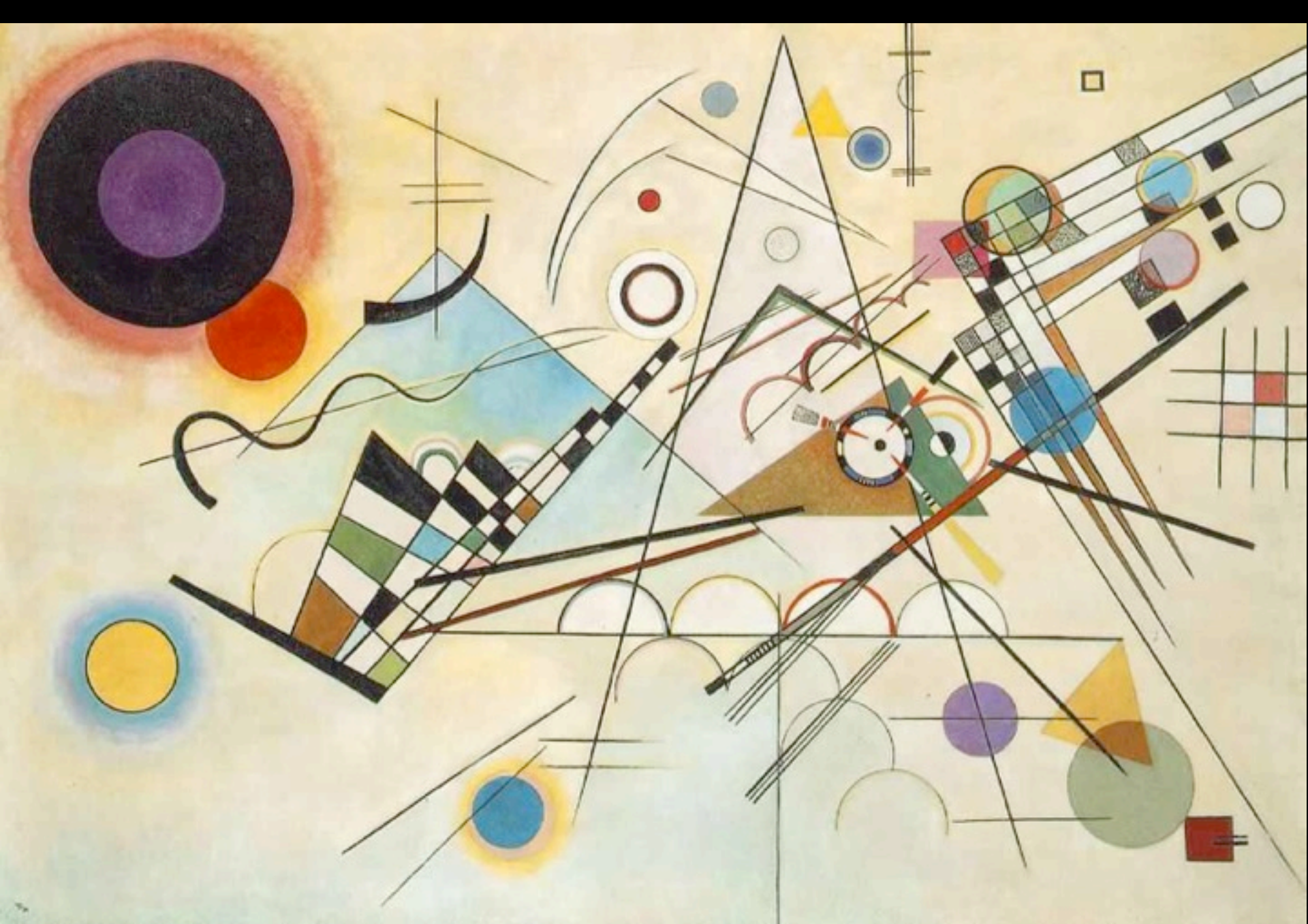


red= alive, restless, confidently striving towards a goal,
glowing, *manly maturity* Light warm red: strength, energy,
joy; vermillion: glowing passion, sure strength Light cold red:
youthful, pure joy, young *sound of a trumpet, strong, harsh*
Fanfare, Tuba deep notes on the cello high, clear violin





Erklärung: Die 3 Grundformen gelb, rot, blau verteilt auf die zugehörigen 3 Grundformen gelbes
 Flächeninhalten, Inhalt, quader, Kreis.
 Bezeichnet die räumlichen Formen, Tetraeder, Kugel, Kugel.



Painting as music

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.

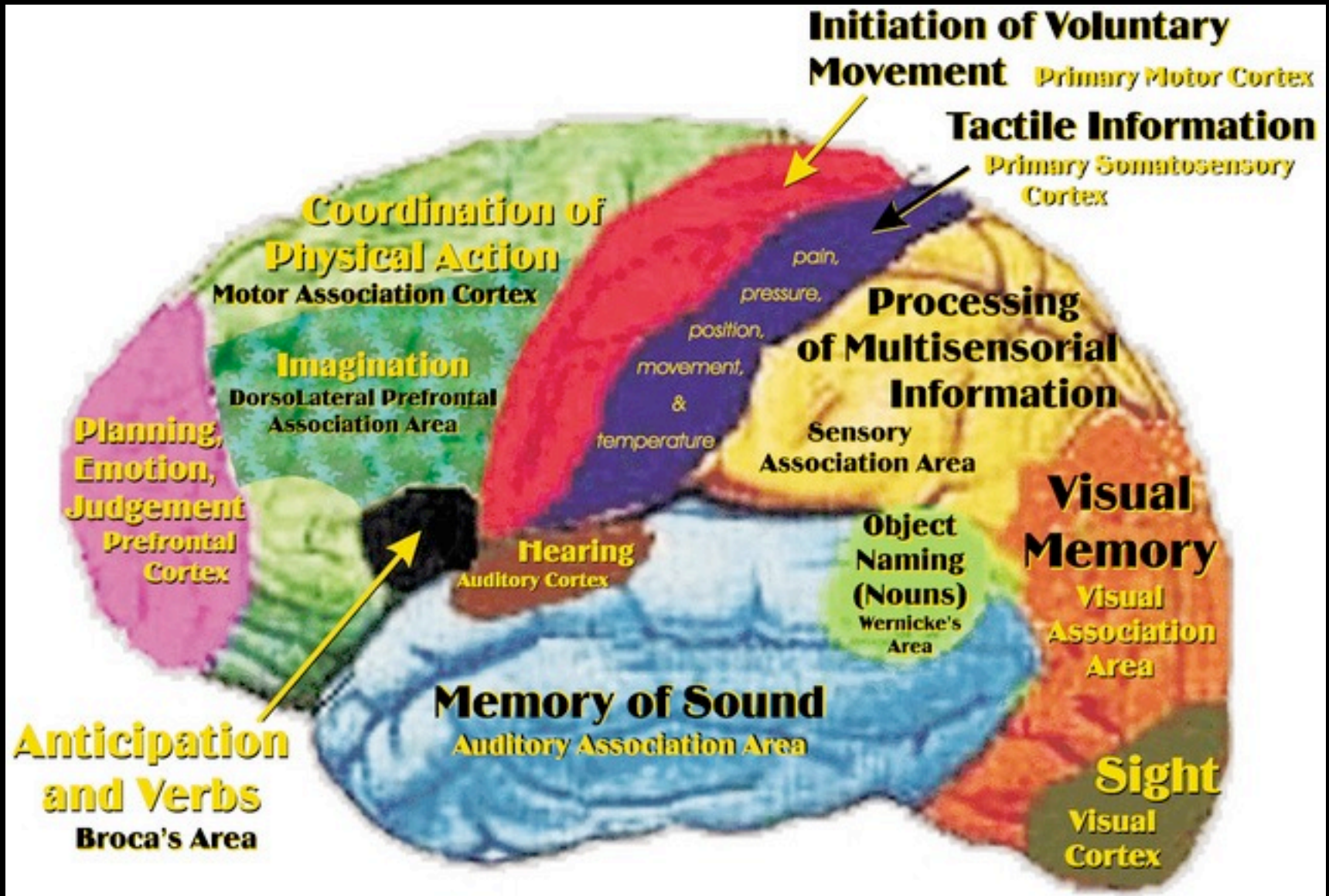


Colour today: CONSUMERISM + INFORMATION

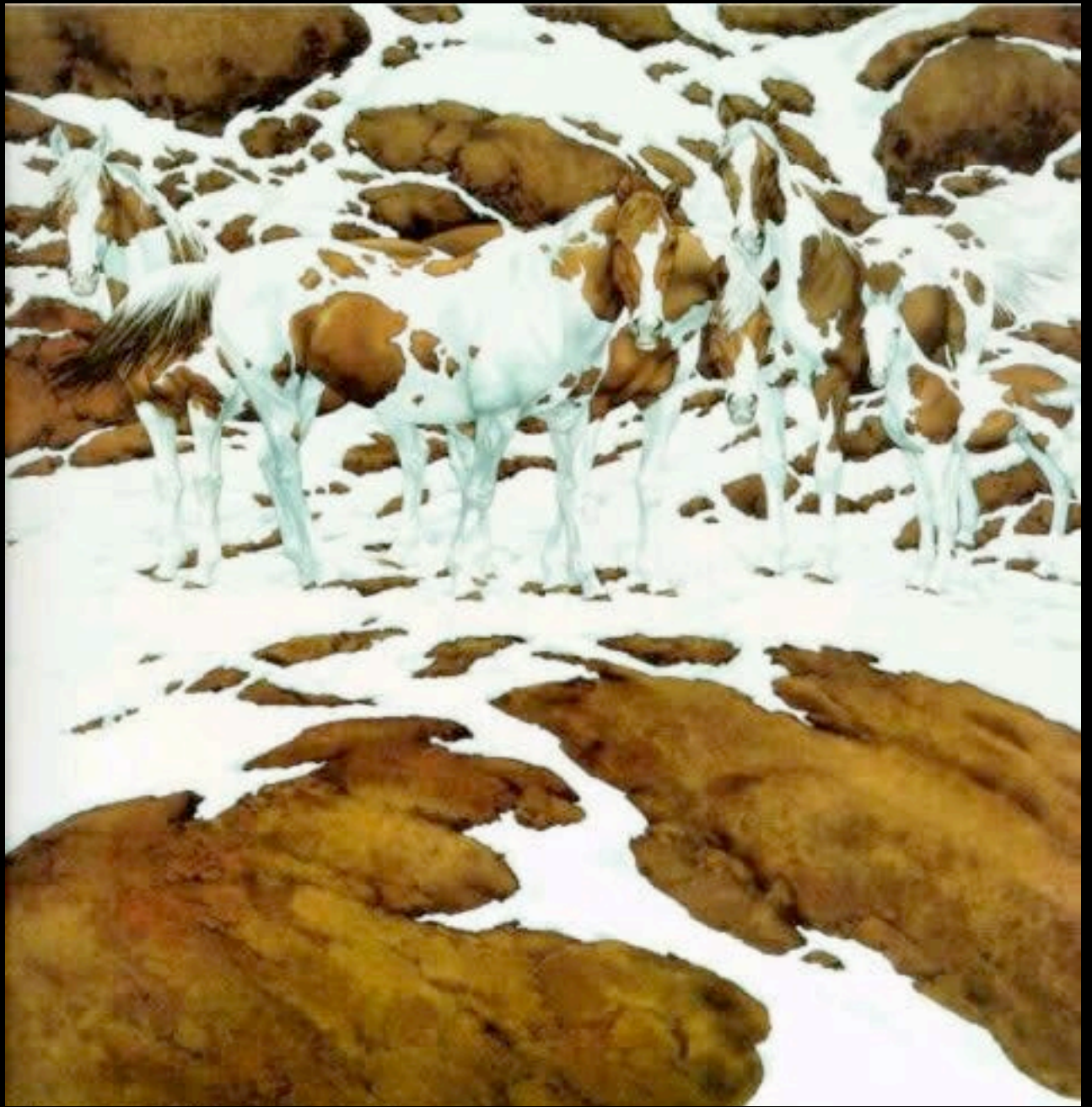
Bridget Riley:

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



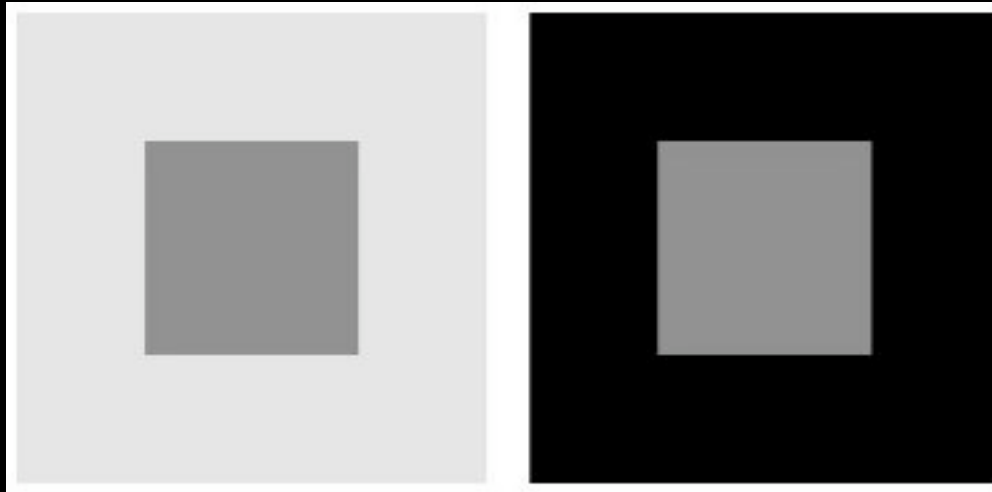
Trompe l'oeil =
trick the eye



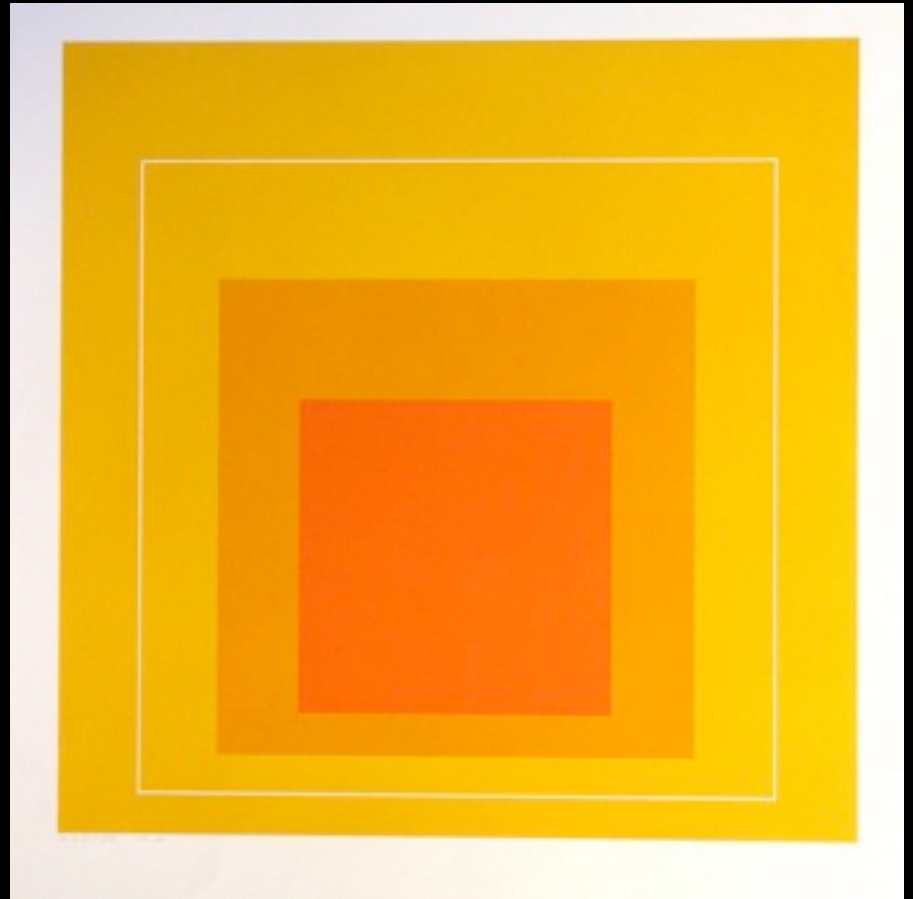
Kant: if we assume colours are vibrations of aether, they could be ranked as intrinsic beauties (as music)

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

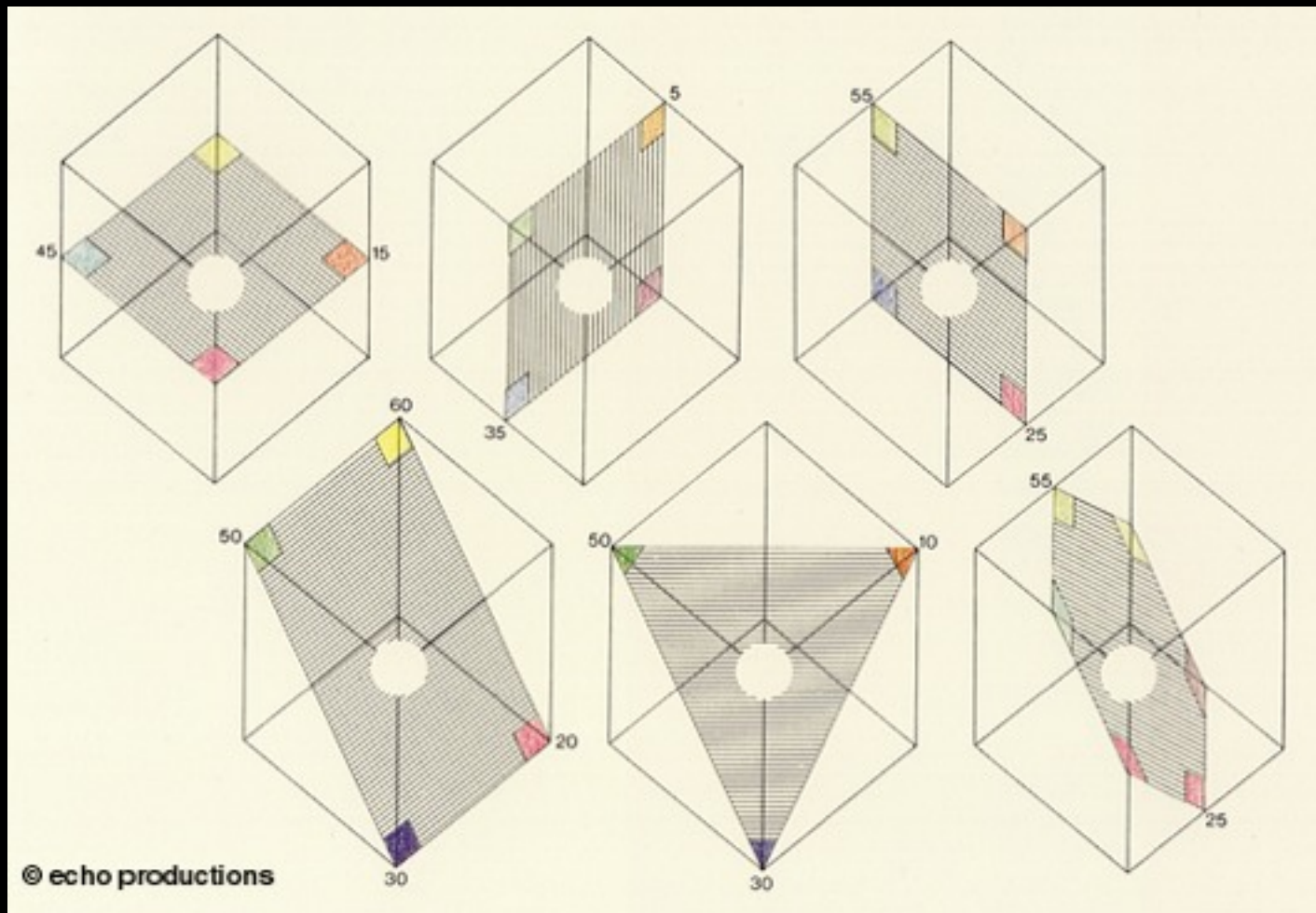
Itten: Eye wants balance: simultaneous contrast

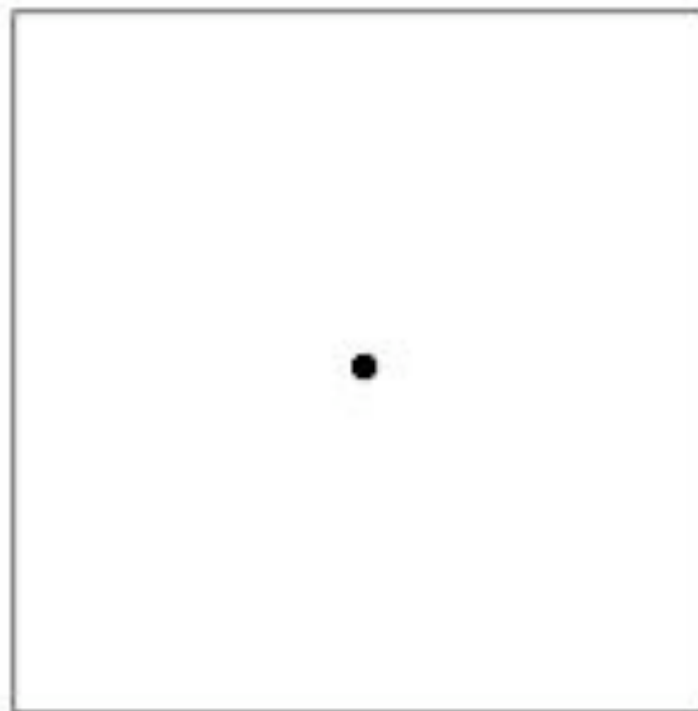


Josef Albers: different primaries
colorist (artist, designer) = R G Y
physicist = R G B
psychologist = R G Y B + B & W

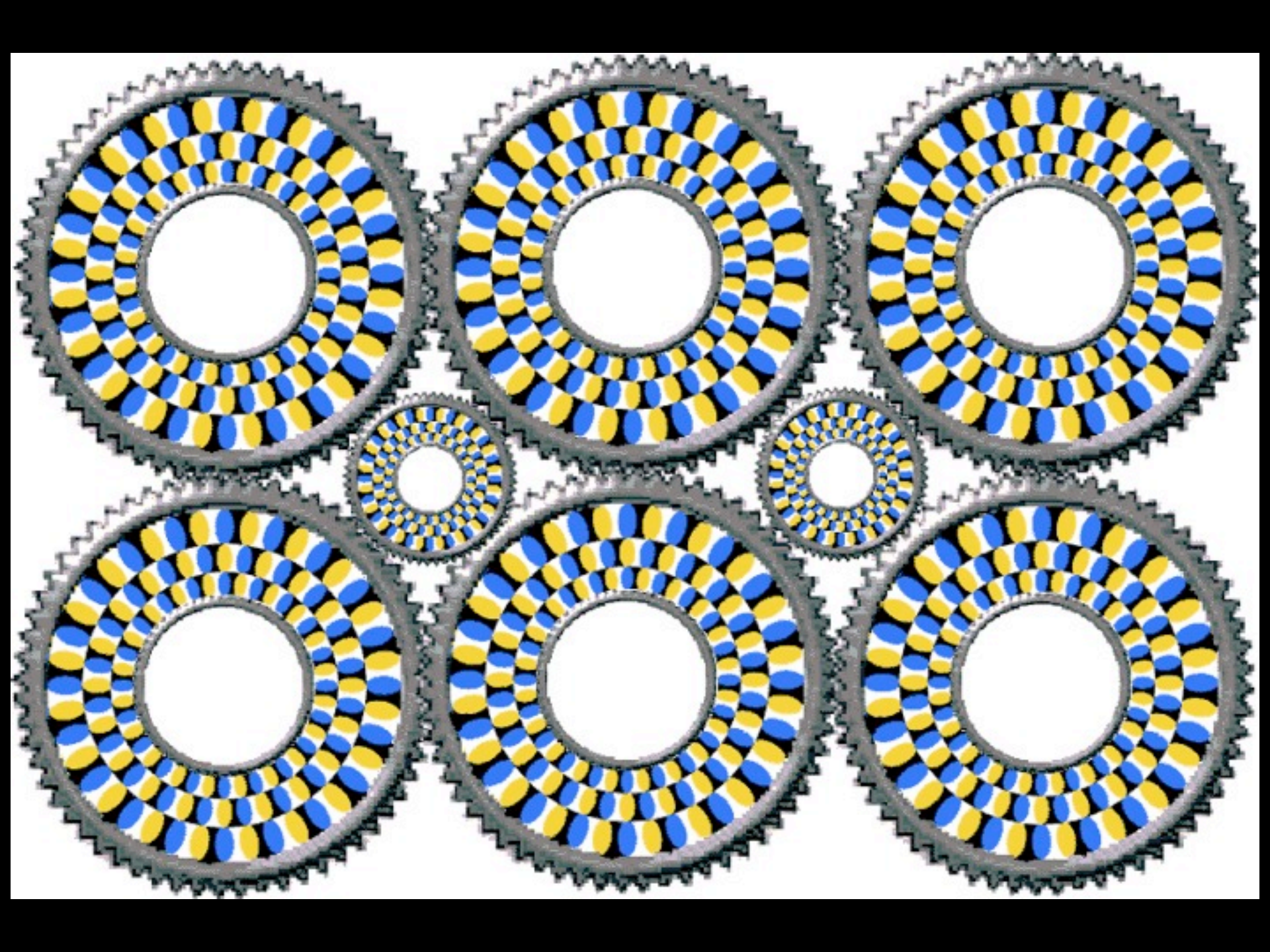


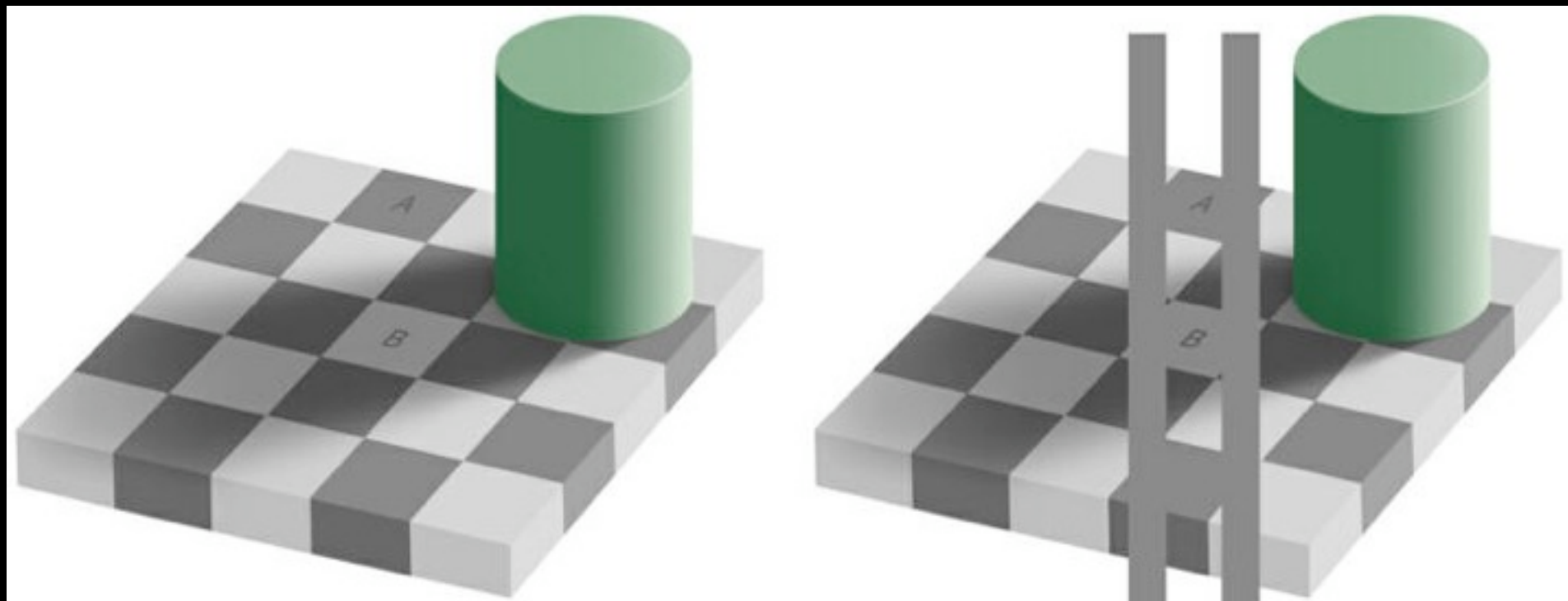
Aemilius Müller pointed out that the gradations of colour-hue, often appearing monotonous, can be made more attractive by allowing them systematic deviations.

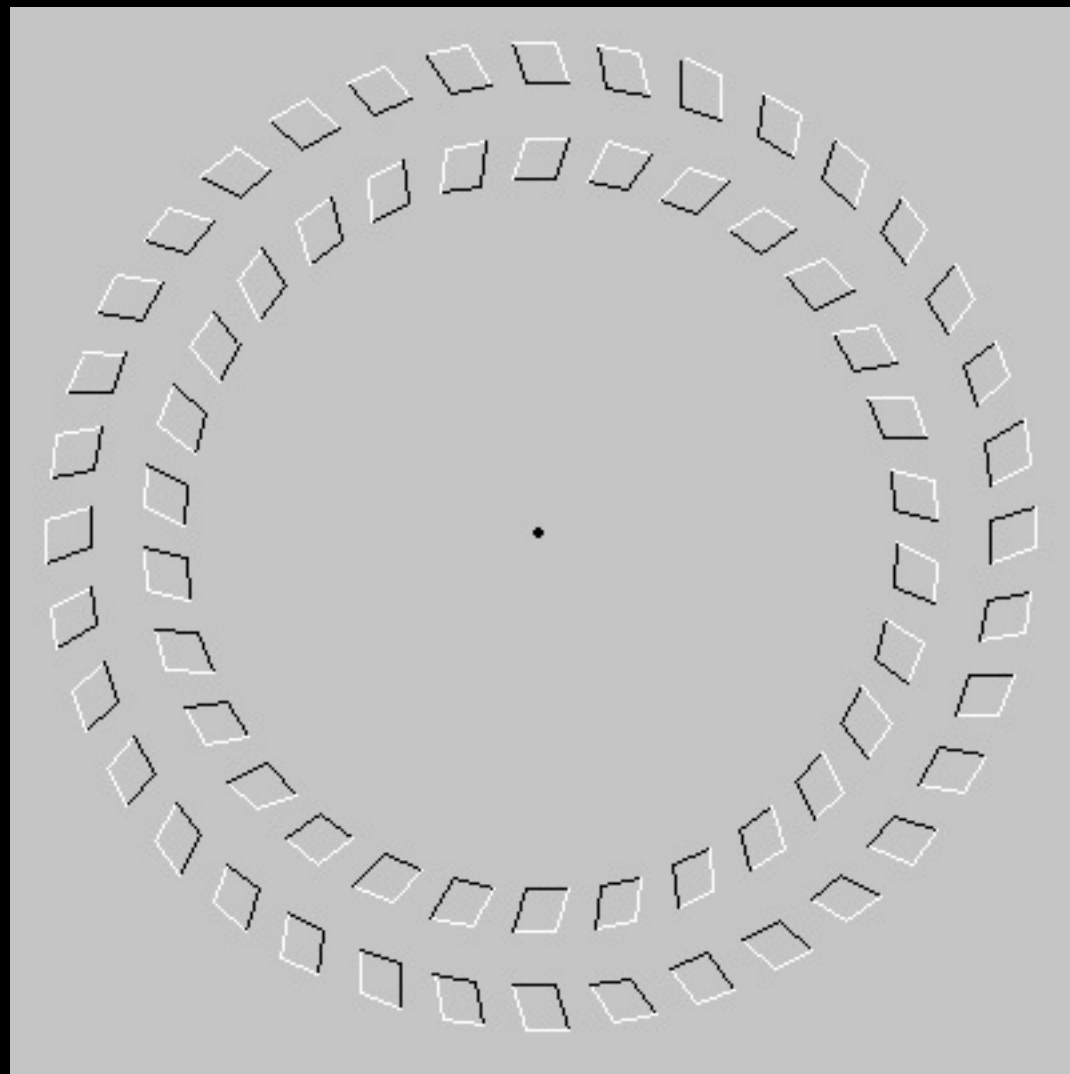


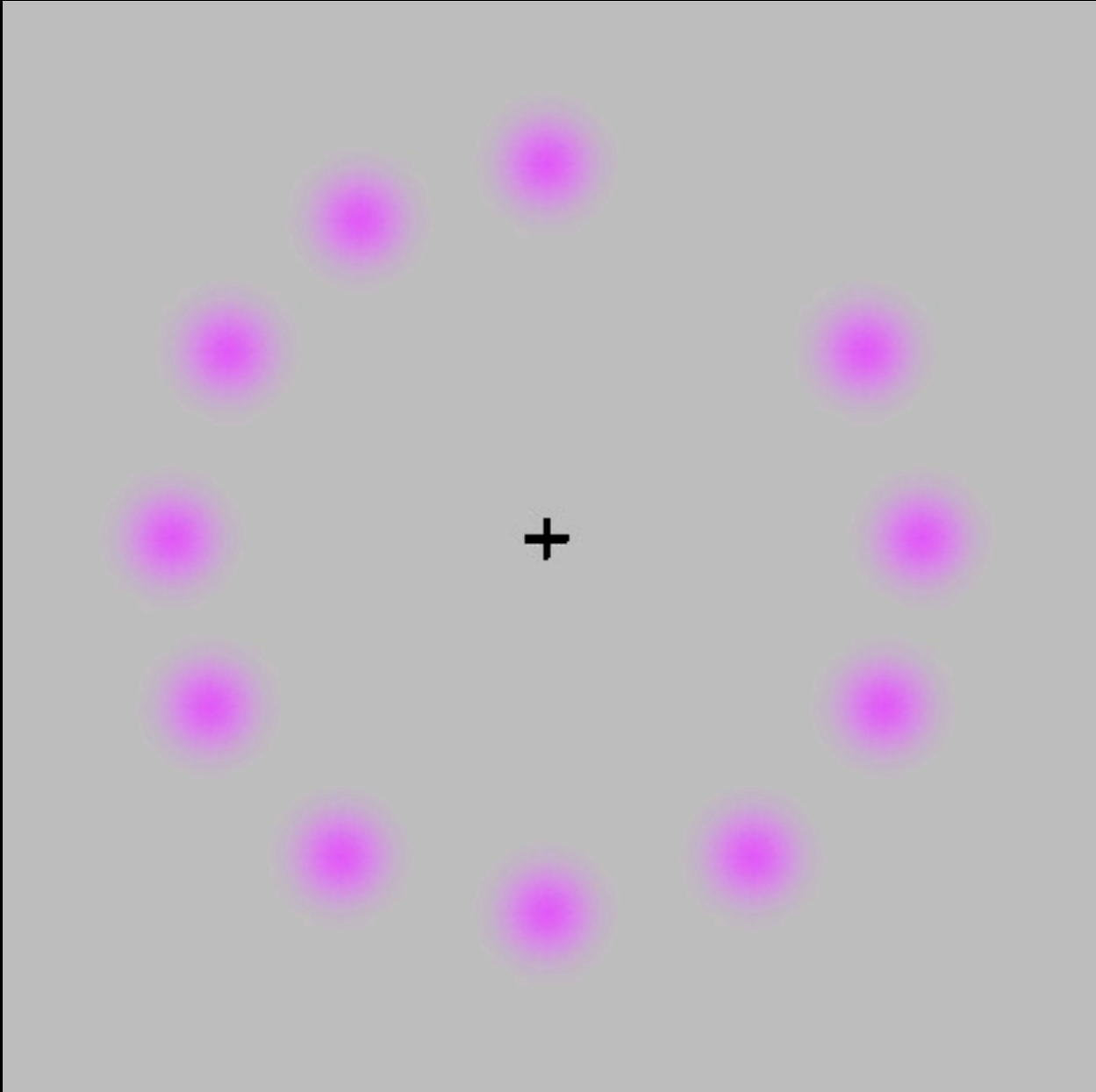


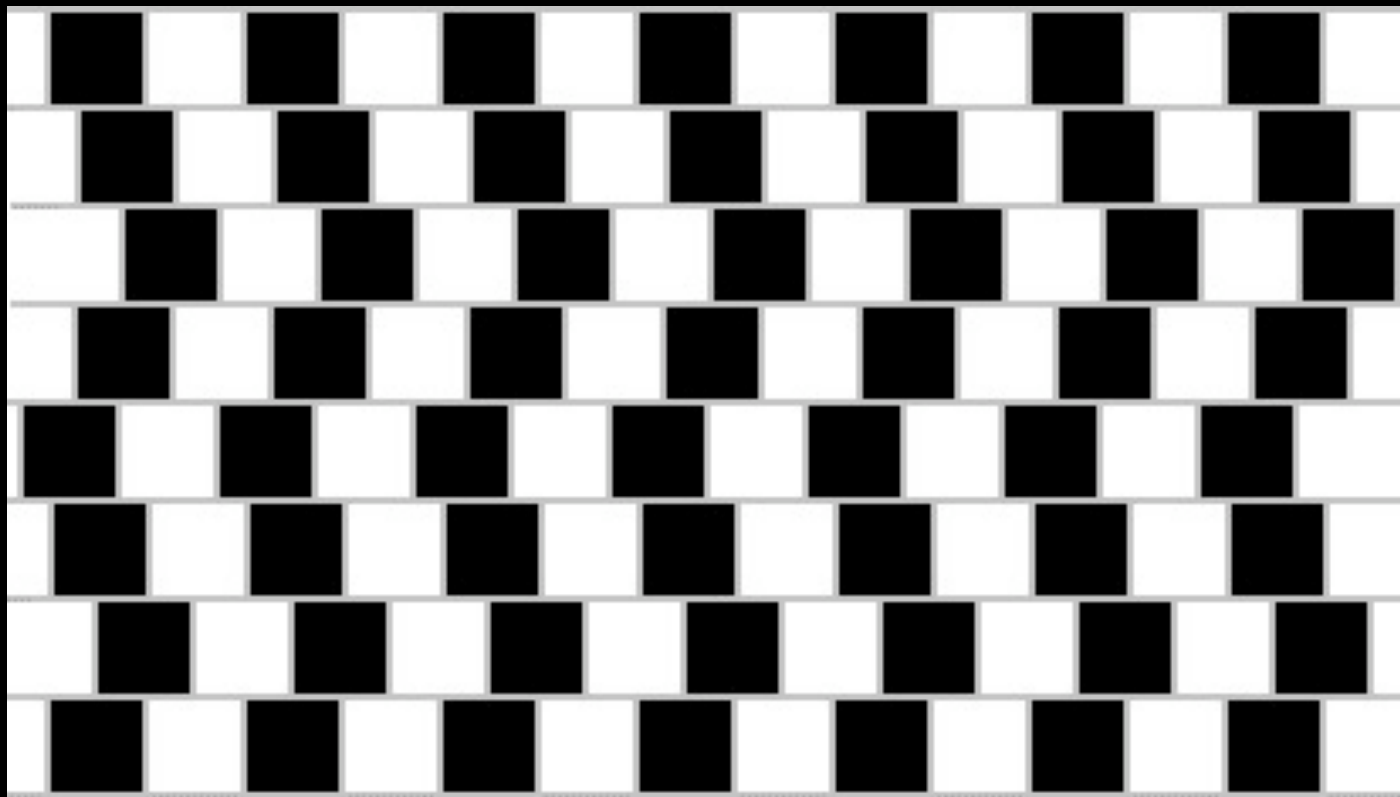
afterimage

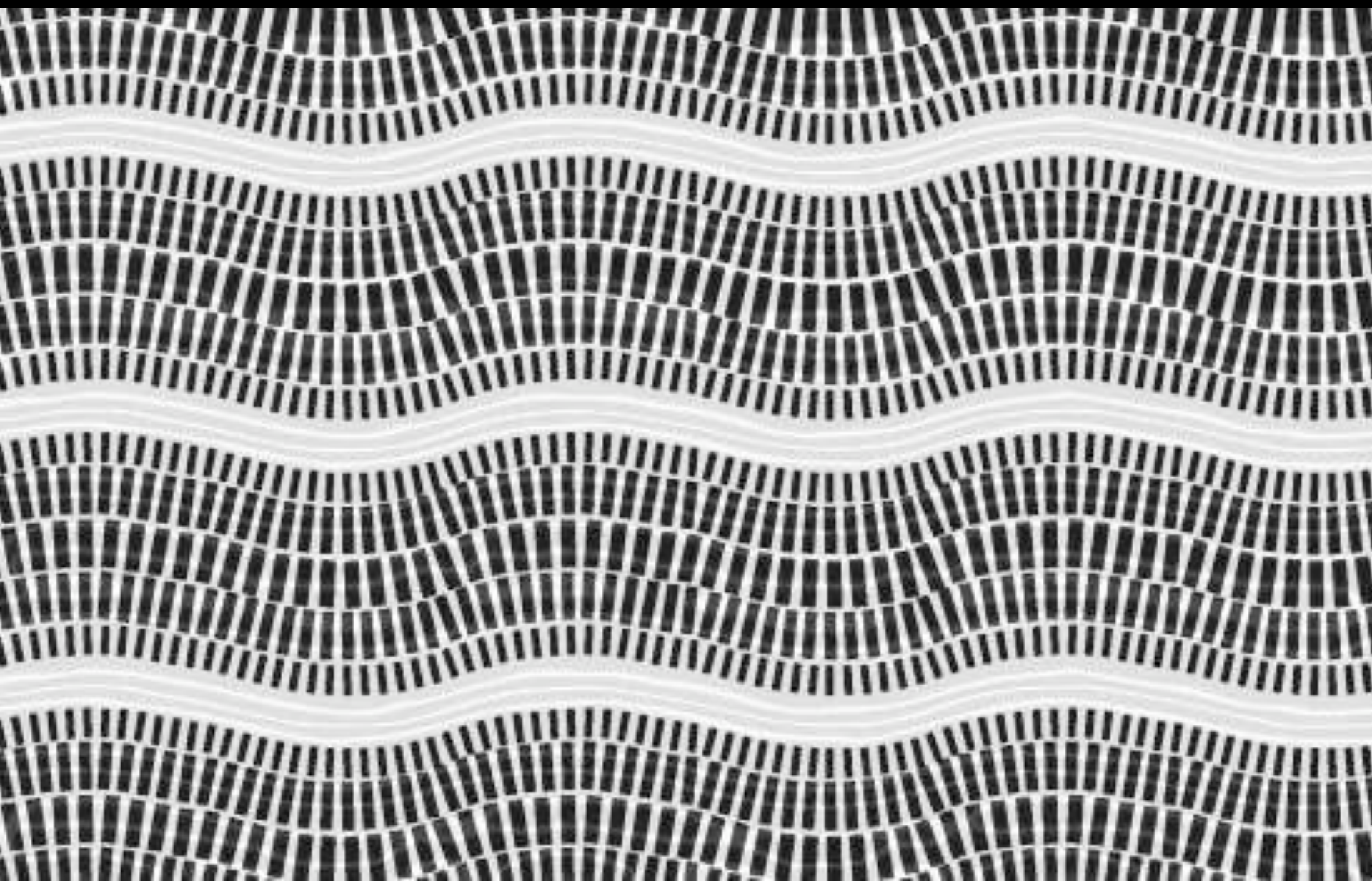




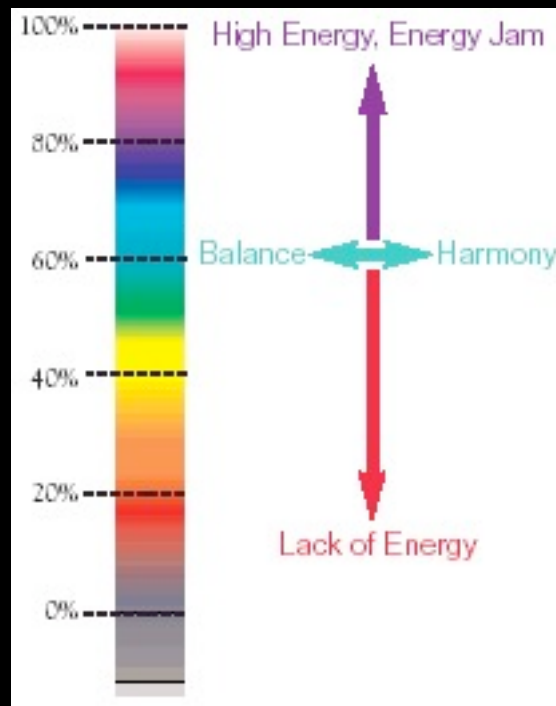








Consumers judge an environment or object within 90 seconds of initial viewing and most of that assessment is based on color.



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

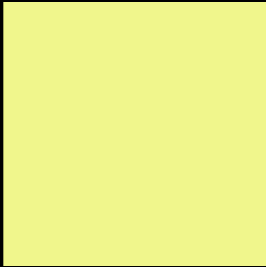
white

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.

Bright



Glow



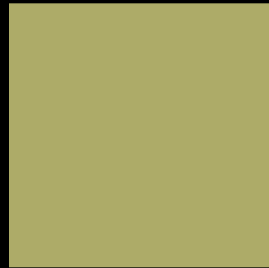
Ripe



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



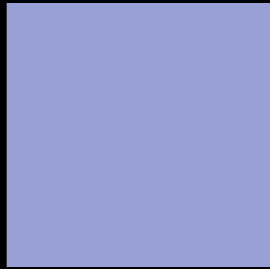
Reach



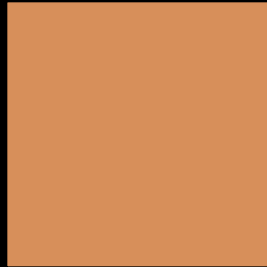
Ground

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.

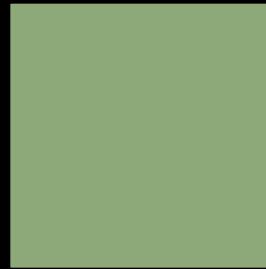
Virtue



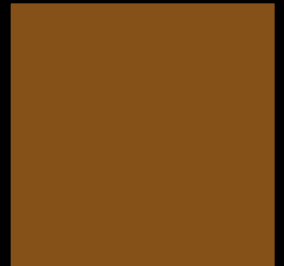
Constant



Philanthropic



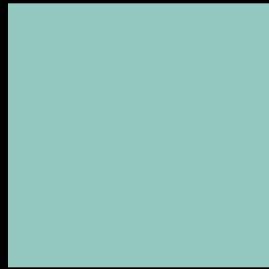
Inherit



Moment

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.

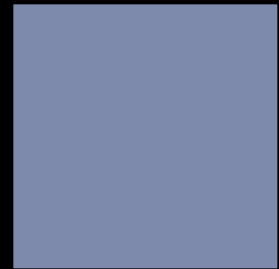
Remember



Serene



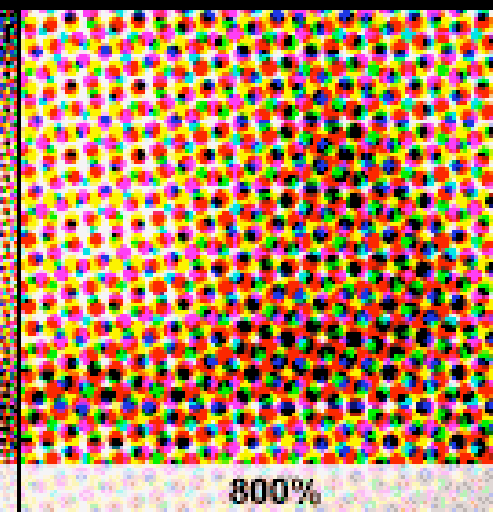
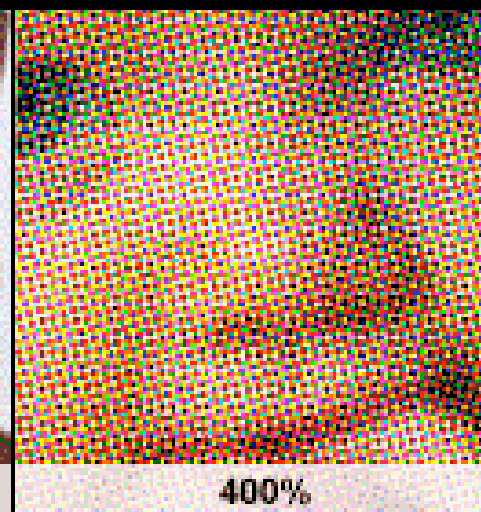
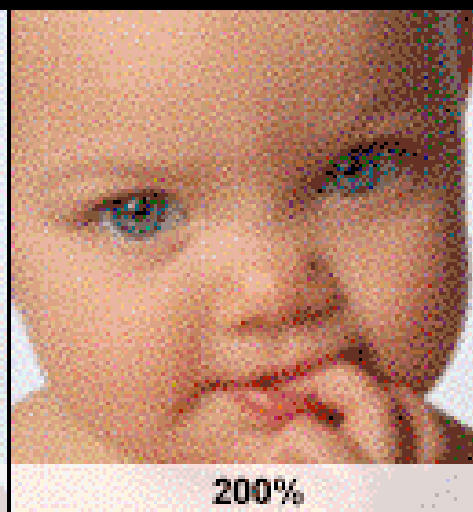
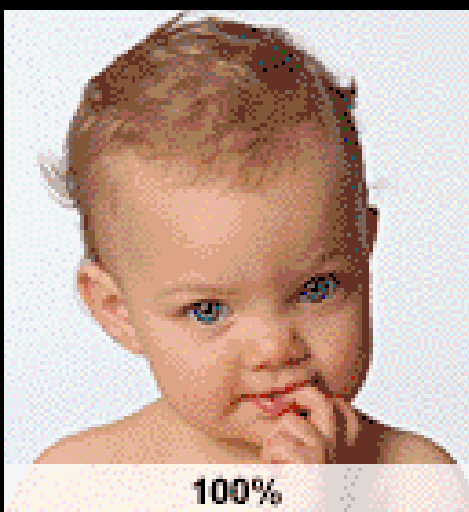
Shadow



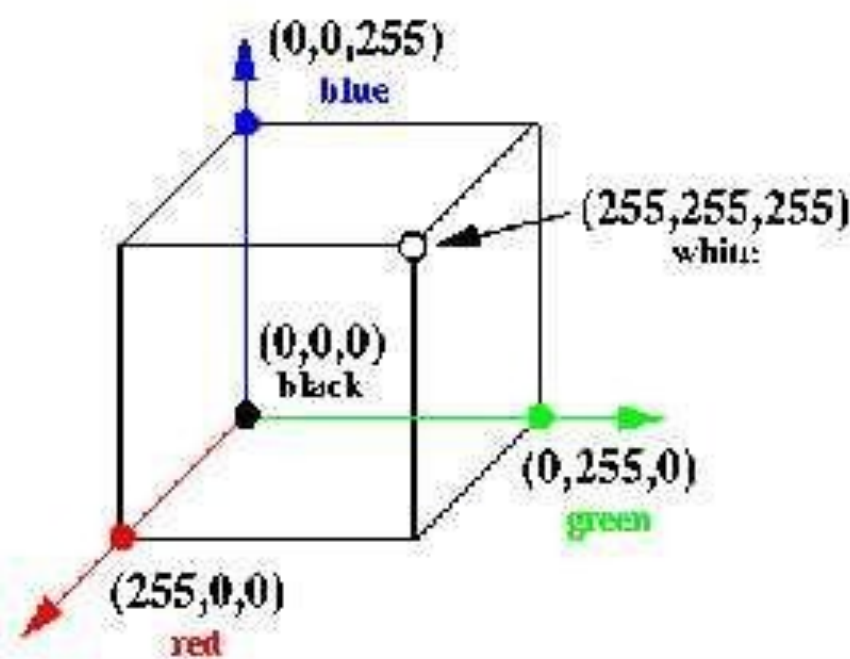
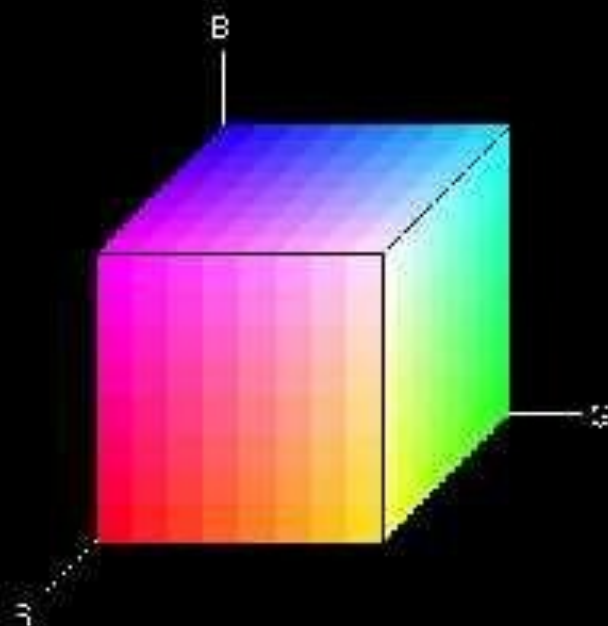


DIGITAL COLOUR

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



Cold



Warm



Cool



Peace



Serenity



War



Anger



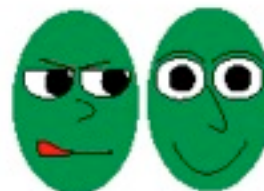
Suprise



Love



Jealousy

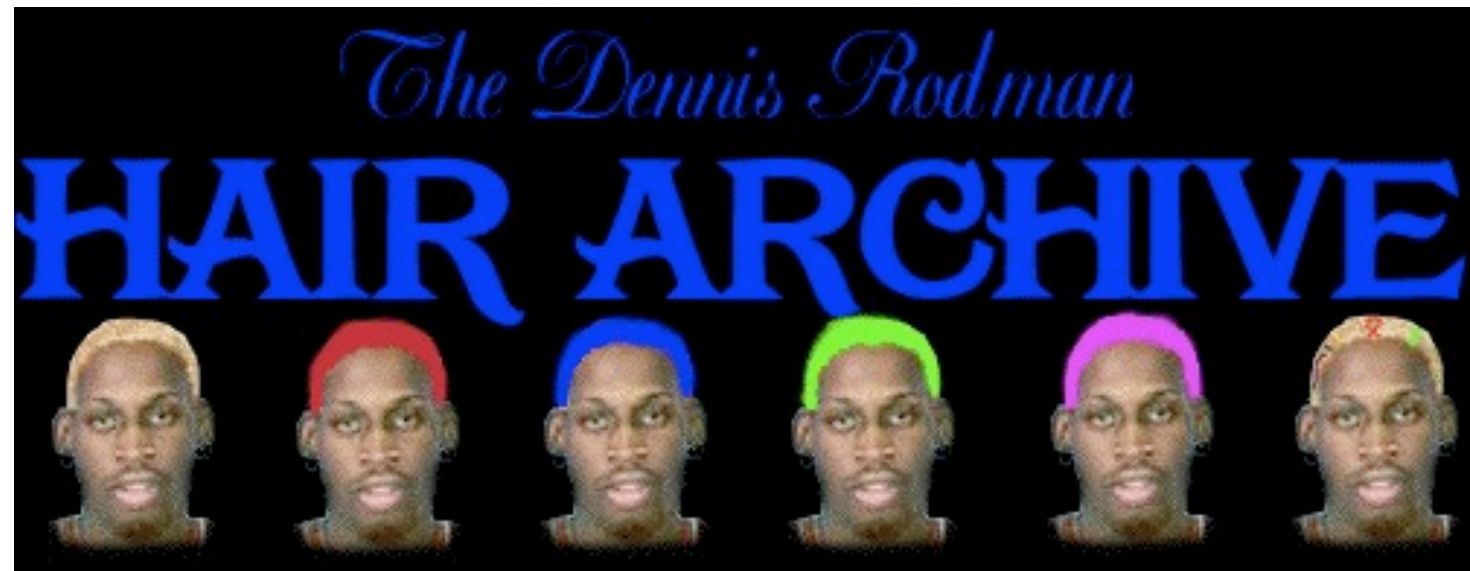


Envy

21 Century

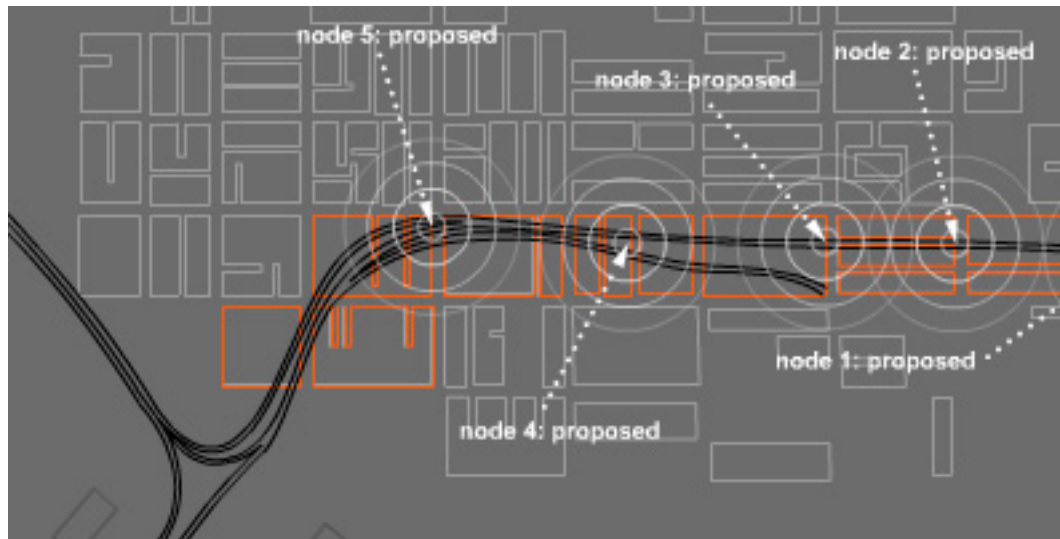
Coming **colour theories** will be shaped by:

- 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.

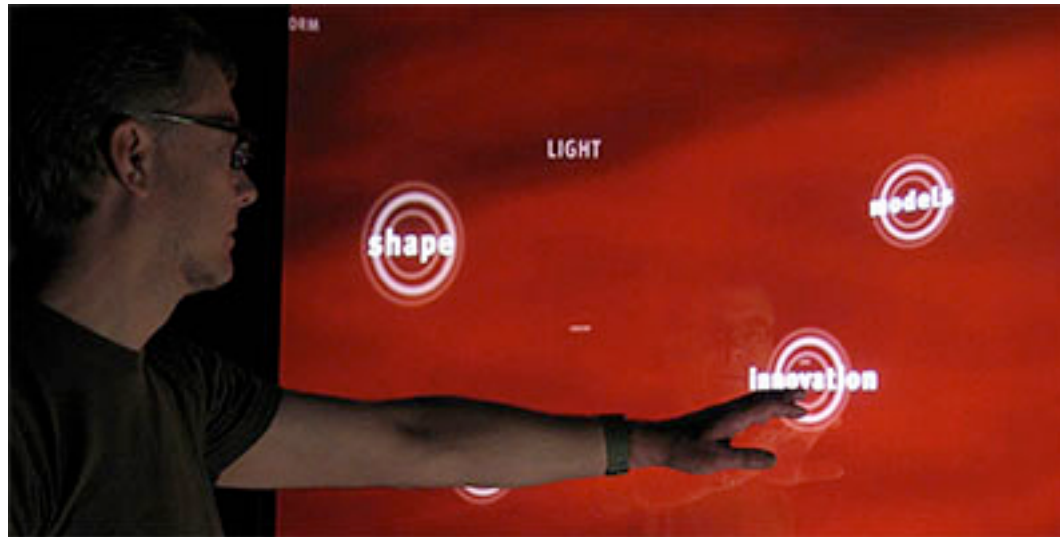




trace map interface



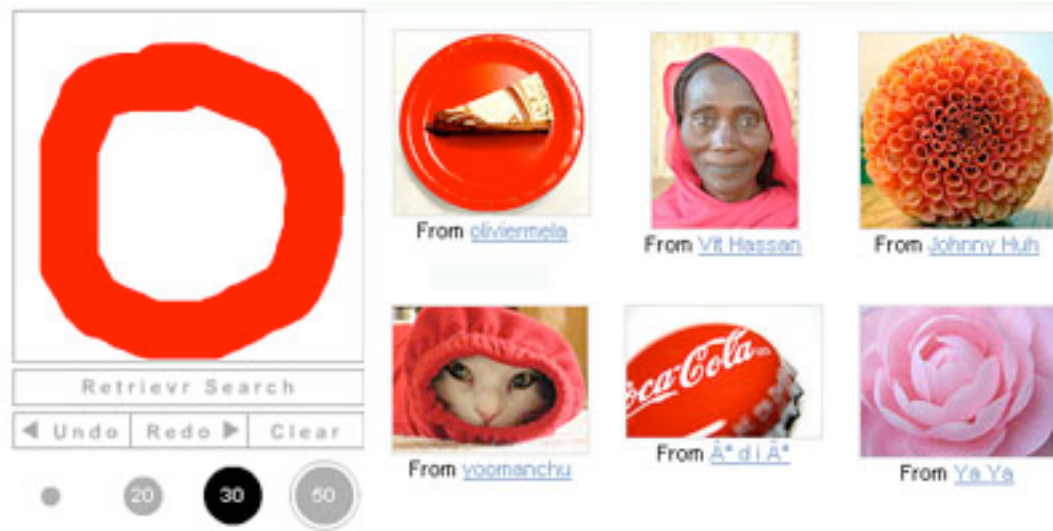
dynamic film recomposition



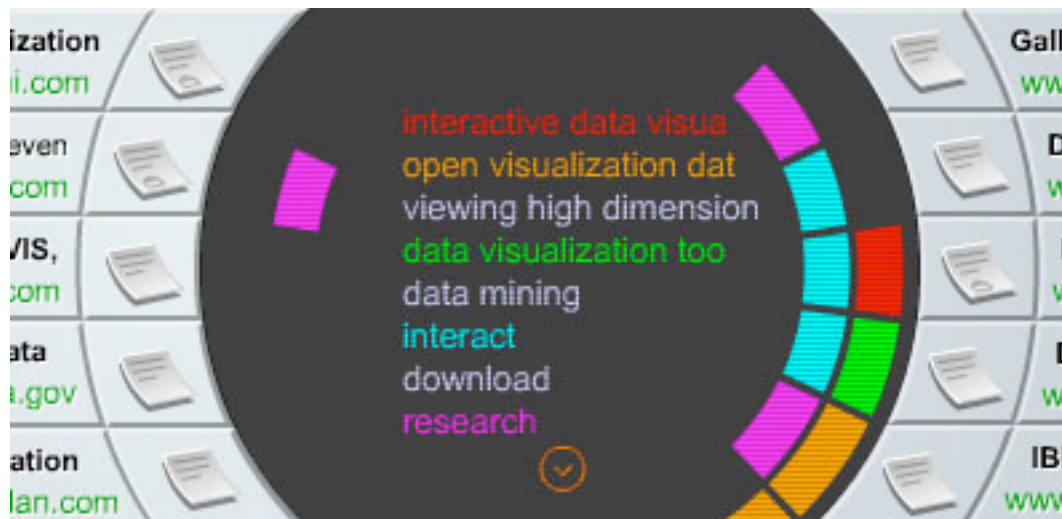
Interactive mirror



Real estate search



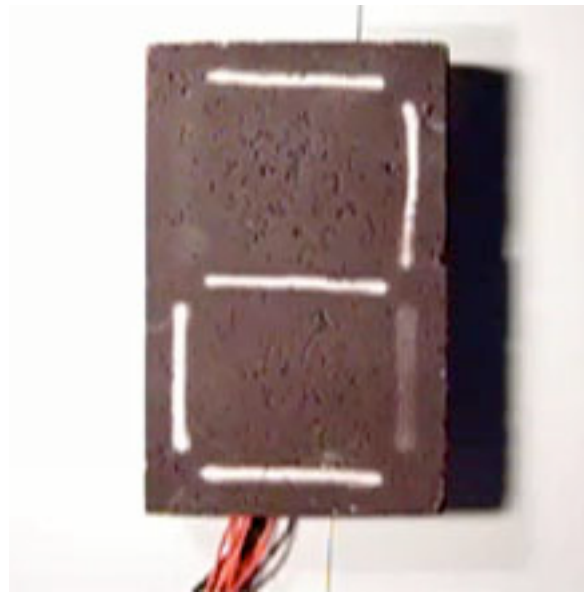
retrievr sketching search engine



ujiko visual search engine

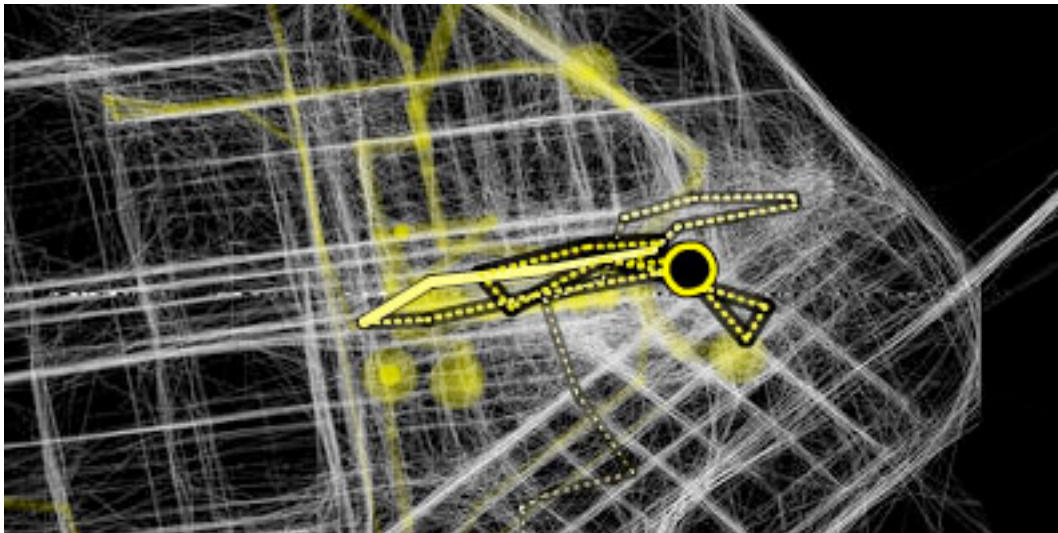


color changing concrete

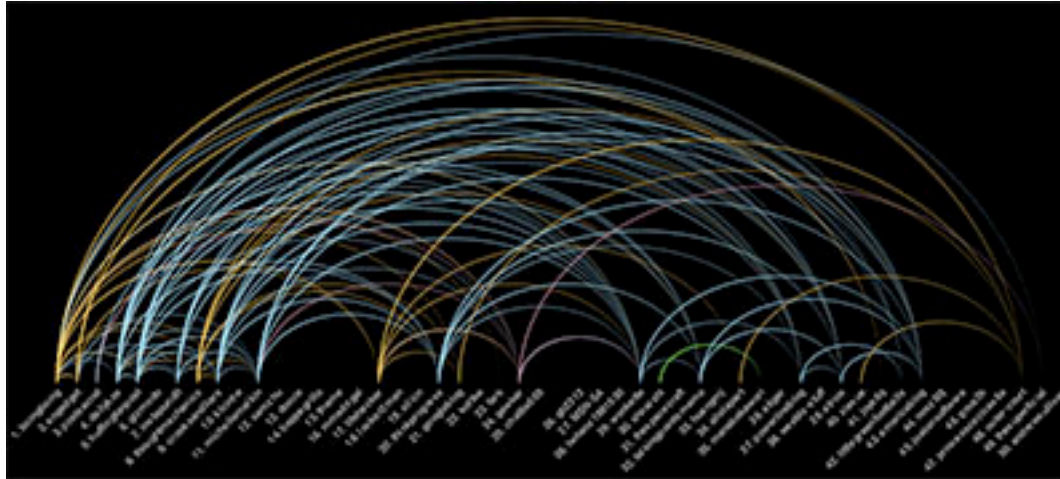




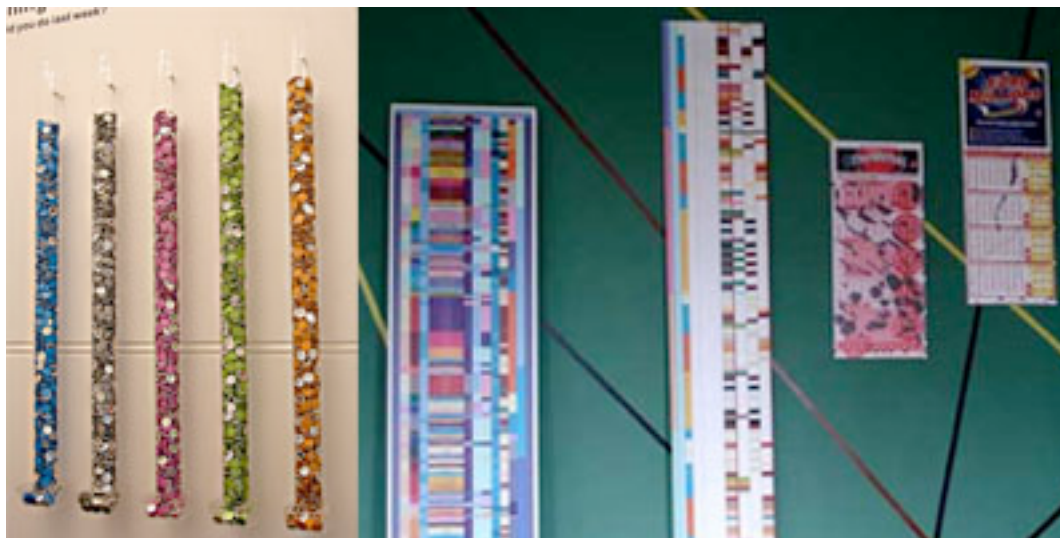
wattson energy display



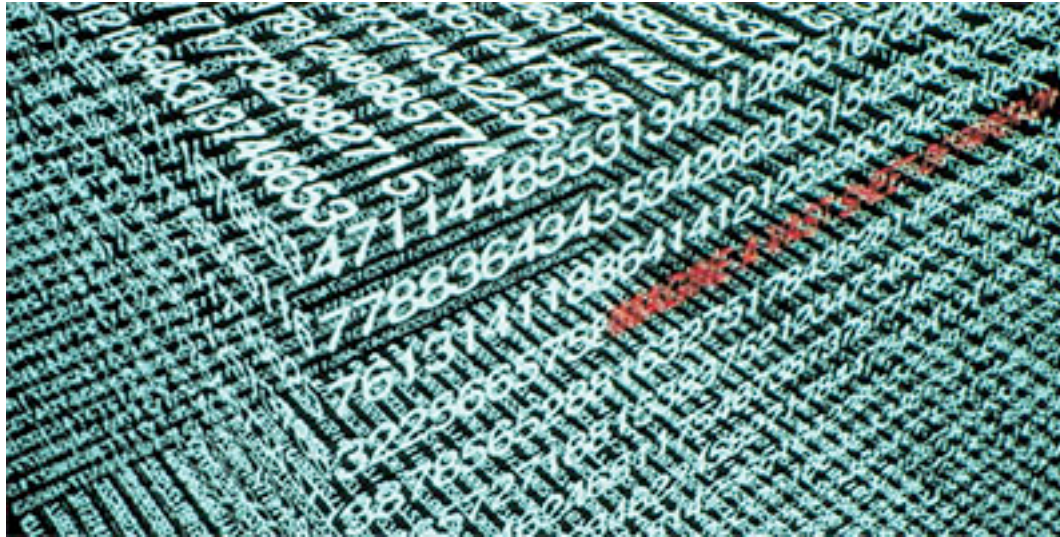
cabspotting



blogosphere linkology



day to day data exhibition



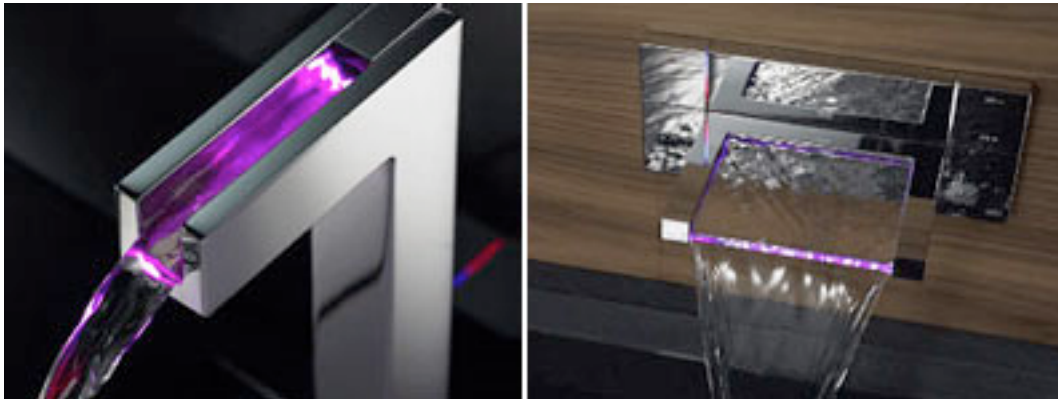
c4 datametics



flying carpet



weather toaster



Water temperature



kotohana emotion flower



coulheur



target interactive breezeway



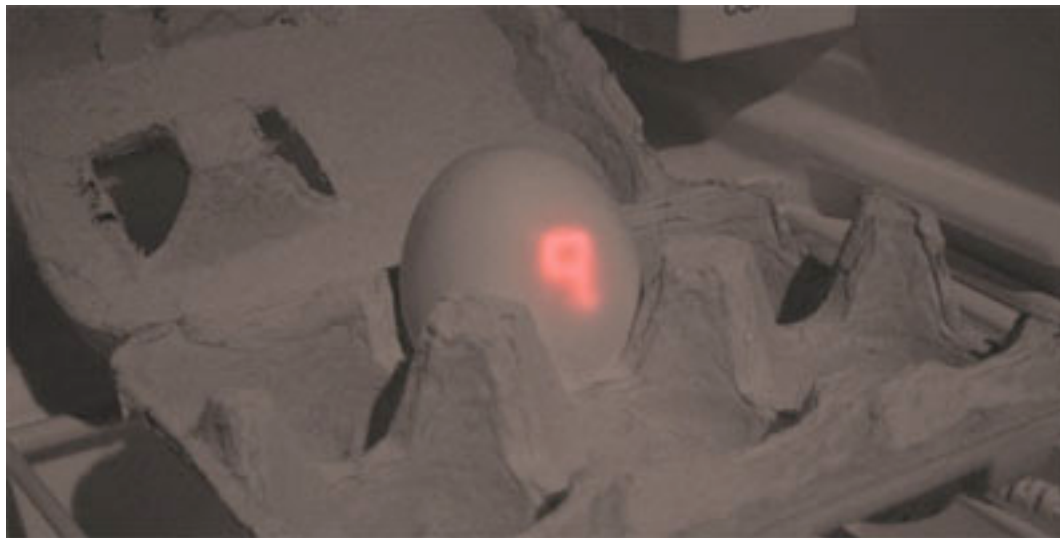
public storyboard



dermal nanotech display



thermochromic tiles



Egg days



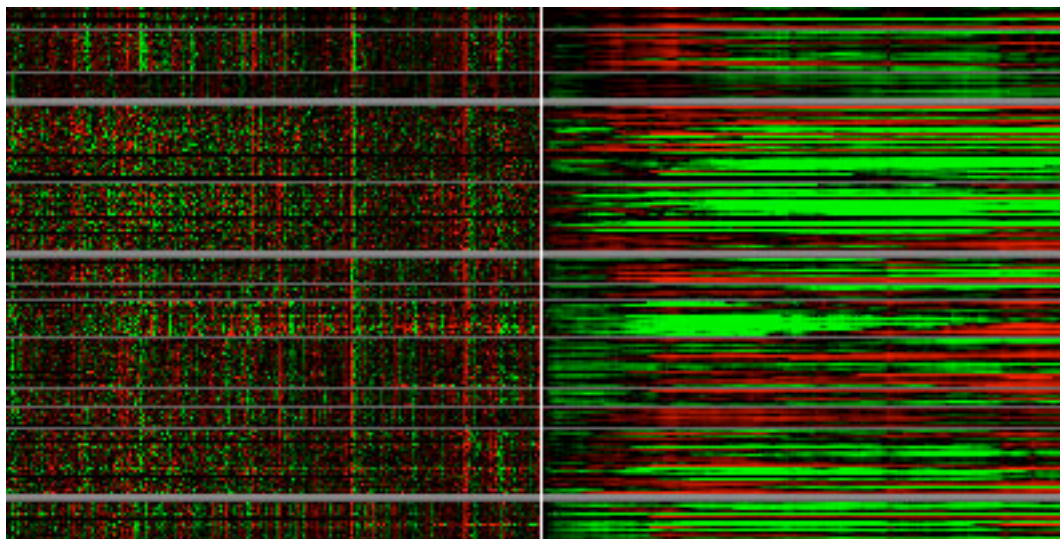
Eye display



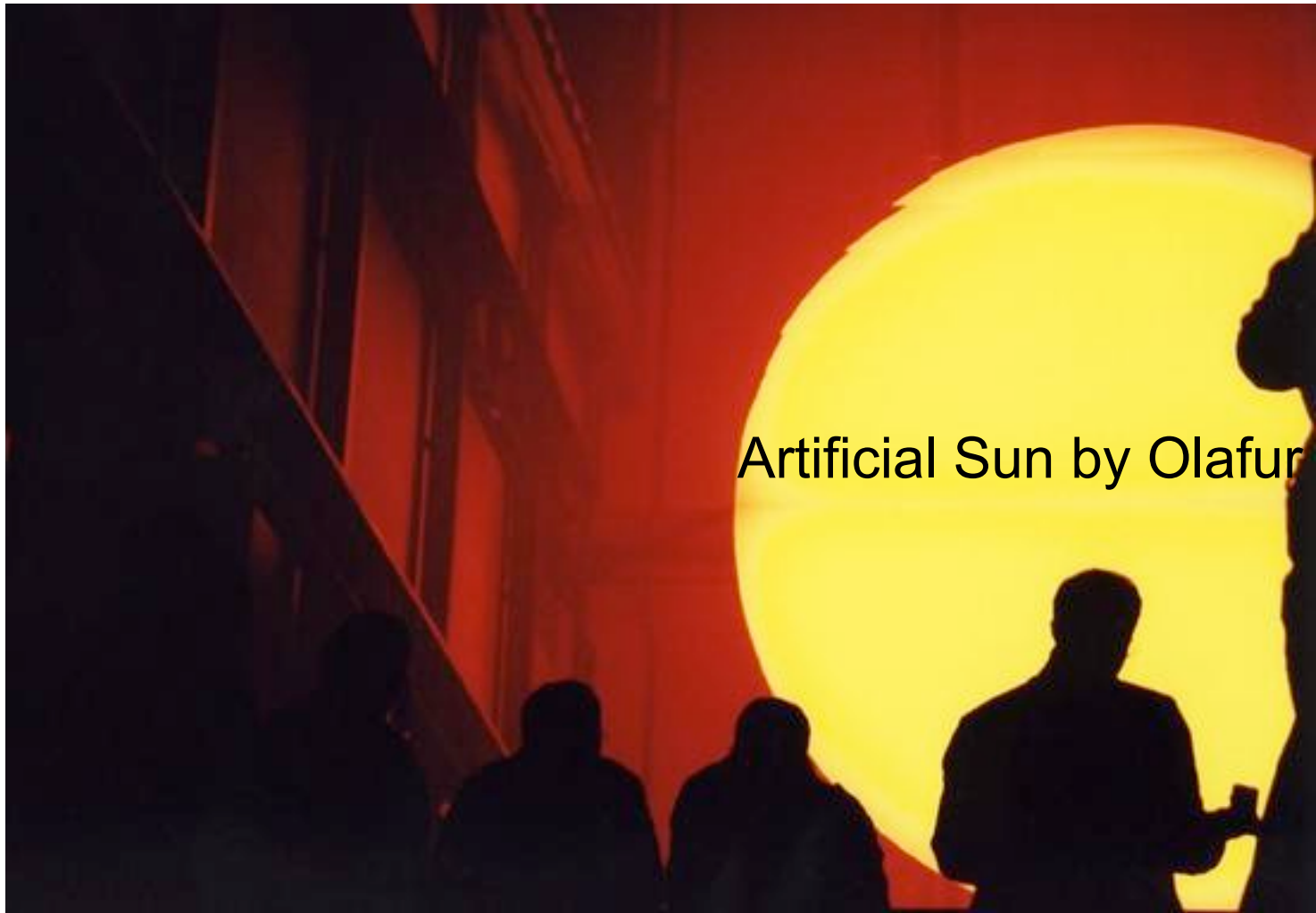
Open & close



skyear



smartmoney stock market radar



Artificial Sun by Olafur Eliasson

