Round table

Art & Science
Inextricably link between art & science

Thursday 20. 09. 2018 @ 20:00

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Art & Science
Art & Science: what is in common

- Both should be done by passion (do it with passion or don’t do it at all)
- Both try to see and understand unseen (unseen govern the universe and us)
- Art and science teach us to think out of the box, teach us not to be slave of narratives,
- Thought free of any prejudices is the most powerfull substance in the universe
- Art and science are ways of exploring our existance, what is it to be human and what is our place in the universe
- (Or less polite way to say): Without art & science we will be reduced to fowl/poultry
- Culture = art + science ≠
Art & science are interwived

- **Zeitgeist/the spirit of time**, is the dominant set of ideas and beliefs that motivate the actions of the members of a society in a particular period of time, defining the intellectual convictions, ideas, thoughts, in the certain period of time and thus creating a sociological, cultural, and religion climate as well as aesthetic of certain period.

- Science creates spirit (geist) of time (zeith)

- Art expresses/interpret/articulate spirit (geist) of time (zeith), sublimates it in various kind of artworks (paintings, musics, literature, sculptures ... mostly in more obvious way than science.

- Artist resonances with society and express and interprets the spirit of time usually in an holistic way

- Revolutionary art and visionary science are both attempts to speak about matters that do not yet have words
In the 8th century BC, the Greeks borrowed from the Phoenician alphabet and adapted it to their language, introduced vowels ... it is the first true alphabet.

The first alphabet – the most useful art of all time

1, 2, 3 ... mathematics – encoding our understanding of the world
Thales and Euclid & Ancient Greek art

- Thales (common sense/reason and logic) and Euclid (geometry) – **create the zeitgeist**

- This "zeitgeist" is clearly seen in ancient (Greek) art
  - Polycleitus: writes treatise (**Kanon**), mathematics of artistic perfection

- Time and space start to be measured, quantified in some units

- Tales, the father of science, first bravely said that there is no need to consult the gods on the Olympus to explain the phenomena in nature.

Polycleitus' *Doryphoros*, an early example of classical contrapposto
- The classic world exists about 800 years from the 400 BC. up to 400 AD.

- The destruction of the Alexandrian Library (Hypatia - the last librarian of Alexandrian Library) 400 AD is considered as the beginning of a Dark Middle Ages dominated by religion and religious mysticism.

- In the Dark Middle Ages Just Belong To Believe "After Jesus has no curiosity, there is no research after the Gospel. Believe it and want nothing more "(Tertullian, in the 3rd century)

- Perspective in painting is lost ...
Renaissance - reason and logic

Marko Antun De Dominis
1560 - 1624

Leonardo da Vinci
1452 - 1519

Galileo Galilei
1564 - 1642

Michelangelo
1475 - 1564

Isaac Newton
1643 - 1727

Caravaggio
1571 - 1610

Raphael
1452 - 1519

Donatello
1452 - 1519

Rudjer Boskovic
1711 - 1787
Who needs an artist anymore to image reality, photography captures reality, modern art is around the corner, traditions of the past have been thrown aside.

Retouched version of the earliest surviving camera photograph, 1826 or 1827, known as View from the Window at Le Gras.
1824 K. F. Gauss, proposes a new non-Euclidean geometry

1840 Nikolai I. Lobachevski announces new geometry in which the Euclid's Fifth Postulate is not valid (two parallel lines could cross each other, accused of sacrileges).

1854 Georg Riemann, a new non-Euclidean spatial science, the space is curved, the shortest distance between two points is not a line but arch, no parallel lines.

In Euclid's space, objects hold their size and forms.

In Riemann's space, the shape and size of an object depends on where the object is in space because the space is curved ...
Modern art & modern physics – challenges our intuition

Model of atom (1911)

Eduard Manet (1863): The Luncheon on the Grass (Le déjeuner sur l'herbe)
Space and time in modern physic & art

- Einstein (1905): Every observer measures his own space and time, space and time are relative and they adjust so that all observers measure the same speed of light ... the speed of light is absolute (space + time = spacetime)
- Everybody has his own space and time
- At the speed of light all time is now and all space is here
- Einstein (1915): Spacetime is aware of mass and energy in it, it is not irrelevant for spacetime what you put in, me or black hole.

- Johan Wheeler: "Mass tells space-time how to curve, and space-time tells mass how to move."
- Johannes Keppler: “More clearly are seen by the eyes of the mind”
- Pablo Piccaso: “I paint things as I think of them, not as I see them”
Space and time in modern physics & art

Pablo Picasso, The Ladies of Avignon, dimensions: 243.9 cm x 233.7 cm
In constructing this piece, Duchamp dropped three meter-long pieces of thread onto a canvas, letting them fall as they may, then cut their variable silhouettes. Reality of space - it is ilusory to define etalon of 1 m.
Salvador Dali: Angnostic Symbol (1932)
Abstract art & Quantum Filed Theory

- Substance of the universe are quantum fields not the elementary particles, just

- Is there any more abstract thing then this

- We know how to build detectors to be able to see the unseen \( \psi \), by detecting elementary particle
CMS (well, ATLAS as well) is artwork - efficiency encoded in its beauty
CMS is art tool - visualise the underlying structure of the universe

More clearly is seen by the eye of the mind
Quantum field precedes elementary particle

Scientist are able to see the unseen
Why we need today art and science?

- Today power, money and ignorance show an open contempt for science/education and art...
- "Smart" technology is worshiping, knowing to how use an application is not the knowledge at all...
- Mindset in the form of sms (text) message is not able to comprehend deep and complex thought and emotions (as thoughts also emotion could be superficial)
- In short, this is a time of a lack of good taste without a youthful spirit of rebellion, the conformism is acceptable and there is a lot self-confidence without firm background and a lack of self-esteem.
  (Or I becoming old 😊)
- Art and science make us aware of this, they are the best tool for autoreflection, forcing us to look brave at our mirror image and thus to learn more about that what does it mean to be human...
- Art and science teach us to think and experience profoundly the world around us and to seek for our perspective in the universe.
Talking to each other we could learn from each other, since scientific and artistic minds work differently ... What is the best formats of permanent and open discussion between art and science ...

Art and science together should help humans to pay more attention to the content/substance and not to the impression.

How art and science could provide a sense of sublimity, since all humans seek for it ... religion seems very successful in this 😊

Art could help humans to not have a fear of science?

Sometimes art is prone to shrink/(disgust) of the science like that science is going to spoil the spirit of art and dirty the artwork

Art must always question and mock the science to remind us all that we are just humans.
Once one artist told me:
I am perfectly fine just to be amased by the beauty of night sky without knowing what is going there ...
Thank you

Hvala
What is art: "The expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power."

Artwork is unique and unrepeatable.

Definition of science: “Knowledge of nature or study of nature based on facts collected by observation or experiment.” (not that spectacular definition as art)

Science is repeatable

Creativity: "No one has ever been able to define or synthesize that unsafe, shiny, and not so common moment when the creative process begins. This is what makes art (and science, added by me 😃) unique. Artist has a transcendental right to create even though he may not always know what he is doing.” (Norman Cousins)