



EUROPEAN SOCIETY FOR MATHEMATICS AND ART NEWSLETTER

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FOREWORDS ACTIVITIES RESOURCE UPDATE GALLERY

Dear Colleagues,

Beauty is a property. It is also a quality often expected from artistic objects. Does Mathematics fall in that category? A subject worth wiring about. A similar topic could be the place and role of beauty in Education.

In both cases, it would imply to analyze the semantics of the term, look for a good understanding of the reasoning from which that concept has emerged and if possible, a clear definition of beauty.

A quick look at literature shows us that the concept of "beauty" per se had already been researched and examined by Plato. He introduced the concept of beauty as a component of education (Republic, 401). Aristotle, Plato's disciple, may have been the first to leave some pertinent and insightful record on the description of beauty - as shared by some mathematicians. In the French translation of Aristotle 'Metaphysics' (M, 1078) it is said: "It would be a mistake to blame the mathematical sciences for completely neglecting the beautiful and the good. ... The most striking form of beauty is order, symmetry, precision; and the mathematical sciences are involved in defining all at a high level."

Forgive me for bringing some old memories in the next few lines: theoretical physicists tell us frequently about the elegance and the aesthetic properties of their theories. I have rarely heard "the beauty of the proof" being mentioned in any mathematical presentation, except at the occasion of a very few seminars. I can't ever recall hearing any of my teachers speaking of the beauty or elegance of the mathematical world. The question is: why ?

I came to Mathematics because of this one time, completing a homework, I exclaimed " how beautiful !" The problem to solve was of course in the field of geometry. The amount of knowledge we had to assimilate then was very limited, but somehow more substantial than today. And so it happened I fell under the spell of the architecture of this very small introductory part of the mathematics we were taught. I cherish today the same feeling looking at the architecture of the whole mathematical edifice. One may now understand better the reason behind the foundation of the ARPAM project and the development of its content, which came to existence during an era of strong rejection of mathematics by the general public.

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A one man experience is not the experience of all his Fellow-men. It is far from certain that other people came to Mathematics for reasons similar to mine. But to become a mathematician, I wonder how many have followed a path identical to the one that attracted me to it.

However, the question remains and will remain : how to awaken and create a feeling of beauty within the mathematical field?

The previous comments suggest three important directions of reflection. First - the consideration of the various mathematical topics in relation to the teaching of other subjects in the educational environment; second - the psychological and pedagogical skills of the educator; third - the intellectual and reasoning ability of the students. A comparison between the educational content in works of literary art and plastic art could shed some interesting light on the subject.

Indeed, the introduction of artistic concepts in the educational process goes far beyond the limited area of mathematics. My belief is that the current evolution of our environment toward excess and disproportion will continue to increase in the future and that closeness to art is also a mean to counteract the psychological stress that society imposes and will impose on an increasing number of people.

When looking at valuable works of art that fascinate the mind and expand part of its aspiration, the mind relaxes, rests, and forget all the misfortunes of life. The harmony of the work, frequently tied with some symmetry, induces an interior equilibrium and peace. The brilliance and the heat of the colors stimulate the internal activity of the body. Art, and more generally all beautiful artificial or natural objects, works as a source of new and fresh breath that provides instantly an invigorating immediate stimulus and also carries some long-range effects with similar results. Maybe Plato would have agreed with these views.

Claude Bruter

P.S. The Society always appreciate your donation or early payment of your 2011 membership dues: (BIC or SWIFT : CEPFRPP751, IBAN: FR76/1751/5006/0008/0001/8634/606). ESMA, c/o IHP, 11, rue Pierre et Marie Curie, 75005 Paris Cedex 5.

ANNOUNCEMENT

February 24, 2011. The Numbers in Numeric Art. Lecture by **Jean Constant**. Nathalie Bruno's Gallery. Montreux Switzerland. More information: [Hermay CSV](#)

April 2011. NanoArt 2011. For submission and more information, please visit the site at <http://nanoart21.org> or e-mail 2011@nanoart21.org

May 31 - June 3, 2011. 4th Chaotic Modeling and Simulation International Conference (IV CHAOS2011, Agios Nikolaos, Crete, Greece.) Abstract Submission and Special and Invited Sessions and Workshop Proposals information on the conference website <http://cmsim.org>

ACTIVITIES

Posted this month on the ESMA website, activities page. For information, listing of upcoming events: info@mathart.eu

Extended - February 13, 2011. Jeremie Brunet. Exhibit. Fractal works on aluminium & acrylic support. Gallery Rips, 16 rue Jacquemont Paris 75017. For more information: [Philippe Rips](#), [Jeremie Brunet](#).

February 15&16, 2011. Brussels (BE).- EU Culture in Motion conference. Attending: Claude Bruter, Jean Constant, Jos Leys.

June - July 2011- Aime (FR). Exhibit & lectures. 2D - David Austin, Tom Banchoff, Luc Bénard, Jérémie Brunet, Jean-François Colonna, Jean Constant, Francesco Decomite, Slavik Jablan, Jos Leys, Mike Field, Irène Rousseau, Radmilla Szadnovic, François Tard. 3D - François Apéry, Raymond Aschheim, Philippe Charbonneau, George Hart, Philippe Rips, John Sullivan.

On-Going

- **IMAGINARY** exhibitions in Spain (2011 and 2012) Organized and coordinated by the Royal Spanish Society of Mathematics (RSME).

- **ESMA** Website statistics for January 2011: 879 unique visitors. 1080 numbers of visits. 3134 pages visited: Newsletter (232) Resource EN (157) Calendar (59)

RESOURCE CENTER

Posted this month on the ESMA website, resource center page. For suggestion, recommendation, comment on new posts: info@mathart.eu

- **Claude Bruter.** Introduction to perspective. 59 pages expose on the geometry and light phenomena in perspective theories. 2011. FR. ([Resource, Mathematics and Art](#))

- **Slavik Jablan.** "Modularity in Art". Text, illustration, gallery, puzzles. EN. ([Resource, Mathematics and Art](#))

GALLERY

The Copernis conundrum has 188 million combinations, says Andrew Reeves, its creator. The puzzle is based on Nicolaus Copernicus's heliocentric model and is nearly as ambitious. First, you have to work out how its five rotating rings correspond to the orbit of the planets, then open a hidden compartment, solve the equation engraved inside and use it to work out the correct position of each planet, unlocking a key as a reward. More information at <http://www.sonicgames-uk.com/section/copernis-puzzle>



PROJECT PROPOSAL

Mathematical Models Conservation for Institutions of Higher Learning

Interest in the restoration, conservation, and archiving of mathematical models available in many institutions of Higher Learning was made possible with the creation last year of the European Society of Mathematics and the Arts (ESMA)

Universities and Mathematical Research Centers oversee various inventories of mathematical models created in material ranging from paper, cardboard, silk, plaster, wood, wire, metal, resin or powdered polymer. Unfortunately those collections are curated inadequately and often scattered on campuses because of lack of time and funding.

Those objects are essentially built to help understand and illustrate mathematical demonstration and develop new theories. However, beside their usefulness as teaching and research tools, they also carry distinct aesthetic qualities that have been noticed by the artistic community as early as the nineteen-twenties - as recorded in several of Man Ray's photographs.

After a long period of neglect and oblivion, there is a renewed attention for their upkeep and creation of new models. School of Fine Arts and Architecture are looking into what has become an open catalogue of new forms for inspiration and work. Inventory, restoration and development of existing collections are becoming an urgent concern.

The Henri Poincare Institute in Paris holds probably the largest collection of such models in France. Its on-going curating program could be extended further to all interested.

For further information on mathematical models conservation contact François Apéry at francois.apery@uha.fr

