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| INTRODUCTION |
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< Good News - Lawsuit against Leonardo Dismissed >

Roger Malina
E-mail: <leo@mitpress.mit.edu>

On 29 May, 2001 a 3-judge panel in Nanterre, France dismissed the lawsuit against Association Leonardo filed by Transasia and Leonardo Finance. Each party has 30 days to appeal. This could bring to an end a two-year and very expensive legal battle. We take this opportunity to thank all the members of the community who have lent energy and resources to help Leonardo fight this legal battle for its survival. We look forward to announcing next month the definitive ruling. For more information, see <<http://mitpress.mit.edu/Leonardo>>.

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| LEONARDO JOURNAL |
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< LEONARDO Vol. 34, No. 4 (2001): Selected Abstracts >

MACHIKO KUSAHARA: The Art of Creating Subjective Reality: An Analysis of Japanese Digital Pets

ABSTRACT

A variety of digital pets can be found in Japan, from virtual pets on palm-top game screens to physical entertainment robots. They are successful because they succeed in promoting a sense of reality in users' minds. While visual reality is a familiar element of realism, a subjective sense of reality can also prove effective. By designing interaction in a mode that takes users' psychology into account, such a sense of reality can be enhanced, especially when a user perceives an independent personality in his/her digital pet. Japanese traditional culture, which allows treating animals on an equal basis with human beings is behind this psychology.

LAURENT MIGNONNEAU and CHRISTA SOMMERER: Creating Artificial Life for Interactive Art and Entertainment

ABSTRACT

This article consists of two sections: the first provides a brief overview of artificial-life art and entertainment software, some of the main products and their peculiarities; and the second describes one of our artificial-life software products, called Life Species II, which was created between 1997 and 1999. This system consists of a web page that allows users to create artificial-life creatures by simply typing in text characters using a web page "editor." Written text is used as genetic code to model the creature's body. The body

shape subsequently influences the creature's ability to move, which in turn determines the creature's behavior, survival and reproduction within the Life Species II environment. In addition, users of the system can feed the creatures with text characters and thus even more actively influence the creatures' survival and reproduction in their environment.

JANE PROPHET: TechnoSphere: "Real" Time, "Artificial" Life

ABSTRACT

This paper focuses on the real-time 3D version of the artificial-life art piece TechnoSphere, a collaborative project by the author, Mark Hurry and Gordon Selley. It begins by positioning TechnoSphere's simulated landscapes in relationship to the English landscape and its tradition in painting and problematizes ideas of "the natural." The TechnoSphere creatures are evaluated as both artificial wildlife and domesticated animals before the authors consider the relationship between creature and environment. This is followed by a comparison of the Internet and real-time versions of TechnoSphere and concludes by outlining the work-in-progress---a merging of the two systems.

THOMAS S. RAY: Aesthetically Evolved Virtual Pets

ABSTRACT

The author applies aesthetic, emotional and empathetic selection to a derivative of Karl Sims's Evolved Virtual Creatures. The resulting Creatures can be beautiful or strange and provoke strong reactions in human observers. The author posits that it may therefore be possible to evolve virtual pets to which humans can form strong emotional bonds.

SHEILA PINKEL: Thermonuclear Gardens: Information Artworks About the U.S. Military-Industrial Complex

ABSTRACT

The author traces the evolution of her installations about the military-industrial complex during the 1980s and early 1990s and artworks that emerged as a result of her research. In addition to national and international data, maps, graphs and statistics about the industry, the author over time progressively added regional, site-specific information in order to empower viewers. The process of creating these works revealed the place of the nuclear industry in the author's own family, which ultimately facilitated the design of later installations.

UBIRATAN D'AMBROSIO: Mathematics and Peace: A Reflection on the Basis of Western Civilization

ABSTRACT

This essay considers the relationship between science and mathematics and the social order that they both rely upon and reinforce. A peaceful and egalitarian world, the author argues, will require instilling a sense of responsibility in those who work with mathematics for the uses society makes of their efforts. Such an understanding of their social responsibilities would also require mathematicians to become more sensitive to history and to the social and psychological dynamics of the presentation of knowledge.

ALEJANDRO DUQUE: New Media as Resistance: Colombia

ABSTRACT

The author proposes possible ways for artists and cultural activists to use the Internet and other new media to help counter the currently devastating situation in Colombia.

PAUL BROWN: Breaking the Art and Science Standoff

ABSTRACT

This review of the First Iteration Conference held in Melbourne in December 1999 discusses several of the presentations made and includes brief summaries of the keynotes. Related issues like the problems of gender representation as well as shortcomings in the education of artists are also mentioned.

ALISTAIR RIDDELL: Data Culture Generation: After Content, Process as Aesthetic

ABSTRACT

This article considers the extent to which the concepts of process and data, inherent in the technology of contemporary music, are contributing to a new musical practice and aesthetic. The role of technology in musical production has cast music into data (a tangible entity, commodity or product) and thus made data a kind of cultural object itself in certain contexts (LPs, CDs, MP3 files). This condition, under an impetus fostered by the abundance and social dimension of music, suggests that a rethinking/transformation of contemporary audio arts based on process (the concept, design or actual systems that produces musical data) is taking place. Increasingly, musicians are becoming involved in alternative contexts in which sound is only one of several simultaneous and expressive components constituting a cultural experience. Here, process permeates the proceedings as a kind of a priori theory of contemporary art because it can suggest and define a set of possibilities as an artistic statement irrespective of whether something or anything is manifest by any artist. With the environment saturated with music, it appears that the creative design of musical processes might become an art in itself.

MITCHELL WHITELAW: The Abstract Organism: Towards a Prehistory for A-Life Art

ABSTRACT

The author examines historical precedents for contemporary art practice using artificial life, in particular in the work of Paul Klee and Kasimir Malevich. Similarities are identified between artificial life and the philosophical tradition of organicism; specific examples from Klee and Malevich indicate that those artists were engaged in a form of creative organicist thought that imagined the realization of living structures in artificial media.

VARGAS-SUAREZ UNIVERSAL, with SCOTT WILCOX and ELIOT HAYNES: Blueprints: Sound Recordings of Experimental Drawings

ABSTRACT

In this note, the artist and his collaborators describe the process behind Blueprints, an ongoing body of work composed of abstract, blue ballpoint-pen ink drawings on found plotter paper, accompanied by a digitally manipulated, ambient-style soundtrack. The soundtrack is

created from the sounds of the ballpoint pen's strokes marking the surface of the plotter paper. The artist also reflects on his concerns regarding the practice and meaning of blending the two mediums within his own conceptual processes.

B.M. GALEYEV and I.L. VANECHKINA: Was Scriabin a Synesthete?

ABSTRACT

This survey and summary of documentary material on Scriabin's "color hearing" is being presented for consideration by researchers studying his ideas of light-music synthesis. On the basis of their analysis, the authors conclude that the nature of Scriabin's "color-tonal" analogies was associative, i.e. psychological; accordingly, the existing belief that Scriabin was a distinctive, unique "synesthete" who really saw the sounds of music---that is, literally had an ability for "co-sensations"---is placed in doubt.

PHILIPPE CODOGNET: Ancient Images and New Technologies: The Semiotics of the Web

ABSTRACT

The article develops an analysis of visual knowledge and the use of pictures in electronic communication. The author focuses in particular on indexical images, which we use in navigating multimedia documents and the Web. For this purpose, the author bases his study on the one hand on semiotics, the core concepts of which were introduced by C.S. Peirce at the beginning of the last century; and on the other hand on a more classical historical analysis, in order to point out the deep roots of the concepts used in contemporary computer-based communication.

MOOSON KWAIK: Holistic Polyhedrons: A New Concept of Making Mobile Members

ABSTRACT

This note illustrates how to utilize the geometric interiors and exteriors of the ridges, corners and surfaces of polyhedrons in creating unique configurations of mobile members.

< About Victor Magari-os (1924--1993) >
by Dolores Rubio

Following are some brief biographical and historical notes on the artist Victor Magari-os, submitted by Magari-os' widow, Dolores Rubio.

< Biography >

1924 - Born 1 September 1924, in Lanus, Buenos Aires, Argentina.

1942 - Graduated from the National Fine Arts School.

1947 - Awarded the First Prize by the National Academy of Fine Arts.

1951 - First one-man exhibition at the San Cristobal Art Gallery, Modern Art Institute, in Buenos Aires.

- Received a scholarship from the French government to further his art studies in France.

- While living in Paris, established a relationship with Fernand

Leger, Georges Vantongerloo and Max Bill.

1964 - Participated in the exhibition "New Art of Argentina", organized by the Walker Art Center of Minneapolis, MN, U.S.A.
- Obtained a scholarship from the U.S. Government.
- Participated in the Di Tella Institute's group exhibition, Buenos Aires.

1967 - Based on his own design, built his art studio alongside the seashore in Pinamar, Argentina, where he lived and worked.

1974 - Solo exhibition: Magari-os, at the Venezuela-Argentina Center, in Caracas, Venezuela.

1984 - Solo exhibition: Magari-os---Paintings, at the Art and Communication Center, Buenos Aires.

1986 - Solo Exhibition: Finito-Infinito---Homage to Georges Vantongerloo, at the Museum of Modern Art, Brussels, Belgium.

1991 - Solo exhibition: Victor Magari-os---Obras 1950--1990, at the Banco Patricios Foundation, Buenos Aires, Argentina.

1993 - Died 5 September in Pinamar, Buenos Aires.

Following are excerpts from "Cosmologies for the Next Millenium," in the book Magari-os D, by Andrea Giunta (published 1999; see below). English translation by Florence Battiti and Marcia M. Means.

"Magari-os is considered unique in the history of Argentine art, as he is an artist who is beyond classification. He does not fit into the reconstruction that can be made of any group strategy or into the dominant styles of a period, and it is impossible to understand his development from the dynamics of artistic institutions.

"From the start, Magari-os intended to tackle this complex relationship in his work, and in this sense, he considered some facts as being essential to the understanding of the contemporary world. 1945 was a key year for him, as nuclear fission signaled the advent of a new era. [Magari-os wrote that] 'From that moment onwards, human beings have become part of a world where ENERGY has become one of the vital elements of their life in society.' Like other artists of his generation, Magari-os was interested in establishing a conscious relationship between his work and the new universe of science.

"In his conception of the history of art, Magari-os introduced, as an explicative tool, the transformations of science. Thus, in his essay about Vantongerloo, he expounded on the evolution of art since the Renaissance, when artistic concepts redirected their search from religious and historical grounds to the "real" world. He then explained how, with impressionism, the scientific spirit appeared in painting and, with cubism, the concept of structure. Einstein's theory of relativity brought a new dimension into the scene---time---and was then incorporated as a contribution from science to art. 'Einstein,' wrote Magari-os, 'is in my opinion the prototype of the creative man of this century. It is in Einstein's ideas---published in his books Theory of Relativity (1905) and General Theory of Relativity (1915)---rather than in the cubist paintings, where the Euclidian three-dimensional space loses the importance it had had since the Renaissance. From then on, the concept of "space-time continuum" would be paramount.' "

After Victor Magari-os' passing, his closest colleagues and supporters formed the "Magari-os' Friends Association" (MFA), whose

main objective is the upkeep of the artist's vast legacy of work. The MFA has coordinated and provided curatorial support for several solo and group exhibitions, including the 1999 exhibition, Magari-os--- Retrospective Works (National Museum of Fine Arts, Argentina).

Some of Magari-os's works are found in the following collections: National Museum of Fine Arts, Buenos Aires; Museum of Modern Art, Buenos Aires (in the Pirovano collection); Museum of Modern Art, New York; Albright-Knox Art Gallery, Buffalo, NY; Museum of Contemporary Art, Caracas, Venezuela; Museum of Modern Art, Paraguay; Museum of Modern Art, Brussels, Belgium; and several other private collections.

Suggested material for further reading:

- V. Magari-os, "Vantongerloo and Cosmological Art: Beyond Last Tendencies," in Georges Vantongerloo's Writings, Fundación Pirovano, 1982.
- Andrea Giunta, Magari-os D. Published by Dolores Rubio, 1999.
- V. Magari-os, "Desintegrarse para Ser," in Personal Writings.

For further information on the work and life of Victor Magari-os, contact the Magari-os Friends Association (Asociación Amigos de Victor Magari-os D.), Dra. Dolores Rubio, president. Constitución 1458 d.7 CP 1151, Capital, Argentina.
E-mail : <lolita@lvd.com.ar>

< Virtual Reality Today >
by Michael Naimark. E-mail: <michael@naimark.net>

I never liked the phrase "virtual reality." For one thing, it immediately spawned the phrase "really real." (Jaron: "Look! This new graphics engine makes these virtual worlds look really real." Me: "What? It's a friggin' cartoon.") To Jaron Lanier's credit, it was the promotion of VR's "realness" that provoked community consciousness to imagine what immersive virtual environments could be. The down side, of course, was that such promotion---some would say hype---led to grossly mismatched expectations between the dream of VR and the actuality of what was technically possible. For those of us working in the trenches, it was a mixed blessing.

Ten years ago, VR rocked. It was everywhere. Jaron Lanier, who coined the phrase "virtual reality," was on the front page of the Wall Street Journal. Marvin Minsky, co-founder of MIT's Artificial Intelligence Lab, spoke at Ars Electronica on the topic. Timothy Leary came back (actually, he was sort of adopted by the VR community and, bless him, added a brilliant mix of insight and outrageousness). Corporations, particularly Japanese ones, announced major VR initiatives. VR goggles and gloves became a fashion statement. "Cyber-sex" (a phrase even more oxymoronic than virtual reality to my ilk) was seen in supermarket tabloids and discussed at art openings.

Then what happened? It seems as if VR bit the dust as fast as it rose to fame. Corporate VR labs, particularly at Sony and Fujitsu, shifted focus. Many of the first VR companies, including Lanier's VPL, folded. The great orators moved on. The spotlight had shifted. This was around 1992, and---no surprise here---the spotlight had shifted to the Internet and the Web.

This is significant, and I would like to offer some observations and speculations. First, VR is not dead and, with the spotlight off it, more serious and focused work has been able to proceed unhampered. Head-mounted displays---the goggles---have become higher resolution and lighter weight, with promising work on "virtual retinal displays"

led by the HIT Lab at the University of Washington. Fake Space Labs, a first-wave VR company, is doing well building innovative immersive viewers and screens. Tracking technology---the gloves---has miniaturized and diversified, with tracking devices integrated into every human appendage, prosthetic and tool imaginable (a development often led by artists). There is some excellent work in this area continuing at the University of North Carolina. "Image-based modeling" and "light fields," recent sub-disciplines of computer vision, have transformed the range of 3-D computer models from built-from-scratch to camera-based, led by landmark work at Stanford, UC Berkeley and MIT. And, in a most-forward thinking way, the artists and scientists at the Electronic Visualization Lab of the University of Chicago invented the "CAVE," an immersive projection space for group viewing capable of live networked applications.

The much-quoted decree of Ivan Sutherland in 1965 articulated the original dream of VR: "The screen is a window through which one sees a virtual world. The challenge is to make that world look real, act real, sound real, feel real." Ten years ago, this was the world of eyephones and datagloves; of SGI Reality Engines and high-level modeling languages; and of flight simulators and location-based theme park attractions. Today, it is postage-stamp-sized silent images of Jenni-cam and the Western Wall, updating (on a good day) at one frame per minute. But wait, you may say, it is even more real because it is live and interactive. Clearly, realness means different things to different people.

Let's look at the numbers, using moving images as a frame of reference. I believe there are five distinct levels, each with its own distinct industry. The hottest one right now is the lowest-resolution one, the "streaming video" level, since everyone wants video over the thin pipe of the current Internet. Streaming video often has to pass through a 56 kilabit per second modem, and is rarely more than 1 megabit per second (mb/sec). But streaming video never looks as good as the movies we rent on VHS.

VHS quality, and home video in general, is the next level. VHS resolution is approximately what the MPEG-1 standard is, with a bandwidth or bitstream of 1.5 mb/sec (originally for CD video). It's noteworthy that moving from streaming video to home video crosses an industry line from computing and networks (Apple and Akamai) to consumer video (Sony and Blockbuster). These people drink in different bars.

The next level is broadcast-quality video. MPEG-2 was made for this, with a bitstream range from 4 to 9 mb/sec. Everyone agrees that broadcast video looks much better than VHS, and high-end broadcast equipment typically costs ten times more than consumer video equipment. Uncompressed broadcast video often travels around production studios at 45 mb/sec.

Then there is cinema. The silver screen of the local movie theater appears much bigger than the television in the home, and requires that much more bandwidth. We just crossed another industry line from video to filmmaking, from CNN to Panavision. Typically, movies are shot with 35mm motion picture film, but the quest to replace film with high-definition digital video has roots beginning almost 20 years ago. Today, various digital HDTV bitstreams range from 20 mb/sec for highly compressed HDTV to as high as 1,000 mb/sec, or 1 gigabit/sec!

But we are not done. "Special venue" cinema, the sort of immersive movies seen in theme parks and world's fairs, are typically 10 times the bandwidth of theatrical 35mm film. This is yet another industry,

with formats like Imax (wide 70mm film), Showscan (70mm film at 60 frames per second rather than 24), Stereo-70 (twin 70mm film for 3D), and CircleVision (nine 35mm screens in a panorama), each presenting different offerings of what is "really real."

So, the range of current versions of moving images is from roughly 0.1 mb/sec to 10,000 mb/sec. It is both true and ironic that the Reel.com folks and the Imax folks, or the QuickTime VR folks and the CircleVision folks, have very little to talk about.

But when one looks at the continuum, the drive at each end becomes clear. At one end is sensory verisimilitude. Some might say "looking real," but others might say "dead," in that it is never live and, at best, barely interactive. At the other end is "live," telematic, participatory and interactive, even if the cost is sacrificing a four-storey high 3-D screen for a postage stamp screen. Again, realness means different things to different people.

There is another noteworthy phenomenon, dealing with the politics of access, best summarized by French art theorist and UNESCO Webworld Director Philippe Queau: "Maximum hits per bits." Its extreme interpretation is that there is something unfair about concentrating a large number of bits for a small number of people. Immersive theaters and art installations are out, websites accessible to all are in. The reason is beyond theory: 53% of the world still has not made a phone call.

Incredibly, this polarized situation is temporary. Add Moore's Law and optical fiber, easily capable of over a million mb/sec (!), and the conflict disappears. It is inevitable, with the only questions being "When" and "How?" The lever is large because the status is embryonic.

Here are some examples of interim strategies doable today. One strategy is simply to continue doing what we can with the narrow pipe of the Internet. It is relatively cheap, easy and uncharted (particularly when one ponders the World Wide part of the Web). And the pipe is quickly getting wider via DSL, cable modems and broadband. Another strategy involves hybrid investigation. For example, there are lots of stereoscopic and panoramic images on the Web, even if they are small. "Interactive films" have existed since 1967 and have managed to present at least the illusion of control. For example, the world's first interactive movie, at Expo '67, involved red/green pushbuttons for everyone and two projectors running in sync, where the operator swapped the lens cap depending on the vote. Its director, Raduz Cincerra, alive and living in Prague, told me "I did it as a joke, but everyone believed it." A related strategy is based on simulation: for example, making web video more cinematic in style and making motion pictures more webcam-like. There is evidence of this happening today. Another hybrid strategy exploits high-octane cheap computers at each end of the narrow pipe. We are beginning to see examples of the Sony Playstation II, whose power is similar to the SGI Reality Engines that drove first-wave VR, being used for live networked gaming and beyond.

A most intriguing strategy turns the access argument into a feature. One can use democratization ideology to justify piping 100 times the bandwidth available for one person into a collective space designed for 100 people (whatever the scale). Public space as public research as public spectacle as community experience. Such media-rich public experiments have a lively history, most notably 100 years ago around the birth of cinema. An enormous opportunity exists for museums, libraries, alternative art spaces and other public places to collaborate with scientists and researchers.

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FEATURED
TEXTS

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< Statements from the Burning Man Festival >

The Beaming Man
Russell Wilcox
E-mail: <rwilcox@jps.net>

Beaming Man, a laser installation at the Burning Man Festival 2000, was the largest human figure ever created. The Beaming Man was 4000 feet long and 2000 feet wide, made of laser beams suspended 30 feet over the desert floor. To create this, we used three lasers, ten 30-foot antenna towers and an array of laser optics and mechanical hardware.

The human figure with his arms raised above his head was a linearized form of the Burning Man logo. This formed a body within which other artworks were organs. The concept was originated by Larry Harvey and city architect Rod Garrett and I turned it into reality while maintaining aesthetic quality and content. I had built a 25-foot laser installation at Burning Man 1999 called The Tetrahedron, where I developed the technical and artistic approach that informed Beaming Man.

Three solid-state green lasers (two 5-watt and one 3-watt) and optics assemblies on the ground emitted beams that were sent up to the top of three "source towers". Mirrors at the tops of these towers directed some of the beams to "target towers" 2000 feet away where they were stopped by white, four-foot square panels. Other beams hit secondary mirrors on distant towers before being directed to a target. Aligning the beams to these widely separated mirrors and targets required very stable structures, precise adjustments of the mirrors and special procedures that had to be developed during installation.

We hoped some sensitive people would fully explore the figure on foot or by vehicle, since this was the only way its true shape could be appreciated from the ground. This appreciation exercise emphasized the importance of memory in imparting a sense of scale. Due to a laser beam's ethereality, it's impossible to judge one's distance from it, making estimation of Beaming Man's size delightfully difficult. Near the Burning Man there were two laser towers which glowed green from the ascending beams, adding complementary forms and colors to the area.

Beaming Man showed that an otherwise delicate and precise laser installation could withstand the rigors of the Black Rock City environment, and that the medium of stationary laser beams is an impressive and expressive one, worthy of continued exploration.

The Futura Deluxe Bubble Fountain and Porta-Temple

Steven Raspa
E-mail: <stevenraspa@hotmail.com>

The Futura Deluxe was a bubble fountain, a portable temple, compatible with all major belief systems, a public park for future-minded conversationalists and a catalyst for personal change. The product of a seven-month commitment to an absurd vision, it was many things to many people and was as much a state of mind as a tangible object and installation.

In 1999, the Burning Man theme was "The Wheel of Time." I thought there should be some kind of grand public monument and gathering place that stimulated thought about the future and how people wished to shape it. I liked the idea of a fountain because it suggests life and eternity; and I wanted to incorporate bubbles because they are inherently optimistic, but also fleeting---not to be taken for granted.

Thus began a preposterous saga to bring bubbles to the Black Rock desert. I teamed up with sound artist and physicist, Dr. Aaron Wolf Baum, and found volunteers through the Burning Man website. After testing different bubble fluid recipes and overcoming numerous technical challenges, the Futura Deluxe was completed on schedule, and the associated performance was as much an affirmation and invocation of the future we all wanted, as it was theater.

Physically, the Futura Deluxe was a two-story, three-tiered, white acrylic, automated reinterpretation of a traditional Italianate water fountain. The words "HOPE," "WISH," "PRAY," and "DREAM" illuminated the four sides of the base and supported the fountain. It created hundreds of thousands of bubbles while emitting intermittent laughter, birdsong, and sonic tones that spelled out the words on the base. It also periodically broadcast predictions about the future that were variously amusing, unsettling, and suspect.

The Futura Deluxe sat at the center of a 150-foot diameter circle of thirty white pole lamps, four public bubble-blowing stations and 30 bubble seats. Participants sat around the fountain, socialized and blew bubbles at the bubble stations. By night, the levels of the fountain and words were illuminated to create a beacon of inspiration for those who wanted to consider the future by "bubble light."

The fountain was fully mobile and functioned independently from its installation site. It was guided along the promenade and through Center Camp on several occasions. It also functioned as a performance platform near the end of the event, when it was the centerpiece of a 30-minute performance incorporating sound, narrative and choreographed movement.

Together, the fountain, installation and performance melded technology, mythology, classical design, science fiction and a sense of humor to create a place and experience that was both civic and sacred in nature. It was exactly the kind of work Burning Man inspires: a preposterous flight of the imagination that must be made real and shared with others in order to become significant.

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LEONARDO DIGITAL REVIEWS 2001.05

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This month in LDR, we are pleased to include three reviews from Russia by colleagues of one of LDR's regular contributors and an international co-editor of Leonardo, Bulat Galejev. Although LDR does not usually publish unsolicited reviews, we are delighted to do so in this instance since they provide an insight into an intellectual life that for many of us is unfortunately still at some linguistic distance. In addition, David Topper reviews a survey of what we might know of the night sky without the use of instruments. This both fascinates and frustrates as it draws attention to the tragedy of the human encounter with the infinity of the universe, something Wilfred Niels Arnold does not perceive as a problem in his review of Karen Jacob's *The Mind's Eye*. Annick Bureauud expresses regret that Randall Packer and Ken Jordan's otherwise excellent collection, *From Wagner To Virtual Reality*, has a universe with only one woman. In addition we are, as ever, fortunate to be given permission to republish Roy Behrens' reviews from *Ballast*, which are always a pleasure to read, regardless of the topic, as a display of tact and brevity. Finally, we are grateful to be able to republish a review of an important conference concerning aspects open source code that I am certain we are going to hear more about. Jane Szita, managing editor of *Doors of Perception*, the design futures think tank and conference organization, (www.doorsofperception.com) reports on the proceedings presented by the Arts Council of England, Academia Europaea, the University of Cambridge Computer Laboratory, and Cambridge University Law Faculty Intellectual Property Unit. This can be read both in the LDR website and, of course, at their own website:
<<http://www.doorsofperception.com/MAGAZINE/codemag.html>>.

With such an eclectic mix this month, it seems perhaps most appropriate to reprint some of Roy Behrens's pieces below as a trailer to the main LDR site where all these and earlier reviews can be accessed, thanks to our managing editor Bryony Dalefield, our web administrator Sudhira Hay, and of course, our panel of reviewers.

Michael Punt
Editor in Chief
Leonardo Digital Reviews

New this month at Leonardo Digital Reviews
<<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>>:

Stargazing: Astronomy without a Telescope, by Patrick Moore
Reviewed by David Topper

The Eye's Mind: Literary Modernism and Visual Culture, by Karen Jacobs
Reviewed by Wilfred Niels Arnold

Multimedia: From Wagner To Virtual Reality, Edited by Randall Packer and Ken Jordan
Reviewed by Annick Bureauud

Morphes by Vyacheslav Koleichuk, by Linnik Yu
Reviewed by E.V. Sintzov

The Mystery of Theatre Space: Lectures on Scenography, by J. Svoboda
Reviewed by E.V. Sintzov

Semiotics of Culture and Art: A Trial of Encyclopedia (Parts 1 and 2), by S.T. Machlina

Reviewed by S.V.Sintzova

The Autobiographical Lectures of Some Prominent Art Educators, edited
by Ralph Raunft
Reviewed by Roy R. Behrens

Graphic Design Timeline: A Century of Design Milestones, by Steven
Heller and Elinor Pettit
Reviewed by Roy R. Behrens

Art Is Work: Graphic Design, Interiors, Objects, and Illustrations,
by Milton Glaser
Reviewed by Roy R. Behrens

Sullivan's City: The Meaning of Ornament for Louis Sullivan, by David
Van Zanten
Reviewed by Roy R. Behrens

The Hole in My Vision: An Artist's View of His Own Macular
Degeneration, by Lee Allen
Reviewed by Roy R. Behrens

1001 Curious Things: Ye Olde Curiosity Shop and Native American Art,
by Kate C. Duncan
Reviewed by Roy R. Behrens

Genius Moves: 100 Icons of Graphic Design, by Steven Heller and Mirko
Illic
Reviewed by Roy R. Behrens

The Autobiographical Lectures of Some Prominent Art Educators

Edited by Ralph Raunft. National Art Education Association, Reston,
VA, U.S.A., 2001. 370 pp., paper.

Reviewed by Roy R. Behrens. E-mail: <ballast@netins.net>

During the past quarter century, an interesting series of books was produced, entitled *The History of Psychology in Autobiography*, in which prominent psychologists were invited to provide accounts of their own training and influences to describe how they came to achieve what they did. This book contains similar statements about the lives and motivations of 27 leading art educators, among them such familiar names as Victor Lowenfeld, Rudolf Arnheim and Edmund Burke Feldman. With the exception of essays on Arnheim and Henry Schaefer-Simmern, all the selections are autobiographical and came from a series of lectures, called "Autobiographical Lectures of Outstanding Art Educators," that began in 1972 at Miami University in Oxford, Ohio. As with most anthologies, the chief virtue of this one is the rich variety of its entries, combined with the feeling of presence that comes from hearing a first-hand account of the past. Arnheim, for example, recalls a stray bullet (which he still has on his writing desk) that crashed through the window of his parents' home in Berlin in 1918. Eugene Grisby, Jr., remembers dancing the jitterbug at the Savoy Club (where he also sketched the dancers) to the music of Count Basie, Ella Fitzgerald and Duke Ellington. Lowenfeld was a musical prodigy, and a student of Oskar Kokoschka. June King McFee was influenced by Alexander Archipenko and the New Bauhaus. Nearly all the authors have vivid memories of specific moments in childhood when adults encouraged (or discouraged) their artistic appetites. When Feldman's mother, for example, took him with his drawings to a local artist and asked for advice, the artist

replied, "Mrs. Feldman, your boy wants to be an artist. He doesn't want to be a doctor or a lawyer or a businessman." And he then did his best to persuade her "that being an artist was not the worst thing in the world."

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Graphic Design Timeline: A Century of Design Milestones

By Steven Heller and Elinor Pettit. Allworth Press, New York, NY, U.S.A., 2000. ISBN: 1-58115-064-4.

Reviewed by Roy R. Behrens. E-mail: <ballast@netins.net>.

History is necessarily an abstraction. It is not what happened in the past, but rather the selective interpretation of what happened in the past. No wonder then that, as John W. Gardner said, "history never looks like history when you are living through it. It always looks confusing and messy, and it always feels uncomfortable." It is interesting that one of the effects of a timeline (a sequential listing of events) is a partial return to the messiness of the original time period. At the very least, timelines complicate the chain of cause and effect that historians carefully work to unearth. In this chronology---which consists of a double-page annual list, from 1890 to 2000, of births, deaths and the major developments in such categories as graphic arts, advertising, education, consumables, arts and culture, industrial design, technology, typography and so on---it feels like a ludicrous dadaist trick to find that occurring together in 1957, for example, were such incompatibles as the invention of Velcro, the launching of Sputnik, the publications of *The Cat in the Hat* by Dr. Seuss and *On the Road* by Jack Kerouac, the release of Adrian Frutiger's typeface Univers, and (twice listed) the death of the Belgian designer Henry van de Velde. Or that Xerography, nylon, the ballpoint pen, and Elsie the Cow were all invented in 1938. Despite or because of the jolts that result from such "radical juxtapositions," this account of the year-to-year growth of design (illustrated throughout) could serve as a rich and invaluable text for college-level courses in design history.

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ISAST NEWS

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< Carl Eugene Loeffler, 1946--2001 >
obituary by Judy Malloy

Carl Eugene Loeffler, 54, visionary founder of La Mamelle, ART COM MAGAZINE, and Art Com Electronic Network, died in Pittsburgh, Pennsylvania on 5 February, 2001 of complications from an intestinal illness.

Loeffler founded the alternative arts space La Mamelle in San Francisco in 1975 and began publishing of LA MAMELLE MAGAZINE. In 1976, La Mamelle Arts Center, a space for conceptual, performance and

video art, opened at 70 12th St in San Francisco with an exhibition of Xerox art. In the ensuing years, other events at the center included a woman's performance series organized by Judith Barry; the exhibition WEST COAST CONCEPTUAL PHOTOGRAPHERS; and the performance art series PERFORMING/PERFORMANCE. In 1977, with AVALANCHE MAGAZINE in New York, La Mamelle co-coordinated the SEND/RECEIVE PROJECT---an early two way satellite transmission between New York and San Francisco, with simultaneous broadcast on New York and San Francisco cable TV channels.

La Mamelle, later Art Com, was a leading distributor of video art and actively organized international exhibitions of video artists, including the cable TV series PRODUCED FOR TELEVISION: PERFORMANCE ART IN A LIVE BROADCAST SITUATION. In 1986, Art Com Electronic Network (ACEN) began operations as the ACEN conference on the Whole Earth 'lectronic Link (WELL).

"Well over a decade ago, Canadian seminal telecomputing artist Bill Bartlett came into Art Com, wild-eyed and carrying a terminal, printer and acoustic modem combo," Loeffler wrote in 1991 to introduce "Connectivity: Art and Interactive Telecommunications," a LEONARDO special issue. "He lifted up my telephone headset, dialed out and pushed the headset into the coupler. The printer started streaming out text onto paper. He said something like 'This is a network for art' and went on to talk about connectivity and telecomputing. I became a convert at that moment."

Initiated by Loeffler with Fred Truck as systems designer, ACEN hosted interactive art works, international art networking events, a BBS system and ART COM MAGAZINE, which moved online with a series of issues on the interface of art and electronic technologies. "We got instant feedback," Carl wrote in REFLEX Magazine; "and discovered that our 'community' in the online environment was actually diverse, a pleasant surprise for an art organization interested in expanding the audience for contemporary art."

In the mid-1990s, Loeffler moved to Pittsburgh, where he was a Carnegie fellow at Carnegie Mellon University (CMU), Project Director of Telecommunications and Virtual Reality at the CMU STUDIO for Creative Inquiry, and Research Director of SIMLAB, National Robotics Engineering Consortium. Focusing on networked virtual reality, his work included investigating existence within networked simulation environments, in the area of tele-existence, where multiple users share or co-inhabit a common distributed space; as well as the networked virtual reality environment VIRTUAL POMPEII.

"Producing VR is very intermedial, and requires an intense systems integration of hardware and software," Loeffler told Mark J. Jones in an online interview for CYBERSTAGE. "Same is true for the production team, a mix of highly specialized persons. It is near impossible to produce VR alone, as [compared to] painting for example. To produce VR, there is someone like me, the concept and content person, who understands the phases of production from start to finish. It is also important to understand the field of VR, and produce work that addresses and investigates key developments. Then you need CAD (computer assisted design) modelers, visual artists doing texture maps, many C-language programmers, telecommunication specialists, and sound artists. CMU is blessed with extremely talented graduate and undergraduate students. It is a very good situation for someone like me . . . I'm able to produce my best work to date here."

Carl Loeffler's books include Performance Anthology: Source Book for a Decade of California Performance Art and The Virtual Reality Casebook.

He is survived by his wife Polly, to whom he was married a year and a half, and a son, Karl, who lives in Denmark.

Japanese artist Mano Tohei has developed a memorial page at <http://www.chabashira.co.jp/~tmano/cel/car101.html>.

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ENDNOTE

< Endnote >

by Piero Scaruffi. E-mail: <Scaruffi@slip.net>.

There is an interesting story being told these days by a multitude of biologists (Humberto Maturana, J.J. Gibson, Ulric Neisser, Richard Dawkins), linguists (Noam Chomsky, Steven Pinker, Merlin Donald), psychologists (Richard Gregory, Allan Hobson, Stephen Porges), physicists (Ilya Prigogine, Stuart Kauffman, Roger Penrose, Henry Stapp), neurologists (Gerald Edelman, Antonio Damasio, Rodolfo Llina, Michael Gazzaniga, Paul MacLean), philosophers (Daniel Dennett), archaeologists (Steve Mithen), chemists (Martin Eigen, Graham Cairns-Smith), mathematicians, computer scientists---you name it. It is the story of how our mind came to be, of how "we were born," evolutionarily speaking.

It is a story that involves pretty much all the characteristics that define what a human being is: language, tools, ideas, emotions and, of course, the brain itself. After all, these things had to happen for us to be what we are.

The story that we are being told (although it is likely to change monthly and, of course, each researcher would give it her/his own spin) starts way back when life was created, whether by accident or by divine intervention, and primitive cells started moving about their environment desperately seeking food.

The story goes on to describe how those cells evolved into more and more complex organisms, which developed nervous systems to coordinate their movements and, eventually, brains to control their nervous systems. This is Darwin's part of the story.

The story also describes how life-forms started using the environment. As "ecological" biologists like Neisser and Gibson showed us, we are not the only tool-making species. Tools are used by, and indispensable to the survival of, spiders (the spider web) and most birds (the nest), just to name two. In our hands, tools took on a life (evolutionarily speaking) of their own: they started evolving and getting more and more complex and more and more useful. This was a by-product of our having a better brain. At the same time, tools shaped what the brain does, i.e. our mind. As Gregory argued, tools are an extension of our mind. Our mind has always been conditioned by the tools we use (and certainly is today).

The story (according to, for example, Cairns-Smith) also lets us guess that emotions evolved along with brains and tools. Emotions of pleasure and pain are present in every living organism we have observed (outside of mental institutions). It is just that our emotions are, again, more complex. It is likely that the availability of tools "freed" our mind of its daily duties. Emotions that were

meant to help us survive in the wild started flowing through our "inactive" mind and evolved into what we call "thought." They, again, took on a life of their own. Mind shaped emotions, emotions shaped mind; mind shaped tools, tools shaped mind.

As Dawkins and Dennett take over, the story then shifts focus and deals with "memes" (the ideas that started populating our minds, and spreading from mind to mind, such as religions and ideologies). They also evolved and are still evolving (communism just became extinct and capitalism is splitting into new "species").

Finally, the story delves into language, as communication underwent a similar evolution, mutating from primitive forms of communication to William Shakespeare's sonnets to rock music's lyrics and TV commercials (as biologists like to point out, evolution is not always progress). Donald, Mithen and Pinker have analyzed the transition from prehistory of mind to modern mind.

That is the story we are hearing these days. Hidden in this story is the secret of art, which is part tool, part meme, part language and part emotion. Contrary to what artists fear, art is far from being useless and impractical: art embodies all parameters of human evolution, the process that has allowed us to survive.

Creativity (science, art, tool-making, technology, whatever form it takes) is something we do because we have to do it. Our mind is continuously reshaped by the tools we invent and continuously explores them. We tend to separate the direct, rational, explicit form of communication (which has no name) and the indirect, "irrational", implicit form of communication (which we call "art"). We can use any tool in either way: we can scream "tiger" to warn our peers that a tiger is about to attack the village or we can paint a tiger on a rock to signify our fear of tigers. That division is artificial. They are both ways of expressing our emotions and/or our memes, and either way we are using one of the tools that we have invented. We are always creative or we are never creative, as we prefer: there is no difference between the two processes. Our mind has no choice but to create meaning all the time out of the flow of emotions using the tools it has invented.

Technology and creativity are the same thing. And we are both the creators and the products of our technology.

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ANNOUNCEMENTS

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< ISEA 2002: Eleventh International Symposium on Electronic Art
Nagoya, Japan >
27-31 October, 2002

Kiyofumi Motoyama
E-mail: <motoyama@info.human.nagoya-u.ac.jp>

Theme: "Ourai"

"Ourai" is a Japanese word meaning people's comings and goings, traffic, association and so on. About 200 years ago, a book titled "Nagoya Ourai" was compiled and published in Nagoya and was used as a

kind of textbook for teaching and writing. ISEA 2002 Nagoya will function as a field of "Ourai" (transmission) between art and sciences. With this purpose in mind, we are planning several concrete sub-themes. For example, how to realize the interface, which concerns Ourai (interaction), between the environment and the human body. Traffic between cyberspace and real space is also important: urban space is the space of Ourai where myriad forms of information including i-mode service (Internet access by mobile phone), GIS, ITS, etc., interlink.

Media Art is a field where many problematics brought on by electronic society appear, giving rise to alternative approaches and solutions. Media art events around the world have presented themes such as "life science," "creative sense" and "artificial life" and have had a huge impact on the progress of society.

The Nagoya area is one of the largest industrial areas in Japan. The areas around Nagoya Port, which will be the main site of ISEA 2002, are rich in traditional culture. With 10 years of experience with ARTEC Biennale, Nagoya has a proven reputation in a related field. The Nagoya event will also mark a new milestone for ISEA, the first time the conference is being held in Asia.

ISEA 2002 will be the arena for three different kinds of Ourai: the search for relations with industry, a place where participants from Asia and all over the world can communicate and share ideas and where citizens can enjoy events. Like the book "Nagoya Ourai," we hope that ISEA 2002 will create a new text of alternative literacy in the electronic age.

< 2001: Building for Space Travel >
Art Institute of Chicago
Chicago, IL, U.S.A.

With the Museum of Flight in Seattle, the Department of Architecture at The Art Institute of Chicago is co-organizing an exhibition exploring the evolution and projected visions of architecture and design for space travel. 2001: Building for Space Travel will examine perceptions of the space age beyond the millennium mark. The exhibition will educate the general public about the work that architects, civil engineers and industrial and graphic designers have done for the space program, as seen through structures from the launch facilities at the Kennedy Space Center in Cape Canaveral, Florida, to the new International Space Station, a monumental 17-country effort.

For more information and exact dates: <<http://absolutearts.com/cgi-bin/news/elaborate.cgi?find=2856>>

< Signatures of the Invisible---An Art Exhibition Inspired by Particle Physics >

Made by artists inspired by their experiences of a particle physics laboratory. A collaboration between artists and physicists "that has the potential to help redefine the relationship between science and art."

WWW: <<http://straddle3.net/context/>>

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Editorial Address:
Leonardo
425 Market St, Second Floor
San Francisco, CA 94105
USA
E-mail: <leo@mitpress.mit.edu>

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