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## INTRODUCTION

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In LEA's March issue, we are pleased to highlight the life and work of pioneering Brazilian kinetic artist Abraham Palatnik, the winner of the 2005 Leonardo Lifetime Achievement Award. We feature a tribute to Palatnik by Rejane Spitz (2005 SIGGRAPH Chair), an interview by artist Eduardo Kac, and the original introduction to the 1951 Sao Paulo Biennial, in which Palatnik first broke onto the Brazilian art scene, by art critic Mario Pedrosa.

In Leonardo Reviews, we find a typically diverse offering of reviews - Michael Punt weighing in on the 6th Swiss Biennial, themed "Consciousness and Teleportation" (!); a review by Jan Baetens of a book exploring the development of pictorial depictions of machines, both real and imagined, from 1400-1700; and Amy Ione's review of \*The Junction\*, a film taking a close look at the very real human consequences of the Israel-Palestine conflict.

Highlights of ISAST news include: Steve Mann receiving the Leonardo Award for Excellence and honorable mention for David First. Leonardo/ISAST with support from the Rockefeller Foundation awards the inaugural Leonardo Global Crossings Prize to brother-sister team Abdel Ghany and Amal Kenawy from Cairo, Egypt. Runners-up include Regina Célia Pinto (Brazil), Kim Machan (Australia) and Shilpa Gupta (India).

From this issue, we launch a series on the Pacific Rim New Media Summit in anticipation of the ISEA2006/ZeroOne San Jose festival. Chair Joel Slayton outlines the festival objectives with Education Chair Fatima Lasay articulating its directives towards tactical learning ecologies.

Finally, with the Bytes section (featuring announcements and calls for papers), we catch up with some events in the ever-changing world of art, science and technology.

A TRIBUTE TO PIONEER ABRAHAM PALATNIK

by Rejane Spitz  
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Abraham Palatnik has always been considered to be an artist ahead of his time. He played a key role in the Brazilian artistic scenario in the 1940s by bringing to "pictorial art the potential of light and motion in time and space [ 1 ]." He has been exploring the fusion of art, science and technology in creative ways for more than 50 years and is still actively working on the conception and production of new art forms.

Palatnik writes: "It is the understanding of the importance of form, not only in the external world but also at the unconscious roots of human activity, that allows us to dissolve the commonly created oppositions between art, science, technology and communication. Technology, in the context of human evolution, acquires meaning and becomes evident to the extent that it allows the senses a conscious access to the mechanics of the natural forces. I'm particularly interested in new technologies and would like to work with some of them. If I were starting in art today, I would undoubtedly be doing research with holography and computers, for example. . . . Artists researching new media are the ones that can bring us into contact with the unexpected, giving life to what we call creativity [ 2 ]."

In his article, "Abraham Palatnik: A Pioneer of Technological Art", Frederico Morais describes the artist's trajectory and his artistic influences, and shows why Palatnik's work "has always suggested the possibility of creative and productive exchange between art, science, technology and industry [ 3 ]."

Palatnik uses a rigorous scientific methodology in combination with a great deal of artistic intuition and sensitivity, giving birth to innovation, intelligence, poetry and plasticity. He is an artist who has devoted his entire life to researching new art forms and exploring new media, opening important venues in the arts, in spite of the obstacles and difficulties inherent to living in a developing country.

Palatnik's work serves as inspiration to new artistic minds, and his professional coherence and rigor are examples to be followed by young artists.

REFERENCES

1. Frederico Morais, "Abraham Palatnik : A Pioneer of Technological Art," in \*Abraham Palatnik Retrospective\*, Sao Paulo, Brazil: Itau Cultural, 1999.
2. A. Palatnik, in Eduardo Kac, "Abraham Palatnik, Pioneer of Kinetic Art: An Interview with Abraham Palatnik," Leonardo On-Line website, 2002. See below in this issue of LEA for full text of the interview.
3. See:

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FEATURE

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SPECIAL SECTION: ABRAHAM PALATNIK, WINNER OF THE 2005 LEONARDO LIFETIME ACHIEVEMENT AWARD

When kinetic artist and astronautical pioneer Frank J. Malina founded the journal \*Leonardo\* in 1968, he saw the need for an international channel of communication between artists who use science and developing technologies in their work. Reflecting his vision, the Frank J. Malina Leonardo Award for Lifetime Achievement recognizes eminent artists who, through a lifetime of work, have achieved a synthesis of contemporary art, science and technology. Winners include Gyorgy Kepes, Nicolas Schöffer, Max Bill and Takis. Adding to this distinguished list of artists, Leonardo/ISAST is pleased to announce Abraham Palatnik as the recipient of the 2005 Leonardo Lifetime Achievement Award.

A BRIEF BIOGRAPHY

Abraham Palatnik was born in Natal, Rio Grande do Norte, Brazil, in 1928. When he was four years old, Palatnik went to Palestine, now Israel, with his family, and received his primary and secondary schooling. He went on to take courses in mechanics and physics and specialized in internal-combustion engines. He had been drawing since early childhood and spent four years at an atelier studying drawing, painting and aesthetics. Between 1943 and 1947, he studied at two schools in Tel Aviv: Hertzlia and Montefiori. At Montefiori, he specialized in combustion engines. At that time he also studied with artists Aron Avni (Painting and Art History), Sternshus (Sculpture), and Shor (Aesthetics).

Palatnik returned to Brazil in early 1948 and settled in Rio de Janeiro, where he met art critic Mario Pedrosa, a leading Brazilian intellectual who was active in both art and politics. Pedrosa's interest in psychology of form and Gestalt theory was one of the biggest influences on Palatnik's work - in fact, Pedrosa was a key influence on the whole avant-garde scene in Brazil from the 1940s through the 1960s. This influence led Palatnik to abandon traditional forms and begin developing his own innovative research in motorized light and color devices, which Pedrosa later dubbed "cinechromatic" devices.

In 1948, Palatnik joined Almir Mavignier and Ivan Serpa to form the first nucleus of abstract/constructivist artists in Rio de Janeiro (and in Brazil). He began to develop his own innovative research the following year. In 1951, Palatnik shocked the jury of the First International Biennial in Sao Paulo with his first "cinechromatic" art machine, \*Azul e Roxo em Primeiro Movimento\* (Blue and Purple in First Movement) at the First International Biennial in São Paulo. The jury awarded Palatnik a "Special Mention" as a gesture of recognition of the value of the work without forcing it into a traditional category, and without having to award a prize for a non-existing category. Palatnik eventually went on to show these works in the 1955, 1957, 1959, 1961 and 1965 São Paulo Biennials as well as the Venice Biennial

in 1964.

From 1953 to 1955, he participated in the group Frente (Front), engaging in contemporary discussions on abstract art. During the 1960s, Palatnik started to produce art machines in which color pieces moved unexpectedly and harmonically as parts of a complex system of motors and gears.

In 1964 he began to work on "kinetic objects" that differed slightly from the cinechromatic machines in that the mechanical equipment became more visible. They consisted of metal rods or wires attached to wooden disks in several colors and shapes that were slowly and silently rotated by motors, or in some cases electromagnets. Palatnik showed his kinetic work alongside that of some of the leading names in the world of kinetic art, including Pol Bury, Takis, Jean Tinguely, Frank Malina and Nicholas Schoffer. As an artist-turned-inventor, Palatnik also designed and patented several pieces of industrial equipment, games and a "rotating object" that animates the properties of Newtonian physics through its curious interaction with gravity.

Palatnik's work has always suggested the possibility of creative and productive exchange between art, science, technology and industry and has engaged intuition and pragmatism in equal part. He still lives in Rio de Janeiro and continues to exhibit and receive major recognition in Brazil. The first book about his work, \*Abraham Palatnik\*, has been published:  
<[http://www.cosacnaify.com.br/loja/detalhes.asp?codigo\\_produto=570&language=pt&showPromo=False](http://www.cosacnaify.com.br/loja/detalhes.asp?codigo_produto=570&language=pt&showPromo=False)>.

Useful resources on Abraham Palatnik:

Pioneers - Abraham Palatnik:

<http://www.olats.org/pionniers/pp/palatnik/palatnik.shtml>

Virtual Gallery (OLATS):

<http://www.olats.org/pionniers/pp/palatnik/galerie.shtml>

Tribute to Palatnik (Portuguese):

<http://www.mac.usp.br/projetos/seculoxx/modulo3/frente/palatnik/#>

Abraham Palatnik (Videoclip of "Cinecromatico" in action):

[http://www.nararoesler.com.br/artistas\\_obras\\_e.asp?idartista=3](http://www.nararoesler.com.br/artistas_obras_e.asp?idartista=3)

Abraham Palatnik (updated resume):

[http://www.nararoesler.com.br/artistas\\_curr\\_e.asp?idartista=3](http://www.nararoesler.com.br/artistas_curr_e.asp?idartista=3)

Itau Cultural Encyclopedia (Portuguese):

[http://www.itaucultural.org.br/AplicExternas/Enciclopedia/artesvisuais2003/index.cfm?fuseaction=Detalhe&CD\\_Verbete=351](http://www.itaucultural.org.br/AplicExternas/Enciclopedia/artesvisuais2003/index.cfm?fuseaction=Detalhe&CD_Verbete=351)

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THE CHROMATIC PLASTIC DYNAMISM OF ABRAHAM PALATNIK: AN INTRODUCTION TO THE FIRST INTERNATIONAL BIENNIAL OF SAO PAULO (1951)

by Mario Pedrosa

Today is the opening of the first Biennial of Sao Paulo. There are several foreign delegations and some are brilliant. The Brazilian delegation is also represented by our best artists. Thus, all modes of modern art will be represented. As part of

the Brazilian delegation, but without any frame of reference for classification due to its status beyond routine regulations, we will see what will be undoubtedly one of the most interesting contributions to the exhibition: the chromatic plastic dynamism of Abraham Palatnik.

Palatnik will represent in this international show the cutting edge of the modern movement. He belongs to the avant-garde of pioneer artists that employ direct light as a medium of artistic expression. Palatnik abandoned the brush and the figure and, after a short abstractionist stage, decided to paint with light - daring to try to realize one of the oldest "artistic utopias," as wrote Moholy-Nagy. Modern technological media are, for this purpose, found in more abundance today than in the past. The multiple luminous signs, the searchlights, spinning electric bulbs, the flashing electric boards, neon gas - all these already occupy the nocturnal spaces and transform the modern night into permanent artificial fireworks.

Out here, we have the luminous image that projects itself, that moves, that deflects and comes forward toward us - in its desperate desire to give us duration and simultaneity, space and time, indissolubly and concretely united. Modern physics is opening an even larger venue in this sense. Until now all these experiences of industrial or commercial nature are nothing but a brutal aggression to our spirit and senses. They are not a plastic organization capable of synthesis, of self-control, of internal structure, of superior signification - in short, of formal rigor. For the artist, the old pictorial \*metier\* (the brush and chemically produced pigments) does not suffice. In order to be able to control, to direct, to shape light, the artist needs new instruments and familiarization with the advances of modern optics, from the issues of colorimetry to the virtualities of artificial light. Palatnik is lined up with the researchers of the plasticity of light, i.e. of the effects of space-time upon our sensibility. Some of these researchers, such as Wallace Rimington and Scriabin (the composer), have created and designed light organs, while others worked with clavilux-like systems, as did Thomas Wilfred, Raoul Hausmann, Wetzel and Laslo, among others. The instrument of the young Brazilian pioneer projects - on a screen or any other semi-transparent material - compositions of colored shapes in motion. His point of departure was the kaleidoscope, but he found the primitive system of having to look at the images with one eye while rotating a glass plate too crude. The artist then wanted to expand vision, freeing the image from the little box in which it was confined so as to project it against the wall by means of a system of lenses. It was a revelation.

These revelations, these visions of fantastic structures, could not have gone beyond child's play if the discovery had not led him to look for a way of controlling such structures, making them return to some initial forms and therefore creating a rhythm. It is true that the kaleidoscope was already arbitrary. In it, the structures are generated at random by the manipulation of the viewer. The artist could not accept this arbitrariness, which excluded him from the work. He then wanted to intervene in the metamorphoses of the kaleidoscope to give plastic direction to these forms. The forms must multiply themselves, but according to a preliminary superior order determined by the artist. The projected luminous colors are not obtained with brushes and pigments. The kaleidoscopic motion also motivated the artist-inventor to set colors in motion, so that they could combine and develop from one to the other

continuously.

Palatnik's first apparatus consisted of a study of the projection capabilities of the lenses. At first, the possibilities were few: motion was determined by the heat irradiated from the bulb that activated the cylinders with the color shapes. In the first apparatus there was only one bulb and one cylinder. But with it the artist achieved his first goal: the possibility of controlling the projection, its orbits and angles, and with them to capture the ultramodern magic effects of colors and forms in motion. At last, color is freed from the constraints of its existence, from the object, from local, chemical materialism. Color becomes pure, direct, deriving from artificial luminous sources. A pigment color fixed on the canvas is an accident that can always be removed. But the color that originates from a light source is at once concrete and imponderable. In fact, one or more chromatic light sources can be projected simultaneously in several places. Palatnik's new apparatus is a box with four walls; in each wall there is an opening. Each bulb can project and focus light in several places at the same time. The new apparatus does not produce only one movement - horizontal - as the first did; it also produces a second movement, which contrasts with the other in the vertical direction. This last movement acts as a kind of counterpoint.

With this new apparatus the artist opens limitless possibilities to kinetic colors. In order to create yellow, for example, one does not need cadmium anymore, because projected light can generate the kinetic mixture of green and crimson and offer us a certain perception of yellow. Light becomes a means for plastic expression due to its own properties, such as fluidity, irradiation, dynamism, discontinuity, infiltration, enveloping expansionism, cooling off, etc. In addition, light creates negative forms and spectral volumes. Moholy-Nagy used to divide all these manifestations of light creation into two fundamental groups: outdoor luminous displays, which are abstract and take place in open space, and indoor displays, realized in enclosures. Palatnik's work can be categorized as what Moholy termed light frescoes, destined to animate walls or whole buildings with the plastic dynamism of artificial light, according to the inspiration and creativity of the artist. Moholy predicted that in the house of the future a special place would be reserved for the installation of these luminous frescoes, as is the case today with radio and the TV set. With Abraham Palatnik, Brazil starts its research in a domain practically unexplored, which might become, next to the movies, the fine art of new times - the true art of the future. It is an excellent introduction to the Biennial.

Originally published in \*Tribuna da Imprensa\*, October 1951, Rio de Janeiro, Brazil.

Videoclip showing a "Cinecromatico" in action:  
[http://www.nararoesler.com.br/artistas\\_obras\\_e.asp?idartista=3](http://www.nararoesler.com.br/artistas_obras_e.asp?idartista=3)

Translated by Eduardo Kac

[Ed. note: this interview has been re-published from the Leonardo journal. Reference:  
PEDROSA, MARIO. "The Chromatic Plastic Dynamism of Abraham Palatnik---An Introduction to the First International Biennial of São Paulo (1951)," in Special Section "A Radical Intervention: The Brazilian Contribution to the International Electronic Art Movement," Leonardo 29, No. 2 (1996).]

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ABRAHAM PALATNIK, PIONEER OF KINETIC ART:  
AN INTERVIEW WITH ABRAHAM PALATNIK

by Eduardo Kac  
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This interview was originally published in the *Ilustrada* section of the newspaper *\*Folha de Sao Paulo\** on 14 October, 1986 (p. 38). The interview appeared on the day of the opening of Palatnik's latest (and, most likely, last) solo exhibition of kinetic art, at Galeria Aktuel, in Rio de Janeiro, where Palatnik still resides.

Abraham Palatnik, the first Brazilian artist to explore the creative use of technology in art, continues to develop his research with light and movement. He also seeks to explore new possibilities in the use of traditional materials in his reliefs and paintings.

Two exhibitions of Palatnik's work are occurring simultaneously in Rio de Janeiro. At Galeria Aktuel, Palatnik is showing new kinetic objects, and at the Gravura Brasileira he is exhibiting new paintings. At the exhibition at the Gravura Brasileira, one will find canvases in which the rigorous treatment of the surface coexists with a mathematical progression of lines with only one curve, succeeding one another sequentially. At Aktuel, Palatnik is showing pieces he developed in the 1980s, a body of work first started in the 1950s that projected him as one of the pioneers in the expressive use of light and movement. The show is comprised of "cinechromatic" machines "that project compositions of color light forms moving on semi-clear surfaces," as Mario Pedrosa wrote. The show also includes other kinetic pieces that go beyond the rigid pictorial elements of static painting.

Kac: What was the nature of your contact with Mario Pedrosa? What was the influence that he, as an avant-garde art critic, had on your creative process?

Palatnik: I first met Mario Pedrosa in 1948, through friends such as Ivan Serpa and Almir Mavignier. Mario strongly supported my research, which was absolutely nontraditional. At that point, I had already done painting but once I started my new experiments, I abandoned the brush and started to explore possibilities that had nothing to do with the traditional concepts of art. At that time, what I was doing could not be considered art and I had several problems by the time of the First Biennial. My work could not be judged, I couldn't participate in the Biennial, and there wasn't a section for my kinetic art. Mario Pedrosa invented a name for one of my machines, which since then started to be called "cinechromatics." That really stimulated my investigations with light and movement.

Kac: What happened during the First Biennial? Was the first

cinchromatic machine seen as a revolutionary work of art, or was it considered as a curiosity without major future consequences?

Palatnik: In reality, it was luck that got me into the Biennial. At first, my machine was rejected, because it wasn't a painting, a sculpture, a drawing or a print. The Japanese delegation failed to send on time the work they had committed to the Biennial. Then, someone, I don't know who, remembered my work and suggested it be put in the place vacated by the Japanese. I remember that Almir came to me and said: "Abraham, you will exhibit at the Biennial! They will put you in the place of Japan." As a result, the international jury was surprised with the work, and made special remarks about it. From this event came the recognition that the work was an "important manifestation of modern art," as they said. However, even then, in the forthcoming Biennials I received invitations to show my work, but under the condition that I would agree not to compete for any award, since they did not have a section for the type of artwork I was making.

Kac: What was the repercussion of your work in the 1950s, when you were conducting pioneering research in kinetic art?

Palatnik: Years after participating in all Sao Paulo Biennials, I was invited to participate in the Venice Biennale. There, I was also lucky to be approached by a Swiss art critic. After providing him proof that I started to work with light and movement in 1949, and that the results of my first experiments were shown in 1951, he corrected the information in Europe. That was necessary because the available information at the time was that the precursors of art with light and movement were only Malina and Schoffer. On the occasion of the First International exhibition of Kinetic Art, the correct information was already evident in a diagram published by the Denise Rene Gallery in Paris.

Kac: Besides light and movement, you also investigate the use of magnetism in art. To what extent does your interest in scientific phenomena contribute to your artistic research?

Palatnik: In reality, all of nature's physical forces are of interest to me. Magnetism is so fascinating that it could never have escaped my aesthetic curiosity. I've made some magnetic pieces, one of which I'm showing at Aktuel. I sent a multiple of this piece to "The New Dimension of the Object," a group show currently in exhibition at the University of Sao Paulo's Museum of Modern Art, in Sao Paulo. It is an object that explores the nature of the positive and negative poles of magnets, in terms of attraction and repulsion.

Kac: Today, electronic art is constituted by new forms of aesthetic manifestations that have emerged through artists' mastering of new technologies. How do you see the work being done in art and technology today?

Palatnik: It is the understanding of the importance of form, not only in the external world but also at the unconscious roots of human activity, that allows us to dissolve the commonly created oppositions between art, science, technology and communication. Technology, in the context of human evolution, acquires meaning and becomes evident to the extent that it allows the senses a conscious access to the mechanics of the natural forces. I'm particularly interested in new technologies

and would like to work with some of them. If I were starting in art today, I would undoubtedly be doing research with holography and computers, for example. I haven't been following closely what is being done in Brazil, but this year I was at the opening of the Brazil High Tech exhibition, where I could see several interesting experiments. Artists researching new media are the ones that can bring us into contact with the unexpected, giving life to what we call creativity.

Translated by Ruth Kafensztok

[Ed. note: this interview has been re-published from the Leonardo journal. Reference:  
KAC, EDUARDO. "Abraham Palatnik, Pioneer of Kinetic Art," in Special Section "A Radical Intervention: The Brazilian Contribution to the International Electronic Art Movement," Leonardo 29, No. 2 (1996).]

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LEONARDO REVIEWS  
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This month, the busy team at Leonardo Reviews has again filed around 20 new reviews. It is now a matter of course, I hope, to expect a lively and diverse page that informs and even, perhaps, infuriates our community. Although some months it is difficult to decide what to feature in LEA, that is not a problem this month. It may seem an odd choice to republish one of my own reviews, but I make no apology - the 6th Swiss Biennial on Science, Technics and Aesthetics was, in my opinion, a very important event, which I was privileged to attend. Also featured here is Jan Baetens' discussion of a fascinating revision in the way we might look at the visual history of science and technology. His review of \*Picturing Machines: 1400-1700\*, edited by Wolfgang Lefèvre, draws back to the consideration of the utilitarian function of maps and diagrams rather than the usual "post-colonial" historical emphasis on their visual oddity. Finally, Amy Ione's review of \*The Junction\*, directed by Ilan Ziv, plunges us into the contemporary dilemma that global politics and the synchronous asymmetry of human worth confronts us with.

As usual, the remainder of this month's reviews can be found at: <http://leonardoreviews.mit.edu>

Michael Punt  
Editor-in-Chief  
Leonardo Reviews

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REVIEWS POSTED FEBRUARY 2005

Architecture's New Media: Principles, Theories, and Methods of Computer-Aided Design  
by Yehuda E. Kalay  
Reviewed by Peter Anders

The China Study  
by T. Colin Campbell and Thomas M. Campbell  
Reviewed by Wilfred Niels Arnold

Computational Discrete Mathematics: Combinatorics and Graph  
Theory with Mathematica  
by Sriram Pemmaraju and Steven Skiena  
Reviewed by Martha Patricia Niño Mojica

Cook Book: Gertrude Stein, William Cook, and Le Corbusier  
by Roy R. Behrens  
Reviewed by Dene Grigar

Data Made Flesh: Embodying Information  
edited by Robert Mitchell and Phillip Thurtle  
Reviewed by Eugene Thacker

Digital Nation: Toward an Inclusive Information Society  
by Anthony G. Wilhelm  
Reviewed by John F. Barber

First Person: New Media as Story, Performance and Game  
edited by Noah Wardrip-Fruin and Pat Harrigan  
Reviewed by Maia Engeli

Global IT Outsourcing, Software Development Across Borders  
by Sundeep Sahay, Brian Nicholson and S. Krishna  
Reviewed by Stefaan Van Ryssen

The Junction  
directed by Ilan Ziv  
Reviewed by Amy Ione

Lucien Hervé: Building Images  
by Olivier Beer  
Reviewed by Stefaan Van Ryssen

Lumière and Company  
directed by Sarah Moon  
Reviewed by Roy R. Behrens

Models: The Third Dimension of Science  
edited by Soraya De Chadarevian and Nick Hopwood  
Reviewed by Craig Hilton

Operating Theatres  
and  
Inhale/Exhale  
by Lia Lapithi  
Reviewed by Michael R. (Mike) Mosher

Picturing Machines: 1400-1700  
edited by Wolfgang Lefèvre  
Reviewed by Jan Baetens

Robert Smithson and the American Landscape  
by Ron Graziani  
Reviewed by Amy Ione

Self-Publishing Textbooks and Instructional Materials  
by Franklin H. Silverman  
reviewed by Nisar Keshvani

The 6th Swiss Biennial on Science, Technics + Aesthetics (6.  
Schweizer biennale zu wissenschaft, technik + ästhetik) -  
Consciousness and Teleportation  
Reviewed by Michael Punt

Reviews of Takahiko Limura - Film, Video, Multimedia (1978-2001)  
edited by Kazuyo Yasuda  
Reviewed by Andrea Dahlberg

Under the Spell of Dziga Vertov's Kino-Eye and Kino-Ear: Le  
Giornate del Cinema Muto, 23rd edition  
Reviewed by Martha Blassnigg

The Way Things Go  
directed by Peter Fischli and David Weiss  
Reviewed by Roy R. Behrens

The World Stopped Watching  
directed by Peter Raymont  
Reviewed by Michael R. (Mike) Mosher

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THE 6TH SWISS BIENNIAL ON SCIENCE, TECHNICS + AESTHETICS:  
CONSCIOUSNESS AND TELEPORTATION

22-23 January, 2005, Swiss Museum of Transport and  
Communication, Lucerne, Switzerland  
Reviewed by Michael Punt, University of Plymouth  
mpunt [ @ ] easynet [ dot ] co [ dot ] uk

Drawing consciousness and teleportation together as the topic of this, the sixth Biennial on Science, Technics and Aesthetics, organized by René Stettler, was certainly an inspired move. Artists, philosophers and scientists were gathered up in a relatively harmonious intellectual setting, in which each was prepared to meet the other on their own ground. Of the 300 or so who attended each day, about 60% were artists prepared to follow some complex mathematics, while the remainder appeared to be scientists open to the more speculative and philosophical aspects of their work. In a two day event, Stettler assembled a program of 17 speakers, chairpersons and presenters from Australia, Germany, England, Holland and Austria, the U.S. and Switzerland which was organized along the lines of an extended seminar and drew out some key issues in consciousness studies, quantum theory and philosophy. There were of course no conclusions, no manifestos, nor any plans for future action, but there was an intense and informed focus on the interface between science, philosophy and art that transcended the usual intellectually amorphous consensus, clawing at the idea of collaboration as some sort of WASP moral high-ground. For this refreshing rupture, if nothing else, Stettler should be congratulated. But in the intellectually relaxed and open atmosphere, his topic of teleportation revived the hunt for a new kind of science - a parascience based on a no-less rigorous methodology - which includes in its investigative remit "that which is without matter."

On the down-side, however, was the absence of any discussion of the schlock fantasy promised by the poster. Leonardo Nimoy (the half-human/half-Vulcan Dr. Spock), who stared out from behind a 35mm ribbon of portraits of the presenters, evoked the Hollywood vision of full-body teleportation. Instead, with the exception of some visionary presentations from Karl Pribram and Roy Ascott, the overwhelming hegemony of positivist science could only guarantee the teleportation of very small things, and even then it would be constrained by the speed of light. Despite this prosaic interpretation relative to the blockbuster adventures on the Holodeck, thinking small did bring into focus one of the

most important implications of quantum-teleportation - the implications for consciousness studies.

It seems that the favored way of reconciling one of the problems that positivism presents is to acknowledge that the predictions of classical physics fail at a particular resolution and, at a certain scale, new laws seem to apply. As it happens, there are elements in consciousness that appear to be governed by both laws of physics. So although a thrown ball follows one law, the system that allows us to catch it follows another. This is not simply because our sensory system works so slowly that we could not possibly "see" the ball in time to catch it, but because telling our hands and arms to move would involve an infinite chain of command between brain and hand that would never actually connect. Using the logic of a quantum physics which is blessed with ideas such as "enchantment" and "entanglement," however, consciousness and matter can be connected at the micro-biological level without too much loss of face for the classicists. The persistent exegesis of this notion (whatever its worth) was followed in the papers at the cost of the idea of teleportation as an expression of the widespread dissatisfaction with monorealism: an idea that effortlessly flows from the Cloud of Unknowing to \*Star Trek\*, galvanizing a resistance that has often threatened to destabilize the dominant discourses of power (both sacred and secular) and shaped the history of ideas for two millennia. This particular view of consciousness as a sub-atomic materialist process open to explanation seemed to be generally accepted (even among some artists and philosophers who had no investment in the classical world view), until, that is, Karl Pribram deftly shifted between reductivist views of science and holistic philosophical assertions to perhaps come closer than any of the other scientists to deal with teleportation on a human scale.

With charm and modest grace, Pribram expressed an essentially Epicurean view, inflected by holography, as a metaphor for how consciousness might be a constituent part of a spectral realm accessed by human sensory organs. As he revisited the foundations of scientific materialism and drew attention to the consistency of human receptivity to waves, he suggested how we could understand ourselves as interpreters (rather than inquisitors) of the cosmos. In doing so, he also rolled back science to a pre-Baconian state and, in a simple demonstration, showed how we might visualize consciousness as something "out there," which we tune into. Finally taking an interpretative stance in respect of Einstein's famous reduction  $e=mc^2$ , he argued that the "equals" sign merely meant that energy could become matter, and the impulse to "thingify" everything had overwhelmed more viable theories about fields that were developed in the nineteenth century. If one thought in terms of overlapping fields, then "meaning" (in all its devilish disguises from nonsense to metaphor) could, in Pribram's view, be understood as a trick of evolution used to compensate for the lack of formal capacity. Catching a ball in a field of consciousness becomes quite a simple matter.

Ascott, as the only artist, drew a similar line to address the issue of consciousness and teleportation, starting from the direct experience of the world liberated (as far as possible) from the constraints of suffocating reason. As always, his argument was challenging and demanding, drawing on a wide spectrum of apparently disconnected discourses, only to finally reconcile them at the micro-level of the individual as a fully connected "being" in an ahistorical and undifferentiated ether.

The coherence with which the various strands came together and yet retained identity was symptomatic of his thesis developed over two decades that has embraced the "science" of consciousness as a legitimate and urgent concern for the artist in a connected world. His rhetoric of association, reminiscent of Aby Warburg's methodology of the *Mnemosyne*, may have contrasted with the strict sequence of the earlier math and science, but only in this way could his conclusion liberate new directions in consciousness studies, as it also suggested that artists and scientists might work together in a synergy of benign divergence.

Paradigmatic of the synergy of benign divergence was the final speaker, who exploited the visual realm and the partiality of perception in order to undermine much that had been presented as fact in the previous papers. Jack Pettigrew, a hardcore neuroscientist, delivered a paper, based on experimental evidence, which drew us away from quantum mechanics and back to the idea of consciousness as a quality in the world that we inhabit. Concentrating on involuntary inter-hemispheric switching mechanisms in humans, he argued that endophysics displaced the universality of light with the universality of gravity. This geographically variable force, he suggested, had bearing on the pulse of individual switching (evident in hemispheric rivalry, breathing, etc.) and affected "spring-loaded" entities at the sub-cellular level. The exciting implication of this was that as these sub cells snapped shut, energy was returned by "gravitationally-driven consciousness" to the material world. With more than a nod toward Feynman, Pettigrew suggested that consciousness was shared and governed by a "world clock." Not only did his findings form a powerful triad with Pribram and Ascott, but through experimental science, he began to establish the link between world consciousness and desire in a way that artists might understand without invoking Jung.

There were many other dynamic contributions over the course of the conference, some being familiar reiterations of earlier research, others new insights based on current thinking. The full list of presenters and abstracts can be found at: [http://www.neugalu.ch/e\\_bienn\\_2005.html](http://www.neugalu.ch/e_bienn_2005.html) and it is worth visiting to understand the range that Stettler brought together. And while it seems a little unbalanced not to refer to more of them here, in some ways the significance of the three contributors discussed above goes beyond the putative topic of the conference. There was no spectacle and no Hollywood, no rejection of the dominant discourses of power in an inexplicable act, because in some ways Stettler's intuition drew us to the brink of something too serious: the crisis that science (like history) is facing. Its epistemological strategies are now so transparent that it can no longer satisfy the imperative from which it emerged. That is not for one moment to suggest that the intellectual achievements of four centuries are to be dismissed; on the contrary, as Consciousness and Teleportation revealed, it is through the very enterprise of science that the limits of reason become clearer each day.

It would be premature to announce the death of science, and in any case cultural inertia and economic determinism will guarantee a long life for it as an epistemological institution. But Consciousness and Teleportation showed just how much science was stumbling in its efforts to satisfy its own intellectual demands in certain areas, and compared with *\*Star Trek\**, how much it was failing to engage with the radical possibilities

that science had offered to the population as a whole in earlier centuries. Before the exclusion of telepathy, life after death and other psychic phenomena (something which Pettigrew disarmingly acknowledged as a fact), science fuelled the imagination of a broad constituency ranging from the humblest working man to the most privileged intellectual. Once it bracketed the immaterial however, it was forced along an unnecessarily complicated road constrained by fact and certainty, in which there was no method to allow for the co-existence of contradiction. By the beginning of the twentieth century, it seems, everything in science became ineffably complicated, and as a consequence the spirit took exclusive residence in the arts where, alas, for the most part it has been trivialized in the reification of the cult of the individual.

If there were no conclusions at Consciousness and Teleportation, there were revelations. In the first place, it revealed some of the asymmetries between the arts and the sciences; how the arts need to attend much more to methodology if they are to escape from the redundancy of simply inventing the familiar and avoid confusing insight with idiosyncrasy. In a reverse angle, the unsustainable obsession with science as an uninflected epistemology validated by method needs more people like Pettigrew, Pribram and Bierman, who are prepared to be amazed and to take risks with their public credibility by acknowledging the inexplicable anomalies that they discover in the laboratory.

If nothing else, Consciousness and Teleportation stoked the flames of the debate between art and science. But in my view, the materialists were given the better pulpit, and perhaps, as confidence grows in this discussion, by 2007 more petrol can be cast on the fire from those in the arts and humanities, who have persistently engaged with the problem of an overbearing monorealism. In the meantime, artists could return to the book stacks and work with scientists like Pribram and Pettigrew reminding them that, like many earlier investigators of the spirit world, artists such as Cézanne, Boccioni and Duchamp, together with art historians such as Warburg, Stafford and Krauss, have arrived at similar conclusions about "gravity and the pulse of vision," using a methodology exemplified by Ascott. Together we might also pick up some of the themes of this conference and look at the history of the spectral domain as a "festival of notions" (Pribram): an irresistible flow of ideas and emotions, which, if we allow it, the "lens" of our consciousness can reveal.

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PICTURING MACHINES: 1400-1700

edited by Wolfgang Lefèvre, Cambridge, MA: The MIT Press, 2004.  
354 pp., illus. 129 b/w. Trade, \$40.00. ISBN: 0-262-12269-3.

Reviewed by Jan Baetens

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By the end of the Middle Ages, books and manuscripts on architecture, urbanism, fortification, machines, agriculture, engineering and so on were increasingly illustrated by technical drawings. Those drawings are astonishing for many reasons. First, there is, of course, the very fact of their appearance, for the presence of technical drawings in medieval writings on the same subject was all but common. Second, there is the

admiration they still inspire today, for the technical illustrations of this period are no less intriguing, complex and inspiring than the better-known artistic or religious imagery. Third and most of all, there are finally the many riddles and questions raised for contemporary readers. Even for specialists, many questions of meaning and use continue to haunt these images, whose cognitive, epistemological, social and even ontological status is far from clear.

The collection of essays gathered by Wolfgang Lefèvre, senior scientist at the Max Planck Institute for the History of Science in Berlin, does not attempt to give an overall view of the social and scientific meaning of the very different ways in which machines used to be represented in the three centuries covered by the book. As the editor repeatedly stresses in both his general introduction and the smaller introductions of the various sections of the books, *\*Picturing Machines: 1400-1700\** tends to give priority to the close reading of key works, key authors and key transformations of the period under question. Yet, despite this methodological a priori, the editor's contributions manage very well to put the very specialized contributions of the nine essays in a wider and coherent perspective. Hence, this book is of major importance for all scholars interested in issues of visual literacy and topics such as ocular centrism and the history of visual representation in Western culture.

How Lefèvre tackles the three reasons of interest mentioned above gives a very good idea of the capacity of this book to transcend the apparent limitations of the close reading approach of individual topics.

Concerning the very appearance of the technical drawings, the editor presents a clear survey of the paradigm shift in technical culture in the early modern image. As Lefèvre argues, the study of technical drawings cannot be separated from that of the global scientific culture at the end of the Middle Ages. The development of new forms of division of labor; the spread of new forms of knowledge propagation and, therefore, of learning and instruction; the complexification of knowledge in general, which was no longer exclusively a matter of transmission of skills and experience, but also of science and speculation; and finally, the connection with new types of communication with readers, for instance with possible sponsors with a real interest and training in technological devices - all these elements explain the paradigm shift between the "oral" Middle Ages and the "visual" early Modern Age.

As far as the second aspect of our reading of these images is concerned, the book continues the very welcome break, now usual in historical science studies, with the two stereotypes that have long hindered a more correct approach to ancient technical drawings: on the one hand, the fascination exerted by the aesthetic qualities of the images (and the fact that often these drawings were from the hand of "artists" such as Leonard da Vinci, only increased this type of misunderstandings); on the other hand, the denial of any real technical and scientific value to images that seemed incredibly naive and ingenuous (the later belief in the "natural" status of monocular perspective has done a lot to discard the concrete scientific and technical use and usability of these drawings in which other types of representation were dominant). In either case, Lefèvre and the various contributors to the volume demonstrate very convincingly the necessity to exceed this double stereotype. Technical

drawings of the early Modern period are no hidden or involuntary works of art, but devices of thinking, designing and production of tools and environments. Yet this technological and scientific value can only be acknowledged if one accepts or manages to understand how these images were used: who made them, for whom they were made, how the maker and the reader of the images communicated, what was the role played by other instances of knowledge transmission, which other types of images were used in order to complete the technical drawings, etc. \*Picturing Machines\* focuses sharply on these issues, very consciously putting aside questions of aesthetics and politics, although the importance of these dimensions is of course not denied.

The third question, then, concerning the "what" and "how" of those images, occupies the central place of each contribution. In all cases, the authors show that technical images should be read and understood not so much as simple "visualizations" of already existing ideas or objects, but as models that helped the thinking about and hence, the making of machines. In other words, the specific meaning of pictured machines can only be grasped provided one accepts to consider these images less in their retrospective than in their prospective dimension: technical images in the early modern period do not reproduce devices that already exist but devices one tries to imagine and to produce. Moreover, the communicative and performative space in which these drawings had to function is directly linked with the readers, most of them specialists themselves or amateurs with a strong, sometimes even vital, interest in technology that used to work with them.

\*Picturing Machines\* is also crucial for another reason: the exceptional wealth of its illustrations, very well-chosen and always captioned with perfect good sense. Even readers less familiar with a certain number of scientific insights or discussions which the makers of these drawings expected from their readership will find in this book a superb encyclopedia of technical drawings in the early modern period. All these readers should feel encouraged to enter also the highly specialized articles of this book, which will be appreciated by specialists as well as by amateurs.

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#### THE JUNCTION

directed by Ilan Ziv, Icarus / First Films, Brooklyn, NY, 2003.

VHS, 52 mins., color. Sales, \$390; rental, \$75. Distributor's Website: <http://www.frif.com>.

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A few years ago, I was among those who juried an international children's art show. Work was submitted from throughout the world and judged by country. One winner from each country was then invited to attend a weeklong event in Washington, D.C. Most of the countries had a particular flavor, although the narrative and visual qualities of the submissions would still demonstrate a range of personalities. The drawings that stayed in my mind were from a group of Palestinians. Depicting people in cages and accompanied by words like "kill," it was difficult to comprehend

how I could "judge" them. Knowing the kinds of passions that defined the situation in the Middle East, even before the United States invaded Iraq, the emotions these children depicted were easily placed within a context that was certainly beyond the kind of judgment one brings to an art contest.

\*The Junction\*, a film by Ilan Ziv, brought these images to mind. It, similarly, compels us to reconcile the irreconcilable, as it reminds us that humanity is comprised of living beings with deep emotions. The narrative Ziv presents revolves around the stories of two men, Fahmi Abou Ammouneh and David Biri. Although they appear to have little in common in life, their deaths link them forever. Biri was the first Israeli soldier and Ammouneh, the first Palestinian civilian, killed at the start of the second \*intifada\* that erupted in the Israeli-occupied Gaza Strip in 2000. Since then, large numbers of Israelis and Palestinians have met a similar fate. \*The Junction\* combines interviews with families and friends with home videos of Biri to show how death affects the living. Particularly noteworthy are the references to God on both sides, which seem ironic in light of the violence and the divisive views expressed. The references to God also bring to mind the way in which people of all religions have turned to their gods when called upon to provide a rationale for events they are unable to grasp.

One of the striking aspects of the presentation is conveyed by the director's ability to capture that the sorrow of loss strikes all equally. Indeed, the film frames an abyss that seems to offer no answers as to what we may do to end the cycle of violence and the resulting sorrow from it. In this case, the void is tied to the fates of the two boys, whose deaths rippled through both communities, inciting passions on both sides. David's family, for example, left their son's room intact as they struggled for comprehension. The father of his best friend, El'ad, an incredibly articulate speaker, tells us that he lost one son in an earlier conflict. Then El'ad, totally unable to come to terms with the death of his companion, committed suicide. David's surviving comrades also demonstrate that the senselessness of his death is not easily grasped. These soldiers, instead, remind us that even members of the army must deal with internal struggles as they embrace the kind of camaraderie that those within the service seem to develop to cope with this lifestyle.

Fahmi's family, likewise, fails to understand the circumstances his death brought into their lives. While there are no videos displaying his person to us, the interviews do give us a sense of his personality. We also learn that their loss was yet another personal tragedy to add to the litany. When his relatives situate the event in terms of the injustice perpetrated by the Israeli occupiers, their stories bring to mind that the misery of the Palestinians has festered. Fahmi's mother's family was forced out of their village when she was a baby. His uncle decries the misery that follows them from generation to generation.

What can one say when presented with such sadness? In this case, although the film frames two lives, it also points toward a larger reality, particularly apparent during this past Christmas season, when I viewed the film. The news in the United States during this time continually included sequences of families touched by the war in Iraq. Among those who had lost family members, the most unforgettable was the child who refused to accept that the death of a father meant the father was never

coming home. Several family members, endeavoring to come to terms with the how and why of war's casualties, also spoke of how violence enflames and of all that it fails to resolve. Just as David's friend El'ad took his life, it seems that death in war has a negative impact on the social and emotional fabric of individuals and societies.

Ilan Ziv artfully reminds us that abstractions about war do not negate the real people who are affected by larger circumstances. He conveys how events elevate passions. This, in turn, results in an excellent film that is moving, although hardly uplifting. Given the \*pathos\* he presents, it is perhaps useful to think that this work was completed before the death of Yasser Arafat in November 2004. As Arafat's death reminds us, circumstances change. With each fluctuation in the fabric of our lives, possibilities are given new life. One can now again hope that all involved will seek a constructive solution, and events do offer hope. It is heartening to know that the Palestine Liberation Organization (PLO) leader Mahmoud Abbas has begun his official election campaign with a call for peace and negotiation. Another sign that better times might be ahead is that residents of a small Jewish settlement said at the end of December that they will move to a village inside Israel, giving a boost to the government's contentious Gaza pullout plan by becoming the first community to agree to be evacuated. Juxtaposing the events of \*The Junction\* with those that signify hope for the future, however, I am keenly aware that David Biri's father spoke of the promise of peace that seemed to be alive when his son first joined the army. Still, as 2005 dawns, it is encouraging that leaders are renewing their efforts to find a solution to the intractable situation that currently has torn this region apart. As this film reminds us, a world in which this kind of film would be unnecessary is a worthy goal.

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LEONARDO JOURNAL

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## LEONARDO NETWORK NEWS

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### LEONARDO 38:2 - ABSTRACTS

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#### A SYSTEM OF DIGITAL-BOTANIC ARCHITECTURE

by Dennis L. Dollens

Looking to historical precedents in Louis Sullivan's \*System of Architectural Ornament\* (1924) and to botanic inspiration derived from The TumbleTruss Project, the author aims to explain how visual biomimetics and digital production can present ways to conceive, visualize, generate, draw and model physical forms from natural elements such as shells, seeds, plants, rocks, etc. In particular, the author explains how designs "grown" in plant-generating software can be deployed in other software and built as stereolithography (STL) models to illustrate a new system of architectural and sculptural design and production.

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< ARTIST' S ARTICLE >

STEREOSCOPIC SYNERGY: TWIN-RELIEF SCULPTURE AND PAINTING

by Glenn Biegon

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Two accelerated-relief sculptures depicting the same scene from slightly different viewpoints can serve as sculpted stereoscopic half-images - or "twin-reliefs." Unlike traditional relief sculpture, which compresses sculptural space, twin-reliefs expand it, creating life-like illusionistic depths. Viewed binocularly in a large Wheatstone stereoscope, the twin-relief's virtual world appears colorful, atmospheric and life-size - even infinitely deep. Furthermore, unlike flat-picture stereoscopy, which allows just one undistorted, perspective-robust view, twin-reliefs provide infinitely many such views because, being sculptural, they "adapt" to the observer's movement. Twin-reliefs synergistically combine essential physical attributes previously separated between the domains of painting, sculpture and traditional flat-picture stereoscopy.

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< ARTIST'S NOTE >

THE HISTORIC SEARCH FOR RED SPRITES: ART MEETS SCIENCE IN

\*LIGHTNING'S ANGELS\*

by Peter McLeish

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Sprites are fleeting, luminous shapes that shoot into the upper atmosphere during large thunderstorms as lightning simultaneously reaches down to Earth. For at least a century, scientists have attempted to confirm and explain the existence of sprites with visual images and data. The author's series \*Lightning's Angels\* supplements the documentation of sprites by exploring the properties of this natural phenomenon through digitally enhanced oil portraits set to music and displayed in a large-scale multimedia format, such as at a planetarium.

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< ARTIST'S ARTICLE >

\*37 DEGREES C\*: FROM THE INSIDE OF A BEING TO THE THIN LINE OF LIFE

by Polona Tratnik

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An observer entering the installation \*37 degrees C\* becomes a part of the inside of an organism. This is a warm and dark environment in which living human skin cells are displayed. The aim of the project is to confront observers with a fragile boundary between life and death, to envelop them within the presence of life. Life does not have clear demarcations. On the precarious edge, it can either slip into death or come back to life. The author's work seeks to present the experience of such intermediary states of existence.

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< GENERAL ARTICLE >

PERSPECTIVES ON AESTHETIC COMPUTING

by Paul Fishwick, Stephan Diehl, Jane Prophet and Jonas Löwgren  
Paul Fishwick  
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The authors present an introduction to the new interdisciplinary area of aesthetic computing and proceed to define this area with examples from each of their own disciplines, practices and research. While several decades of publication and work have resulted in significant advancements in art as implemented through technology, less emphasis has been placed on studying the converse issue of art's effect on computing, or "aesthetic computing." The authors present their individual work in this area and then follow with brief criticism of one another's work to elucidate different perspectives on the idea. By approaching the topic of aesthetic computing in this manner, the paper serves as an introduction to and survey and analysis of the field.

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< GENERAL ARTICLE >

PULSE OF AN OCEAN: SONIFICATION OF OCEAN BUOY DATA

by Bob L. Sturm  
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The author presents his work in sonifying ocean buoy data for scientific, pedagogical and compositional purposes. Mapping the spectral buoy data to audible frequencies creates interesting and illuminating sonifications of ocean wave dynamics. Several phenomena can be heard, including both those visible and those invisible in graphical representations of the data. The author has worked extensively with this data to compose music and to produce \*Music from the Ocean\*, a multimedia CD-ROM demonstrating the data, the phenomena and the sonification. After a brief introduction to physical oceanography, many examples are presented and a composition and installation created from the sonifications are discussed.

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< HISTORICAL PERSPECTIVE >

DID HANS MEMLING EMPLOY OPTICAL PROJECTIONS WHEN PAINTING  
\*FLOWER STILL-LIFE?\*

by David G. Stork  
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David Hockney has recently hypothesized that some early Renaissance painters employed optical devices such as concave mirrors to project images of a scene or part of a scene onto their supports, which they then traced or painted over. As one

of many examples, he has claimed that Hans Memling (ca. 1440-1494) built an optical projector to create his \*Flower Still-Life\*, specifically when rendering its carpet. The author's perspective analysis on the image of this carpet shows that while there is a "break" in perspective consistent with refocusing or tipping of an optical projector, there are also other larger, more significant perspective deviations that are \*inconsistent\* with the use of a projector. After presenting a simple sensitivity analysis of these results and rebutting anticipated objections, the author concludes by rejecting the claim that optical projections were used in the creation of this still life.

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< HISTORICAL PERSPECTIVE >

MIKHAIL MATYUSHIN'S CONTRIBUTION TO SYNTHETIC ART

by Bulat Galejev  
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The author explores the pioneering ideas and experiments that the Russian musician and artist Mikhail Matyushin (1861-1934) contributed to the theory and practice of synthetic art. Special emphasis is placed on light art, light music and Matyushin's reflections on analogies between visual and performance art and on synesthesia. The article adduces some new facts, taken mainly from Russian sources not readily accessible to Western researchers. Although Matyushin did not make a significant contribution to the cause of actual light-musical synthesis, he

did make interesting forecasts in this area, which still have value for the modern reader.

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< TECHNICAL ARTICLE >

SYMMETRIC VENN DIAGRAMS IN THE PLANE: THE ART OF ASSIGNING A BINARY BIT STRING CODE TO PLANAR REGIONS USING CURVES

by Peter Hamburger and Edit Hepp  
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The authors discuss artwork created by assigning a binary string code with length 11 to each of  $2^{11} = 2,048$  planar regions formed by the intersection of 11 rotations of a single simple closed curve over  $360/11$  degrees. The goal of this process is to create the maximum number of connected regions, exactly one for each of the 2,048 different binary strings with length 11. The difficulty in this process lies in finding a suitable curve. The authors briefly describe the methods of finding these complicated curves and show how colors can be assigned to regions representing orbits of shifts of binary strings, thus creating unusual images.

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ISAST NEWS

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2004 LEONARDO AWARD FOR EXCELLENCE GIVEN TO STEVE MANN  
HONORABLE MENTION AWARDED TO DAVID FIRST

Steve Mann has been named the recipient of the 2004 Leonardo Award for Excellence for his article "Existential Technology: Wearable Computing Is Not the Real Issue!," published in \*Leonardo\* 36:1. This annual award recognizes excellence in articles published in \*Leonardo\*, \*Leonardo Music Journal\* (LMJ) and \*Leonardo Electronic Almanac\* (LEA). Excellence is defined as originality, rigor of thought, clarity of expression and effective presentation. Receiving Honorable Mention is David First, for his article "The Music of the Sphere: An Investigation into Asymptotic Harmonics, Brainwave Entrainment, and the Earth as a Giant Bell" (\*Leonardo Music Journal\*, Vol. 13). The winning article and all of the articles nominated for the award are available at <http://leonardo.info/isast/awards.html>.

In Mann's winning article, the author presents \*Existential Technology\* as a new category of in(ter)ventions and as a new theoretical framework for understanding privacy and identity. His thesis is twofold: (1) The unprotected individual has lost ground to invasive surveillance technologies and complex global organizations that undermine the humanistic property of the individual; and (2) A way for the individual to be free and collegially assertive in such a world is to be "bound to freedom" by an articulably external force. To that end, the author explores empowerment via self-demotion. He founded a federally incorporated company and appointed himself to a low enough position to be bound to freedom within that company. His performances and in(ter)ventions over the last 30 years have led him to an understanding of such concepts as individual self-corporatization and submissivity reciprocity for the creation of a balance of bureaucracy.

Steve Mann has written more than 200 research publications and has been the keynote speaker at numerous industry symposia and conferences. His work has been shown in museums around the world, including the Smithsonian Institute, the Museum of Modern Art in New York, the Stedelijk Museum in Amsterdam, the Triennale di Milano and the San Francisco Art Institute. Mann is known for his work with WearComp (a wearable computer) and WearCam (an eyetap camera and reality mediator), and for keeping a web log of his visual experiences (inventing the Cyborglog, also known as a "glog"). He received a Ph.D. from MIT in 1997 and is now a faculty member at the University of Toronto.

Honorable mention David First discusses in his article the conceptual framework for the organization and performance of music that has its basis in the frequency relationships of the Schumann Resonances and in the principle of binaural beats. Describing the steps he took in conceiving the project, the technical issues involved in realizing the goal of live data transmissions from a remote location and the creation of his 3D overtone series, he also lays out his philosophy of improvisation and treads lightly into the curious grey areas where science mutates into leaps of faith.

The Leonardo Award for Excellence was originally established by chemist and inventor Myron Coler and \*Leonardo\* publisher Robert Maxwell. Past recipients of the award include Rudolf Arnheim, Otto Piene, Charles Ames, Frieda Stahl, Donna Cox, George Gessert, Janet Saad-Cook, Alvin Curran, Karen O'Rourke, Eduardo Kac, Hubert Duprat with Christian Besson, José Carlos Casado and Harkaitz Cano, and Arthur Elsenaar and Remko Scha. The 2004 Excellence Award Committee comprised Lynn Hershman, chair; and

jury members Mark Beam, Neora Berger, Luc Courchesne and Machiko Kusahara.

In addition to the winning article and the honorable mention, a number of other articles were nominated: Hisham Bizri, \*City of Brass: The Art of Masking Reality in Digital Film\* (\*Leonardo\* 36:1); Iba Ndiaye Diadji, \*From 'Life-Water' to 'Death-Water' or On the Foundations of African Artistic Creation from Yesterday to Tomorrow\* (\*Leonardo\* 36:4); Manfred Friedrich, \*Polarization Microscopy as an Art Tool: Border Crossing between Art and Nature\* (\*Leonardo\* 36:3); Stefan Gec, \*The Celestial Vault\* (\*LEA\* 11:9); Michael John Gorman, \*Art, Optics and History: New Light on the Hockney Thesis\* (\*Leonardo\* 36:4); Graham Harwood, \*Uncomfortable Proximity: The Tate Invites Mongrel to Hack the Tate's Own Web Site\* (\*Leonardo\* 36:5); Amy Ione, collected reviews (\*Leonardo\* and \*LEA\*); William Magee, \*Materialism and the Immaterial Mind in the Ge-luk Tradition of Tibetan Buddhism\* (\*LEA\* 11:2); Gunalan Nadarajan, \*Phytodynamics and Plant Difference\* (\*LEA\* 11:10); Nancy Paterson, \*Stock Market Skirt and New Directions\* (\*LEA\* 11:12); Robert Pepperell, collected reviews (\*Leonardo\* and \*LEA\*); Dennis Summers, \*The Crying Post Project: A Multi-Part, Multi-Media Artwork to Memorialize Global Sites of Pain\* (\*Leonardo\* 36:5); Eugene Thacker, \*Genetic Difference in the Global Genome\* (\*LEA\* 11:11); Yasunao Tone,

\*John Cage and Recording\* (\*LMJ\* 13); and Ruth Wallen, \*Of Story and Place: Communicating Ecological Principles through Art\* (\*Leonardo\* 36:3).

The 2004 Leonardo Award for Excellence is co-sponsored by the Program in Technocultural Studies at the University of California, Davis, where an award ceremony and lecture are planned. For further information about this program, visit <<http://technoculture.ucdavis.edu>>.

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#### THE 2005 LEONARDO GLOBAL CROSSINGS AWARD

Leonardo/ISAST is pleased to announce that the First Leonardo Global Crossings Prize has been awarded to Abdel Ghany Kenawy and Amal Kenawy, of Cairo, Egypt, a brother-sister team who have been collaborating on large-scale installations since 1997. These works, whether tower-like structures containing glass balls rising up towards the ceiling or tunnels leading to a block of frozen ice in a room surrounded by chiffon, demonstrate that there is no "natural" barrier between the worlds of art and science.

The Kenawys' unique collaboration is built partially upon Abdel Ghany's background in the physical sciences and Amal's background in filmmaking, yet their individual efforts cannot be so neatly defined as singularly "scientific" or "artistic." Committed to their creative processes, they work very closely together on every aspect of their projects from conceptualization and structural design to production and execution in their workshop. Characteristic of all their projects is the power of texture and image, and sensorial play with surfaces between spaces (loosening up the inside/outside polarity) - whether it is a "textured" video, the texture of light projected on a triple screen of chiffon, the texture of human hair bows on a pair of wax legs in a display case, or the textures (acoustic and visual) of a beating heart on which a

pair of lace gloved hands is sewing a white rose appliqué. For examples of their work see:  
<<http://leonardo.info/isast/awards.html>>.

The three runners-up for the 2005 Leonardo Global Crossings Award are Regina Célia Pinto (Brazil - web-based and CD-ROM art), Kim Machan (Australia - curator, arts producer and consultant) and Shilpa Gupta (India - Internet, video and installation works).

Other nominees for the 2005 award included: Andres Burbano (Colombia), Kibook (collaborative team of Visieu Lac [Vietnamese-Australian], Mark Wu [British-born Chinese] and Stefan Woelwer [Germany]), Nalini Malani (India) and Hellen Sky (Australia).

The 2005 Leonardo Global Crossings Award, funded in part by the Rockefeller Foundation, was juried by an international panel of experts co-chaired by Nisar Keshvani (Singapore) and Rejane Spitz (Brazil). The award recognizes the contribution of artists and scholars from culturally diverse communities worldwide within the emerging art-science-technology field. The award is part of the Leonardo Global Crossings Special Project, supported by the Ford Foundation and the Rockefeller Foundation.

LEONARDO NETWORK NEWS COORDINATOR: Kathleen Quillian  
isast [ @ ] leonardo [ dot ] info

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Pacific Rim New Media Summit  
ISEA2006/ZeroOne San Jose: a global festival of art on the edge  
[Isea2006.sjsu.edu/prnms.html](http://Isea2006.sjsu.edu/prnms.html)  
August 5 - 13, 2006

by Joel Slayton,  
Chair, ISEA2006/ZeroOne San Jose  
joel [ @ ] well [ dot ] com

The political and economic space of the Pacific Rim represents a dynamic context for innovation and creativity. Experimentation in art, science, architecture, engineering, design, literature, theater and music is emerging new forms of cultural production and experience unique to the region. The complex relations and diversity of Pacific Rim nations is exemplified throughout the hybridized communities that comprise Silicon Valley.

The CADRE Laboratory for New Media at San Jose State University will host this specially focused two-day pre-symposium co-sponsored by Leonardo/ISAST. Co-Chairs for the Summit are Roger Malina and Joichi Ito. The Summit is intended to explore and build interpretive bridges between institutional, corporate, social and cultural enterprises with an emphasis on the relationship of information technology to creativity and productivity. The Summit presents a unique opportunity for dialog across disciplines of art, urban and regional planning, social and cultural policy, architecture, civic leadership and business. The organizers objective is to provide a platform for the facilitation of constructive dialog that enables a criticality of perspective.

The summit is intended to explore and build interpretive "bridges" between institutional, corporate, social and cultural enterprises, with an emphasis on the emergence of new media arts

initiatives. An important objective is to examine and create new transaction spaces for creativity and innovation. With a purview encompassing all states and nations that border the Pacific Ocean, including all of Southeast Asia, Latin America and the Pacific Islands, this trans-disciplinary event will address the developmental role and capacity of new media arts initiatives to foster greater mutual understanding.

Summit objectives include exploration of innovative models for cooperation among institutions, development of interaction strategies with technology corporations, investigation of radical responses to emergent cultural issues and conditions, engagement with Diaspora communities, and the establishment of an on-going Pacific Rim Network of New Media Educational Institutions.

As the 10th largest city in the United States, San Jose is an important portal on the Eastern edge of the Pacific region, which shares deep historical and cultural connections that range from Latin America, the South Pacific, Southeast Asia to Asia. ZeroOne San Jose: a global Festival of art on the edge highlights the Pacific Rim as a central theme by presenting the most significant achievements in art, theory and research from throughout the region.

Transvergent Evening is the official reception for the Pacific Rim New Media Summit. It is the first event of the Festival open to the public and includes a keynote presentation by a world-renowned scholar, a reception at the new City of San Jose/SJSU Martin Luther King Library, and a commissioned avant-garde music concert at a local night club. A special feature of the Pacific Rim theme is the Container Culture exhibition that will be featured on Cesar Chavez Plaza that will present new media artist projects from Pacific Rim port cities.

Summit Objectives  
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- \* Focus on common and divergent themes of Transvergence in which traditional borders segregating disciplines, ideology and liabilities are crossed and critiqued.
- \* Explore and build interpretive 'bridges' between institutional, corporate, social and cultural enterprises with an emphasis on the emergence of new media arts programs and initiatives.
- \* An important objective is to examine and emerge new transaction spaces for creativity and innovation.

Outcomes  
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- \* An ongoing network of Pacific Rim new media initiatives and programs supporting continued interaction.
- \* Publication. Leonardo ISAST will publish an experimental journal issue as a product of and response to the Summit.
- \* Cooperative agreements. Strategic alliances will be formed to promote collaborative research, artistic and scientific investigation, corporate sponsorship and interaction, student and faculty exchanges, residencies, exhibitions, performances, conferences and festivals.

Eight international Working Groups have been instantiated to address a specific topic, research or project to be presented at the Summit. Each group is chaired by a renowned practitioner or theorist from around the Pacific Asia Region. The Working Groups include:

**\*\* Creative Communities Forum \*\***

Co-Chairs: Kim Walesh, Assistant Director for Economic Development City of San Jose and David Nieh, Architect, Skidmore Owings & Merrill, Shanghai

The City of San Jose will invite delegations from Singapore, Tokyo, Taipei, Shanghai, Seoul, Mumbai, Sydney and Guadalajara to discuss and share strategies, initiatives, and lessons learned with peer counterparts in Pacific-Asian cities, develop new relationships and identify opportunities for ongoing, cross-community collaboration involving cultural and economic development

**\*\* Mobile Computing and Urbanity \*\***

Chair: Roh Soh Yeong, Director, Arts Centre Nabi-South Korea

Research and development of a mobile computing/communications media project as a response to an ambitious urban project in Seoul Korea - the reclamation of the Chongkye Chun river that has been buried under concrete since the development era of the early 1970's. This working group will collaborate together with a lead artist who will be in residency at the NABI Art Centre.

**\*\* Curatorial \*\***

Co-Chairs: Gunalan Nadarajan, Independent theorist, curator and writer-Singapore and Steve Dietz, Independent Curator, Director ISEA2006/ZeroOne San Jose.

Exploration of new models enabling collaborative and distributed curatorial practice. Focus on the Container Cultural, a site installation of shipping containers transformed into the centerpiece of the Interactive City theme of ISEA2006/ZeroOne San Jose and featured on Cesar Chavez Plaza in San Jose. Each container is curated by an internationally renowned curator from port cities in the Pacific-Asia region.

**\*\* Latin American-Pacific/Asia New Media Initiative \*\***

Chair: Jose-Carlos Mariategui, Director ATA-Peru

Development of relations, strategies and processes among artists/artist teams, organizations and creative professionals in both Asia and Latin America. Focus is on consideration of 'emergent markets'.

**\*\* Directory \*\***

Chair: Irina Aristarkhova,  
Director Cyberarts Research Initiative, Singapore

Design and implementation of a meta-directory database of Pacific Rim new media artist and related institutions, cultural organizations, research institutes and governmental agencies. A resource to be made available on the Web.

**\*\* Place, Ground and Practice \*\***

Chair: Sean Cubitt, Independent researcher-New Zealand

To address the cultural diversity of new media networks, identifying alternative futures of networked media proposed by indigenous cultural and artistic practices, and related self-determination initiatives

**\*\* Education \*\***

Chair: Fatima Lasay, Assistant Professor  
University of Philippines

Identification and address of Pacific Rim new media academic systems with specific examination of regional political economies of education and development and their impact on local communities.

**\*\* Pacific Rim Residency \*\***

Chair: Julianne Pierce, Executive Director of ANAT, Australia

Development of cross cultural and regional programming to enable artist residency projects between academic institutions, research centers, corporations. Residency and exchange programs, networks and formal structures support the ability for practitioners, curators, writers and academics to meet with each other, create new work and develop new ideas.

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THE PRNMS WORKING GROUP ON EDUCATION:  
TOWARDS TACTICAL LEARNING ECOLOGIES

by Fatima Lasay, Education Chair  
ISEA2006/ZeroOne San Jose  
College of Fine Arts, University of the Philippines  
Diliman, Quezon City 1101 Philippines  
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digitalmedia.upd.edu.ph/digiteer

The Working Group seeks to address the question of transformative education and learning within a critique of the economic, political and social dimensions of technology and development especially among the countries in the South. The Group cooperates to argue new forms of tactical education and learning programmes, challenge the dominant developmentalist ideology of literacy, and open a forum for greater discourse on the themes of people's empowerment, participation and organization.

Group members:

Fatima Lasay - fats [ @ ] up [ dot ] edu [ dot ] ph  
Chu Chu Yuan - nica [ @ ] yangon [ dot ] net [ dot ] mm  
Danny Butt - danny [ @ ] dannybutt [ dot ] net  
Eugenio Tisselli - cubo23 [ @ ] motorhueso [ dot ] net  
Roberto Verzola - rverzola [ @ ] gn [ dot ] apc [ dot ] org

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BYTES

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NEW PROJECT PROPOSAL - BIBLIOGRAPHY OF RUSSIAN PUBLICATIONS ON  
SYNESTHESIA

The research institute \*Prometheus\* collects a unique bibliography of nearly all Russian publications concerning synesthesia, "color hearing" and art experiments which are relevant to that (light-music, abstract films with music, multimedia compositions and so on). The list of publications covers the last 100-125 years and consists of nearly 3000 titles (newspaper articles are not included here - only books, journal articles and conference theses).

The research works in synesthesia, which have been carried out in Russia (and the former U.S.S.R.), are now little known in the West. That is why \*Prometheus\* is planning to issue an English version of that bibliography, supplying each item with an abstract showing its content. To realize this project (with a subsequent publication of the results in print and/or Internet versions), we require financial support and will be very grateful for any offers of grant donations from interested organizations.

E-mail: galeyev [ @ ] prometey [ dot ] kcn [ dot ] ru

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#### CALL FOR PROPOSALS: \*DIVERGENTES 2005\* ARTISTS IN RESIDENCE

info [ @ ] artesdivergentes [ dot ] com  
<http://www.artesdivergentes.com>

\*Divergentes 2005\* is a project whose intention is to promote the relation between technological innovation and artistic creativity. It consists of 10 international artists on a 2-4 week residence (in May 2005) in technology centres or innovating companies in the Basque Country, to create a work of art using the materials, processes, technologies or products developed by the hosting companies.

The works will then be exhibited in Zumaia during the months of June, July and August 2005, in the form of an open-air itinerary around the town, starting from the Zuloaga Museum. The event is open to artists from the visual arts (painting, sculpture, photography, video, multimedia, installation) of any nationality or place of residence, who are starting out on their professional career.

A jury made up of José Lebrero Stals, director of the Andalusian Centre of Contemporary Art; Roger Malina, Director of the CNRS Space Astronomy Laboratory in Marseille (France), and executive editor of the Leonardo publications on Arts and Sciences; Simón Marchán Fiz, Professor of Aesthetics at the National Open University (UNED) and Xabier Sáenz de Gorbea, lecturer in History of Art at the University of the Basque Country (UPV), will select the 10 artists who will participate in the event.

If you wish to participate, fill in the registration form that you can download from the website: <[www.artesdivergentes.com](http://www.artesdivergentes.com)> and send it with your dossier to the \*Divergentes\* postal address in San Sebastián.

Forms must arrive and be registered before 8 March 2005, 8 pm.

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CALL FOR PAPERS: ALTERED STATES: TRANSFORMATIONS OF PERCEPTION,  
PLACE, AND PERFORMANCE

A Transdisciplinary Conference

Date: 23/24 July 2005

Venue: Portland Square, University of Plymouth, Wales, U.K.

Papers are invited which will contribute to the development of transdisciplinary discourse between artists, scholars, scientists and technologists interested in issues of heightened or paranormal perception; cognitive science; virtual, transformable or esoteric architectures; psychic studies; ritual; shamanism; pharmacology and ethnobotany; quantum consciousness; technoetics; telepresence; new media arts; electronic literature; performance; digital music; net art; interactive technologies.

This conference will be chaired by Professor Roy Ascott.

Please e-mail proposals (as word documents) of around 300 words for papers of 20 minutes to: ASCR [dot] 2005 [at] planetary-collegium [dot] net. Papers should not have been previously published.

The deadline is 11 March 2005.

Papers will be published online and distributed on DVD. A selection will appear in the journal \*Technoetic Arts\*:  
<[www.intellectbooks.com/journals/technoetic/index.htm](http://www.intellectbooks.com/journals/technoetic/index.htm)>

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ART/SCIENCE COLLISION: Cabinets, Curiosities, and Collections:  
Revealing the Museum's Stored Treasures

Date: Thursday, 31 March 2005

Time: 7:00 p.m.

Venue: Linder Theater, first floor, American Museum of Natural History, 79th Street @ Central Park West, New York, NY

For tickets: (1) 212-769-5200

Code: EL033105

Fee: \$15 (\$13.50 for members, students and senior citizens)

Using a vintage large-format camera, Museum artist-in-residence Justine Cooper photographed the hidden spaces and collections of every department of the Museum. This intriguing series of images, presented as a narrated slide show, captures the evolution of over a century of collecting. Curator Rob DeSalle will join Cooper to discuss the Museum's state-of-the-art frozen tissue collection and the 21st century approach to collecting.

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