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EDITORIALS

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< The Cultural Foundations of Globalization >

by Roger F. Malina, E-Mail: rmalina@alum.mit.edu

In this issue we feature two editorials; one by Michele Emmer continues the discussion on how artists and scientists respond in times of war. Among other points, he notes how, in the global information society of today, the mass media shape our perception of which tragedies are attention worthy and deserving of conscious and premeditated action. More discussion on these urgent questions can be found on Leonardo On-Line at:

<http://www.leonardo.info/isast/spec.projects/artwar.html>

In the second Editorial, Michael Punt uses a review by Steve Wilson of the recent book from Ars Electronica to discuss "Human Consciousness and the Postdigital Analogue." His closing sentence states: "In the post digital analogue, human consciousness is regarded as almost infinitely malleable, able to share its identity in response to local and technological conditions...."

These rather different musings of how globalization affects our consciousness came together for me during a recent coffee meeting in Paris with Annick Bureau and Julien Knebusch. Ostensibly our meeting was to discuss the work of artists in zero gravity and in outer space, and we discussed how humans now share, in Frank White's phrase, the "overview effect" of living on a single planet with a shared destiny. Knebusch explained how in his current research he was tracing the early ideas in the sixteenth, seventeenth and eighteenth centuries, in particular in Germany and France, that led eventually to the ideas, including the overview effect, that have been the cultural foundations of the recent social phenomenon of globalization.

Since "Seattle" brought into sharp focus the various ideas and interests that are opposed to certain aspects of globalization, there has been little discussion of the cultural ideas that have provided the theoretical and artistic arguments driving the desire for globalization, other than those of the free market business economy. Yet the artists and scientists in the Leonardo network have been among the "earliest adopters" of some of the new technologies of globalization, such as the Internet, and one is struck at the way that artists and the cultural community internationally have responded to the crisis brought about by the events of September 11 to articulate other arguments and other visions of the future. Indeed we realise that "consciousness is infinitely malleable" and that in times of war,

artists and scientists are on the front lines of creating a change of consciousness. And as Michael Punt eloquently states "At stake in the postdigital analogue however, is more than the recovery of the subject: it is nothing less than the question of whose vision of paradise prevails."

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< Can Ideas and Words Be Useful? >
by Michele Emmer, E-mail: <m.emmer@iol.it>

In May 1999, I wrote an editorial that was published in LEA and then in Leonardo; at that time, there was the war in Kosovo, which was called a "humanitarian war." Today, the first of October, 2001, there is about to be a response to the terrorist attacks of September 11th on the Twin Towers in New York and the Pentagon in Washington. The war, the "international police action," the "operation," which has changed names a number of times, is ready to begin, even though some actions, which have remained secret, have already been carried out.

Undoubtedly, it is difficult to respond with a sort of absolute pacifism to actions that call for a strong response, actions that are violent, illegal, inhuman. Was it not impossible to react to Hitler's attacks? How not to answer the Japanese at Pearl Harbor, or the invasions of Asia and Europe, just to mention two examples that no one has any doubts about. The war was necessary insofar as it was not possible to block the expansionist ambitions of Nazism and Japanese militarism in any other way. Millions of people died all over the world, men from all over the world fought, died or were taken prisoners, fighting in countries that perhaps they didn't even know. I also discovered at a show in Venice this summer that Maori soldiers from New Zealand fought and died to conquer the Abbey of Montecassino, one of the most famous battles fought in southern Italy during the second world war. My uncle participated in the Russian campaign, a cousin of my mother died in a concentration camp, my parents were able to escape to Switzerland, my wife's father was imprisoned in Africa. All over the world, a number of families counted members who were dead, missing or wounded. Most of the dead were not soldiers but defenseless civilians. And entire populations were wiped out - six million Jews were exterminated. All this took place in the center of Europe 60 years ago, two generations ago.

At the end of the war, it was thought that after that unending, destructive war there would be no more wars. There had been too many tragedies, too many dead people. Actually, the following war had already begun and wars have always continued - the more important ones, the less important ones, some highlighted, some forgotten. Europe, however, after the Nazi and Fascist folly, thought it had become a happy island, apart from the "local" conflicts in Ireland, in Spain, Hungary, Corsica, Poland, Yugoslavia... Apart from Germany, divided into two parts by a wall, apart from the concentration camps that continued to exist. But everyone thought, we thought, that after all Europe was in peace - development would be infinite. It could only improve our way of living, and bit by bit the idea of the besieged city was born, of a happy Europe with the U.S.A., Japan and a few others. The mass of all the other men and women looked at the besieged city as towards a mirage of happiness, hoping to succeed in reaching it. It was as if the phenomenon of immigration was

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perhaps *not* the most important phenomenon of the entire history of mankind. Men and women who, since the beginning, have migrated, married, merged with other populations, fought, killed and loved. Does history always repeat itself in the same way? I do not know if history is repeated, but it is never the same. Every period, every population, every man and woman encloses a different story. These are all reflections, which I may say are obvious, that anyone might think when he or she is in a situation in which it is difficult to understand what to expect in the future, for us, for our children, for our friends, for our country.

It is certain that in this American tragedy there have been some tragically new elements, which obtained the maximum tragic result. Perhaps the results have been even greater that the expectations of those who planned the attacks, with a very modest financial investment and very small losses for the authors of the attack: 7,000 people dead against fewer than twenty suicide terrorists. Another great novelty: the CNN effect. Nowadays in the world, anyone, from statesmen to terrorists, plan their initiatives so as to be on CNN at the right time. The power of television and the digital media has become so great that such an important tragic event would surely have been less "traumatic" if no one had filmed those planes crashing into the towers. The deaths would have been less "visible" without CNN and the world television networks.

It will be a great demonstration of intelligence if the response to the attack takes place without the media knowing anything about it. It will mean that the results will be more important that what can be seen. Starting from the war in Kuwait and Iraq, the war has become mediatic. Also our reactions beat in time with the media. Do we want to say that everything is a show? Undoubtedly, the immediate diffusion of the images of the New York tragedy have had an enormous effect on men and women all over the world. To see those people jumping out of the buildings, not wanting to be burnt to death, without even knowing for what reason they were dying, has strongly upset millions of people.

Someone noted that many tragedies are not seen on television, that since televisions and those who control them decide the strategies of entire countries, the participation of humanity in the great dramas of the planet is fundamentally limited to just watching the television. A great instrument for information, a great instrument to gather consent. In any case, a media with its own language.

Psychologists are worried about the children who must be told that those images were "true" - they were different from the video games and films about catastrophes, because behind those images was humanity, men and women suffering and dying. At the same time, television was making all this "bearable," just because we had experienced those nightmares a number of times in our dreams at the cinema. When fiction becomes reality, the tragedy becomes greater than all the special effects, however spectacular, and the cinema decides to stop showing images of virtual catastrophes, as if there could still be some confusion between reality and fiction. Perhaps too little has been explained that when a film is made, there is a movie camera that provides the theme and the time of action for the virtual reality, that what one sees is "invented" and cannot be confused with reality, that it is a scenic language in order to provide entertainment. A language that was so effective that the terrorists made use of it. Language, images, cinema, virtual

reality.

In 1999, I wrote that "the responsibility concerns everyone. No one has more insight into the truth than anyone else, so there's no point in asking scientists or artists what they think about war. But perhaps there is one question worth asking: do we believe that artists produce art, mathematicians mathematics, scientists science and soldiers war? Therefore, each one of us deals with their own specific field and should not waste time in discussion? In recent years, much has been said about globalization and complexity. Now, in May 1999, we are faced by an enormously complex problem that is extremely difficult to solve, while at the same time safeguarding all the people involved. And do we still have nothing to say? Since we are artists and scientists? This is not to suggest the absurd idea of creating the art of war, the aesthetics of war, nor is it out of a sense of guilt, and to exorcise our fears. It is simply that in today's world there are artistic and scientific communities who are able to converse with the whole world, who have access to all the means of communication, who are responsible for educating entire generations of young people. Have we nothing to say? In order to understand, to try to let tolerance and comprehension prevail?"

However, it must not be forgotten that notwithstanding what some politicians with poor cultural backgrounds have said, this is not a war between cultures and religions in order to affirm that one prevails over the other. Some of these words were said in Berlin, and much irresponsibility was required to speak of the Western civilization prevailing, in those places in which it was decided to exterminate entire human populations in a scientific and industrial manner, because they were considered inferior. Not a fight between cultures, but a fight for culture, as the German premier Gerhard Schroeder wrote (published in La Repubblica, 18 September 2001). Without forgetting the injustice in the world, the poverty in the world, the atrocities in the world. Knowing that mankind has never succeeded in reaching that Eden of happiness and brotherhood that all of us say we are dedicated to. Nothing is forever on this earth, but in our DNA we have some genes that tell us that what we are doing tends towards immortality, infinity; otherwise we would not be able to live. And therefore, it is right to fight and struggle to make justice triumph, to stop hunger and poverty. I do not know if we will ever succeed. Because globalization means that the cover, as it is, is narrow and does not cover everyone. Some pull it more to their side, and some remain uncovered.

I obviously do not have any answers, I still have some hopes, and I hope that future generations will have "new hopes." Our task is to give them the instruments in order to understand, to try to be just, to look for solutions. Our mistrust will not affect them, the surviving instinct will push them further and overcome the dark moments. There are moments, after great tragedies, in which man, for a short time, humanity, feels closer, it feels it can carry out great, praiseworthy actions - these rare moments must not be ignored, even if they last a very short amount of time. Then our immune defense system gets back to work and we become egoists again. Without any illusions, but trying to affirm that the global economic government must serve to try to find a solution to the great problems of the world. Will this save us from the wars, from massacres? Nobody knows, but humanity has always tried to, and will always try.

I wanted to be short in my new editorial, I only wanted to say a

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few things. Instead I have let myself be carried away by the collective and personal tragedies, by war, and death, by civilization, up to global economy, by what is in store for us ahead. When I wrote the other editorial, I received answers from persons in many countries, only a few from the U.S.A. Now, unfortunately, many come from the U.S.A. It is natural, it is normal, it is our surviving instinct. However I believe that all, also the artists and the scientists in the world, should always bear in mind that "when a person is killed, all of humanity is killed".

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< Human Consciousness and the Postdigital Analogue >
by Michael Punt, E-mail: <Mpunt@easynet.co.uk>

As Steven Wilson points out in his review of the book Ars Electronica, Facing the Future, this book is "a marvelous resource that will be much appreciated by artists, critics, historians, and anyone interested in the convergence of art and technology." (See LDR Vol. 9, No. 8, August 2001) Among other things, the book provides a historical record that catalogues the changing perceptions of the emergence of digital technology as a popular medium. Seventeen years ago, for example, Gene Youngblood reminded us that the computer translates the continuous phenomena of the world into discrete units. At the same time, Peter Weibel pointed out that whereas the analogical follows principles of similarity, congruency and continuity, the digital uses the smallest discontinuous, non-homogeneous elements. Five years later Roy Ascott, with characteristic visionary insight, appealed for a restoration of the metaphor to the agenda in order that the undivided whole could once again be regained. It was a call that Nick Herbert responded to a year later in a lucid and accessible account of quantum physics, concluding with some irony that holistic physics really would erase the distinction between subject and object and there would be a real danger of getting lost in space. Facing the Future's history lesson ends in 1998 with Friedrich Kittler's confirmation that in the realms of electronic warfare we resisted this danger since copying a "hostile CPU is easier, cheaper, and therefore more likely to proliferate than copying a hostile phase radar." This is not merely the carry-through of old technology into the new (as, for example, film and video), but a return to the ideal of the analogue. According to Kittler's analysis of warfare, in less than a decade digital media recovered the relevance of the principles of similarity, congruency and continuity. This apparent persistence of the analogue invites us to consider that the morphological resemblance between pre- and post-digital modes of expression (or industrial and enlightenment, for that matter) could be significant symptoms of the hesitance of users to abandon "felt" experience in favor of the clat of seductive technologies of description.

At the distance that Ars Electronica: Facing the Future allows us, it becomes apparent that empowered users negotiating with digital media have found themselves engaged in this recurring cycle, in which the idealization of representation is in conflict with the dominant technology, which disavows daily experience as an undifferentiated circulation of metaphors for desire and resistance. As much was at stake in the pre-cinematic age, when Jules Etienne Marey, for example, inquiring into the nature of movement, regarded the new techniques of chronophotography as inferior to graphic methods using smoked drums and scribes attached to pneumatic sensors. Photo-technology used shutters

that insisted upon the moment as a finite duration and consequently ruptured the flow of movement as experienced in a flux of time. The pseudo-guarantees of objectivity that this scientifically acceptable idealization could offer, however, outweighed the deficits, and the representation of movement as an incremental sequence in a small finite and discontinuous moment became an acceptable norm to the extent that the subject was indeed collapsed into the object and temporarily "lost in space." However, whereas chronophotography chained vision to the materiality of the body, in the post-chronophotographic analogue the principles of similarity, congruency and continuity found new life in the cinema of narrative integration (the movies) which rescued the subject in a seamless reality of the infinitely malleable virtual bodies, for whom the eye was transcendent.

The intellectual project of Ars Electronica, Facing the Future leaves little doubt that the digital revolution was, from its technological and conceptual inception, always destined to be the postdigital in which similarity, congruence and continuity found new applications. At stake in the postdigital analogue however, is more than the recovery of the subject: it is nothing less than the question of whose vision of paradise prevails. The postdigital analogue points to a version of paradise that is not a finite discontinuous place or a non-homogeneous moment of time, not Eden in a nostalgic future, but a thick membrane in which local conditions, desire and resistance are constantly stabilized to form a whole identity. Where the digital proposes the perfect finite conditions for a perfect existence regardless of matter (as for example in the human genome project), in the postdigital analogue (as for example in the ironies of genetic and wet biological art) human consciousness is regarded as almost infinitely malleable, able to shape its identity in response to local and technological conditions and aware all the time of the range of possibilities not yet developed, both digital and analogue.

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FROM THE EDITOR'S DESK

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< Responses to the U.S. terrorist attacks >

From: Bulat M.Galeyev, <galeyev@prometey.kcn.ru>.
Wednesday, 12 September 2001

Dear Roger and other friends from "Leonardo,"

We present our condolences to you, our colleagues and friends, and unite in sorrow with all the American nation. It's very regretful that the XXI century has begun with great disaster, which has warned us about the menace to the civilization.

Let it be the last disaster of such a scale.

best regards, Bulat Galeyev, on behalf of the "Prometheus" collective body.

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From: Victoria Vesna, E-mail: <vesna@arts.ucla.edu>

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Saturday, 29 September, 2001

< Art and Science in Times of War >

Dear Roger,

I arrived to Germany on September 11th, to prepare an installation... Watching the tragedy unfold and realizing the complexity and urgency of the situation, I decided to shift gears and create an entirely new piece. I realized that it is important to respond and not be passive and I continue to feel this way. At the university, I am teaching a seminar - "The Role of Art & Technology in Times of War" - where I will work on getting the students to consider these issues from different perspectives. This November, we are hosting a conference, "Networks and Nanotech," which was initially designed to address the newly established institutes in the UC [University of California]. You may know that we are also hosting the CAiiA group and they will certainly participate along with UC academics from many disciplines. The conference will also shift focus to address the role of artists and scientists in times of war.

As I was searching the web to prepare for addressing this, I ran across your recently posted excellent editorial. I was hoping that we can invite you to participate and help in some way.

Hope to hear from you soon, Victoria Vesna

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FEATURED TEXTS

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< Abstraction, Action Painting, Ready Mades and All That... >

by Jacques Mandelbrojt, E-mail: <jmandelbrojt@wanadoo.fr>

Those who write about art tend nowadays to oppose favorably the intelligent, ironic attitude of Marcel Duchamp to abstraction as it was practiced in the 1950s, in particular to the supposedly purely physical action painting.

I wish here to defend an opposite point of view, by analyzing the "epistemological" meaning of abstraction in general, and by showing that action painting, in particular, relates to characteristics of the most subtle human thought, as exemplified in mathematical and scientific research.

If one compares, as I have often done, the relationship between abstract and figurative art to that between mathematics and physics, it becomes evident that abstract art is not an art movement among so many others, but that it can truly be considered as the basis of art: just as mathematics, which is the study of structures that the human mind can invent or discover, underlies physics, which is the application of these structures to reality, abstraction is the exploration of the shapes and structures that an artist can create and figurative art is the application of these structures to reality. Abstract art, then, clarifies figurative art just as mathematics clarifies physics by making explicit its underlying structures. Conversely, physics

can enrich mathematics by showing the necessity of new structures: this is the way Newton invented calculus, which was necessary for his gravitational theory. In the same manner wishing to represent a new theme, a new object, can force an artist to enrich his abstract vocabulary. This is the way Paul Klee enriched his abstract vocabulary, by looking each time for the abstract structure best adapted to the object he wished to represent. All artists know that it is by going back to nature, or to new themes, that they enrich their pictorial vocabulary.

This comparison of abstraction with mathematics does not imply that abstraction should be geometrical: mathematics, before its formal finished expression, as in the axioms of geometry, is based on the intuition of mathematicians. This intuition often has a dynamic, kinesthetic and, so to speak, "muscular" aspect. This stood out clearly in the enquiries led by the mathematician Jacques Hadamard among leading mathematicians of the time. Einstein in particular emphasized in a letter to Jacques Hadamard the imaged and kinesthesic aspect of his thought and the extreme difficulty he had in then translating it into words and formulas. Recent research in neurology confirms the idea that mathematical thought is, for many mathematicians, of a kinesthetic nature, while for others it develops in terms of langage. In other sciences too, thought often has a kinesthetic aspect: biology Nobel laureate Jacques Monod writes that "Each scientist knows that his thought at the deepest level is not verbal, but is done in terms of shapes, forces, interactions." This description of scientific thought could very well be the description of an action painting. Action painting thus appears to be just as "mathematical" or "scientific," although at a deeper level of intuition, as more formal or geometrical art. The difference between art and mathematics or science is, of course, that mathematics or science cannot remain at this intuitive level; it must be replaced by formal reasoning. But why should art not express this fundamental aspect of thought?

Now to come to the subject of Marcel Duchamp: his use of "ready-mades," which initially had a liberating aspect by showing that anything could be considered as art, independently of its aesthetic aspect, has often led his followers to reject the physical process of making a painting. In particular, it has led to rejection of the gestural aspect of action painting, the idea seemingly being that gesture necessarily obliterates thought. As I have argued above, there is often, even in such "pure" thought as that of mathematics, a dynamic, muscular, kinesthesic thought process occurring at the intuitive level on which mathematical and ultimately, more formal, thought is based. This rejection of the making of a painting seems to me to favor *talk* about art to art itself. Maybe we could oppose to the followers of Duchamp the motto of Saint Theresa of Avilla: "Obras que no palabras" (actions, not words).

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LEONARDO DIGITAL REVIEWS
2001.09

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This month, Leonardo Digital Reviews are slightly more cosmopolitan than usual with contributions from panelists in U.S.A., the U.K. and Australia, covering events and books that take us to Linz, Chicago, Lebanon (New Hampshire), Amsterdam, Los Angeles, the north west of Scotland, the unfathomable depths of British academia, Caerleon (in the southern part of Wales), itself the site of an international convergence, and Maribor, Slovenia. Such a critical diaspora provides an astonishingly coherent collection of reviews this month. The two major conferences identified covered, at Linz and Caerleon, include authors and events that point to a number of emerging preoccupations in the field of publishing on the convergence of art, science and technology. Bio-technic art practice features in the discussions of these major events and in the review of Eduardo Kac's Genesis by Simone Osthoff, a new panel member. Kac's work is also reviewed in one of three contributions by Paul Hertz. The issue of bio-genetics is also evident in Lloyd Gibson and Mark Little's, work which is discussed by Mike Leggett, who also alludes to another theme in this month's collection: information design and the challenge of a new order. More directly addressed in Mike Mosher's review of Uncommon Ground is the collision between old forms of notation and new forms of information. This provides an alternative intellectual space that, according to Curtis Karnow, is apparently not particularly well navigated in Inhuman Reflections: Thinking the Limits of the Human. Paul Hertz' review of Synesthesia; The Strangest Thing points to another kind of transcendental encounter between the anatomical, physiological and psychological and imaging technology. Finally, Mike Mosher draws an insightful line on some experimental composers' work that also appears to dispute the semiotic distinction between reality and experience.

Michael Punt

Editor-in-Chief
Leonardo Digital Reviews.

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New this month at Leonardo Digital Reviews, October 2001 <http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>:

Ars Electronica 2001, Linz, Austria 1-6 September, 2001, <www.aec.at/takeover> Reviewed by Michael Punt, U.K.

Art, Technology, Consciousness mind@large, Edited by Roy Ascott, Intellect Books, 2000 Reviewed by Paul Hertz, U.S.A.

Genesis: Biotechnology Between the Verbal, the Visual, the Auditory, and the Tactile; installation by Eduardo Kac Reviewed by Simone Osthoff

Eduardo Kac: Telepresence, Biotelematics, Transgenic Art, edited by Alexandra Kostic Reviewed by Paul Hertz

ON1, by Lloyd Gibson and Mark Little Reviewed by Mike Leggett, Australia

Locus Solus _ Site, Identity, Technology and Contemporary Art1; various contributors, including Stallabrass, Ratnam and van Mourik Broekman Reviewed by Mike Leggett

'Annunciation,' by Cesare Davolio Reviewed by Mike Leggett

Uncommon Ground: Architecture, Technology and Topology, by David Leatherbarrow Reviewed by Mike Mosher, U.S.A.

Inhuman Reflections: Thinking the Limits of the Human, edited by S. Brewster et al. Reviewed by Curtis E. A. Karnow, U.S.A.

Synaesthesia: The Strangest Thing, By John Harrison Reviewed by Paul Hertz

Out of Lebanon, NH: Hoestetler and Scholtz; by Carter Scholtz and Randy Hoestetler Reviewed by Mike Mosher

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Ars Electronica 2001
Linz, Austria 1- 6 September, 2001, <www.aec.at/takeover>

Reviewed by Michael Punt, E-mail: <Mpunt@easynet.co.uk>

After 22 years, Ars Electronica is such an established landmark on the map of interactive arts festivals that its history and structure hardly need rehearsing here. But for the record, the Ars Electronic festival was established in 1979 with the support of Linz, a city known previously for its connections with Nazism. The festival also became host to the Prix Ars Electronica 15 years ago, and since 1996 has had its own all-year venue - the Ars Electronica Center - just across the river from the Bruknerhaus, built to commemorate one of the city's less notorious sons. This year, the winners and honorable mentions in the Prix Ars Electronica were on display at the O.K. Center for Contemporary Art while most other events took place in the Bruknerhaus. Throughout the city, there were parties and creative interventions, constituting a fringe of counter culture.

The festival has, from the outset, set its sights on the future and is an occasion for a convergence of international talent and curiosity connected with the art practices of tomorrow. This year the title of the festival - "Takeover: Who's Doing the Art of Tomorrow" - anticipated a sea change in the practice and reception of art (note the lack of a question mark in the title). The "Takeover" symposia comprised four days of presentations, each supposed to address one aspect of an overarching thesis that digital communications had allowed art and artists to bypass the establishment to the extent that the values of the past were no longer relevant to practitioners and audiences. As we are entering a new paradigm, the question mark consequently belongs not to who is doing the art but, to quote directors Gerfried Stoker and Christine Schšpf, "Which constellations, which factors are defining the art of tomorrow, where will it happen, who is doing it with whom?"

Given the self-confidence (not the novelty) of the premise it was disappointing that the event was dominated by a parade of predominantly male, superannuated speakers from the Mid-Atlantic

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art establishment. Much that was presented was familiar territory to anyone with any background in the kinds of things that Ars Electronica has stood for: practices that have not sought approval from the art establishment; perspectives that regard practice, analysis and criticism as a continuous platform for legitimate artistic intervention; perspectives that have negotiated, collaborated and played with science as they have simultaneously excommunicated scientists.

To this informed constituency, many of the presentations must have been pushing at open doors. This could have been precisely the expectation - a deconstructivist structure for a symposium to show the redundancy of a discourse by grandly displaying its irrelevance. As such it would have had my vote (although perhaps it would have demanded less attention). The same may be said for what was supposed to replace it: an "electrolobby take-over," in which "smart hubs, hacks and killer apps. push the envelope." It was, alas, indistinguishable from the ennui of the post-establishment establishment. The electrolobby afternoon, hosted by TNC Network's Sabine Wahrmann and embellished by DJ Swo, was an exercise in media cool in which young talent refused to be articulate for fear of being un-cool in such company. A bit of straight-forward talking could possibly have plotted a pathway to the real questions that the take-over thesis presents but instead, through this mode of presentation, the event was always in danger of becoming identified with the very malaise that it was intending to expose.

Whatever the disappointments in the symposia, the reputation of Ars Electronica guarantees that among the frogs there will be princes. This indeed was the case with part four of the symposia, dedicated to a presentation of biotechnology and bio-informatics as artistic tools. In this session, Eduardo Kac argued for a venerable history for bio-technic art and paid tribute to George Gessert. He elegantly talked us through his work and fielded the usual questions about the poor old Alba, a long suffering GFP rabbit who stoically endures audiences missing the point. Natalie Jeremijenko revisited the work of Francis Galton and, through the filter of contemporary practice, recontextualized it in a crossover space between the gallery and the garage. In the same session Joe Davis, a research affiliate a MIT, mesmerized the audience with a description of his project to catch sub-microscopic organisms with a fishing line and a 25 micron hook and, in the true spirit of the creative practitioner, provided an insight into the control of unrestrained cell division. Davis' apparently frivolous use of high science also recuperates the influential position of lay interest in nineteenth-century scientific knowledge.

Amongst these established figures, the SymbioticA Research Group breathed a different life with Oran Catts and Ionat Zurr's piece, "Fish and Chips." Their installation achieved the promised radicalism that the Electrolobby failed to deliver. Reminiscent of Kac's attenuated logic, the title of the work drew together the favorite dish of a prominent Australian Neo-Fascist and Austria's own political present. Although socially alert, Catts and Zurr are essentially "wet-biology artists" who describe their piece, assembled from fish neurons grown over silicon chips, as "a bio-cybernetic project exploring creativity and artistry in the age of biological technologies... a work in progress towards the creation of semi-living artistic entities." Electrical impulses from a fish's neuron connected to a fish retina were converted by clever machines into gestures (and sounds). Pneumatic arms and levers, with crayons attached, tracked these

gestures in a series of drawings that were displayed next to the sealed laboratory in which all the smart biotechnical work was going on. Abiding at the leading edge of biotechnology and triggering current debates in consciousness studies, "Fish and Chips" could have taken art away from the anecdotal roots of modernism and resurrected experience as the cornerstone of creation. Instead, along with access to highly sophisticated laboratory apparatus, Catts and Zuur have been caught up in an establishment view of art that is at best "quaint" and their machine drawings, etc., embarrassing intellectual liabilities. The fascinations and brilliance of their work (as with all wet-biological, genetic and bio-genetic art works) is the challenge it throws out to a history of art that has disavowed the transcendent in exchange for an overload of pleasure in which the experience of reality, its representation and its ideology converge to form an apparently complete whole as they have never done before. Catts and Zurr's work presents the enigma of the semi-living entity in a context in which some scientists in consciousness studies are arguing that humans may well be hard-wired to recognize the living. They have opened the portal between the material and the transcendent that art, history and science have remorselessly closed off for at least four centuries.

One cannot thank Linz and Ars too much for looking forward and asking the important questions, nor should one be too concerned that not everyone got the point. Kac, Davis, Catts and Zurr, along with contributors including information designer Tanja Diezmann, media interventionist Oliviero Toscani and others addressed the heroic challenge to artists and theorists thrown down by the Takeover theme. What was fascinating about all of these contributions was that each in their own way proceeded with the methodology of the open-minded and an intellectual toughness that contrasted with the habitual thinking of the superannuated establishment and the finger-snapping media cool. We should be pleased that this year the more interesting participants appeared to notice the lack of a question mark after "Who's Doing the Art of Tomorrow," and in the rhetoric of bio-technic, bio-genetic and wet-biologic artists, asked the veiled question posed by Stocker and Schšpf in the program: what kind of entity will be doing the art of tomorrow?

Ars electronica, the Prix Ars Electronic, and the Ars Electronica Center can be found at the following urls: <www.aec.at/takeover>, <www.prixars.orf.at>, <www.aec.at>.

Catts and Zurr are at: <www.symbiotica.uwa.edu.au>

Tanzia Diezmann is at: <pReview-design.com>

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Carter Scholtz, 8 Pieces, Frog Peak Music, FP009
Randy Hoestetler, Happily Ever After, Frog Peak Music, FP008.

Reviewed by Mike Mosher, E-mail: <mosher@svsu.edu>

Frog Peak Music ("A Composers' Collective") is an artist-run organization in New England that publishes and distributes experimental works of its composers. These two CDs, produced in 2000, offer two very different sensibilities and resultant works, from the most severely abstracted to the most lushly narrative.

The work of Carter Scholtz reminds us that Frog Peak's home,

Lebanon, New Hampshire, is only a few miles from Hanover's Dartmouth College, where Jon Appelton has taught electronic music composition for a quarter century. While the composer Scholtz's mathematically-determined methodologies are recounted on the CD sleeve, this reviewer will also tell you how it sounds, for the CD accompanied a long, rainy freeway drive and promoted contemplation. The opening cut, "Lattice," is a characteristic piece of electroacoustic music, where tones assemble slowly and pleasantly. Its pitches diverge then return in intervals based on the prime numbers 7 and 2. I found it reminiscent of a late-1970s California radio show, "Music from the Hearts of Space." The piece is enjoyable but undistinguished. The dilemma of such mathematically-structured, possibly overdetermined music of this nature is the philosophical question of whether the listener can hear the relationships within the music or must turn to the composer's descriptive "key" afterwards to understand what has been heard.

"Rhythmicon" is a phase-shifted canon using 17 members of a harmonic series, whose tones accelerate or decelerate along a curve. Its five minutes of distinctly serial music sound as simple as a children's song, syncopated and seemingly played upon a kalimba or balafon. "Kaleidophon (strict)" is equally determinate but sounds more sensual, like wind chimes, celeste and bells, tinkling slightly discordantly: the part of the movie evoking the murderer's troubled childhood. It is followed by "Epimores," making use of Ptolemaic intervals in its construction. "Hamilton Circuit", based upon graph theory by mathematician William Rown Hamilton, is a rich 14 minutes and 9 seconds of evocative sound. A single tone sounds and is then modulated with another tone. We hear a series of insectoid sounds, clattering, chirping, squiggling and clacking, then echoes rising and falling, vulpine whoops out in the hills (not uncharacteristic of some parts of woodsy New Hampshire).

"Jet" incorporates both aircraft and the sounds of earth, air, fire and water, but seems primarily liquid with its running water. What sounds like a record player needle in an endless groove may be fire; perhaps it is an air current slowly rising and falling, as if in a state of mourning and whispered prayer. The piece has abrupt changes like a radio channel-switching, from bell-like tones to its water source. The seventh piece, "Luminous Voide," is also collage-like, with sounds like bells, voices, finger cymbals, fanfares like arpeggios from Doug Hollis' Wind Organ in Berkeley, California. The final "Kaleidophon (stochastic)" is performed by the Berkeley Gamelan and uses analog filters tuned to 16 members of a harmonic series and rung by a random source.

On the 45-minute work, "Happily Ever After," Randy Hoestetler assembles the voices of people telling a favorite story. Sometimes people saying the same phrase (i.e., "Once upon a time...") are layered into a chorus. Other times a story will build, and then the voice telling it will stop where you expect a climax, or else another story will enter and compete for your attention. Stories recorded from 66 individuals become in Hostetler's hands an orchestra, which he then assembles in the studio. The inherent intimacy of listening to a teller's tale is alarmingly violated when other voices are shoved into and over the experience.

There is a sense of urban multivocality at play here, the city talking to itself, its citizens and denizens recounting stories to each other. One is somewhat reminded of Edgar Lee Masters'

play, “Spoon River Anthology,” although in the play, the voices are presented sequentially. The artistic process here appears comparable to cutting up a magazine for a collage. A page, column or phrase of text can be pasted in for the impact of what it is saying, or else only for the pattern of its letters. A magazine photograph might be included in the collage for what it depicts, or else as a painterly passage of color. In his layerings and manipulations, Hoestetler forces us to acknowlege the storytelling voice as both content and form.

Randy Hoestetler was born in 1963 and died in 1996. “Happily Ever After” was curated for this CD publication by his former instructor at California Institute of the Arts, Paul Lansky. The myriad voices were recorded by Hoestetler between May and December of 1986 and assembled in the Cal Arts electroacoustic music studios. The work took him about two years to complete. A posthumous website, <www.livingroom.org>, contains more information on the composer’s life and work.

The URL for Frog Peak Music is: <www.frogpeak.org>

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ISAST NEWS

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< OLATS Announces Livres & Etudes by Edmond Couchot >

Leonardo/OLATS is proud to announce the recent posting on its web site of “Livres & Etudes” (Essays & Studies), six fundamental texts by French theoretician Edmond Couchot. The texts, first published between 1982 and 1989, are published in French on the OLATS website: <http://www.olats.org/setF6.html>.

The texts:

* “La synthese num□rique de l’image. Vers un nouvel ordre visuel” (Digital Synthesis of the Image. Toward a New Visual Order). First published in Traverses, No. 26, October 1982, pp. 56--63. This text investigates the nature of the digital image using an analysis of its morphogenesis. The digital image does not belong to the opto-chemical order of photography or cinema, nor to the optico-electronic order of video and television, but is based on language. Leaving behind the order of representation, the digital image gives birth to a new visual order. Beyond the visual order, it also overturns the temporal order, moving from the “it-has-been” expressed by Barthes to an “it can be.”

* “Image puissance image” (Image to [power] Image). First published in Revue d’Esth□tique, No. 7, June 1984, pp. 123--133. This text describes the notion, first coined by E. Couchot, of the digital image as an “image to (power) image.” Among the other characteristics of the digital image, the author stresses the fact that the new relationship between the viewer and the image is now based on a “conversational order” (or interactivity). The image is no longer a closed space but an open universe we can enter. Additionally, the topology of the image is radically changing: the topology of the classical optic is one of a geometry of convergence, whereas digital topology forbids any “organizational center,” any hierarchy within the space. The computer linked to the networks transforms the supports of the digital image. Thus it becomes more than just media - it becomes

"immediate." The viewer becomes a terminal of the network and of the image.

* "Sujet, Objet, Image" (Subject, Object, Image). First published in Cahiers internationaux de Sociologie, Vol. 82, 1987, pp. 85--97. Through a number of techniques based on the laws of optics, such as photography, cinema and video, it became possible to automatically produce images representing our environment and to arrange subjects, objects and images in a certain way within space and time. Such an arrangement is, however, completely upset by the newly created digital technologies. These no longer produce an automatic representation of reality but lead to its simulation; light is no longer involved in the creation of images, but is replaced by language and calculation. The problem then becomes to define whether or not reality is undergoing a complete change as images are gaining characteristics they never had before, owing to subjects and objects being given a new status.

* "La mosa•que ordonn□e ou l'□cran saisi par le calcul" (The Ordered Mosaic or the Screen Taken by the Maths). First published in Communications, No. 48, 1988, pp. 79--87. This paper confronts the digital image and the screen. From the trace of the gesture, the encounter between the tool and the support (Kandinsky), to image transmission (scanning), to the calculus-digital language, the author scrutinizes the different distribution modes of the image and their consequences on its nature with regard to digital technology.

* "A la recherche du 'temps r□el'" (Looking for "Real Time"). First published in Traverses, No. 35, September 1985, pp. 41--45. Taking as his starting point the history of the tools invented to measure time, the author proposes an analysis and a definition of digital time - uchronic time - which, like the computer digital image, belongs to simulation.

* "La synth□se du temps" (The Synthetis of Time). First published in "Les Chemins du virtuel: simulation informatique et cr□ation industrielle," Cahiers du CCI, Centre Georges Pompidou, April 1989, pp. 117--122. This paper proposes an in-depth analysis of digital-computer time and of the notion of "uchronic time." It examines the "re-initialization of the course of time," which is fundamental to computer technologies.

With its section Etudes (Studies), Leonardo/OLATS launches an electronic collection of critical and theoretical essays about art and the techno-sciences. This collection includes texts by critics, theoreticians and researchers, as well as - in keeping with the aim of Leonardo since its creation - texts by artists about their own work. The editorial policy is structured around two main axes:

* The "Fundamentals" (Les "fondamentaux"): electronic reprints of texts that are no longer available or are hard to find. * "New Gaze" ("Nouveaux regards"): current aesthetic analysis and critique.

Etudes is open to senior authors as well as junior writers and artists, offering a publishing platform within an international network. The texts are selected by an editorial committee. Interested individuals are welcome to send proposals to Annick Bureaud <annickb@altern.org>.

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< Space Arts Workshop >

The sixth "Rencontres du 13 Avril" will be on the theme "The Collaborative Process in Space Art." This sixth Space Arts Workshop will examine the dialogue between artists, scientists and engineers along with the results produced by interdisciplinary collaboration in space art. Past as well as future space art projects will be presented and discussed, with an emphasis on promoting new collaborative space art projects involving artists, scientists and engineers. We welcome workshop proposals from artists, scientists and engineers who are interested in the development of space art. The workshop will be held in Paris on Sunday, 17 March 2002. Attendance will be limited to invited participants only.

Richard Clar is coordinating the workshop program and may be reached at: <rclar@arttechnologies.com>.

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< LDR Panelist Andreas Broeckmann >

Andreas Broeckmann lives and works in Berlin. He studied art history, sociology and media studies and worked as a project manager at V2_Organisation Rotterdam, Institute for the Unstable Media, from 1995--2000. Since the autumn of 2000 he has been Artistic Director of "transmediale - international media art festival berlin." He is a member of the Berlin-based media association "mikro," and of the European Cultural Backbone, a network of media centers. In texts and lectures he deals with post-medial practices and the possibilities for a "machinic" aesthetics of media art. For more information visit: <www.transmediale.de>, <www.v2.nl/abroeck>, <www.mikro.org>, <www.e-c-b.net>.

E-mail: <abroeck@transmediale.de>.

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< LDR Panelist Sara Diamond >

Sara Diamond is a television and new media producer/director, artist, curator, critic, teacher and artistic director who has represented Canada at home and internationally for many years. Diamond is responsible for steering the artistic and professional development direction of the Media and Visual Arts Department at the Banff Centre for the Arts and for developing Banff New Media Institute research perspectives, think tanks, co-productions, artists' residencies and partnerships, and work study opportunities in key areas. She is also responsible for the publishing initiatives of the Media and Visual Arts Department and the Walter Phillips Gallery, as well as collaborations with the Aboriginal Arts program and other departments of the Banff Centre for the Arts.

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< LDR Panelist Robert Coburn >

Robert Coburn is a composer and sound artist. His creative work includes concert music, both acoustic and electroacoustic; live, interactive computer music; temporary sound environment installations; and permanent soundworks as public art. His music has been performed throughout North America and Europe. His permanent soundworks Bell Circles II and 39 Bells are installed as public art at the Oregon Convention Center and along the Avenue of the Arts (Philadelphia, PA). In 1993 he participated in the Tuning of the World Conference (Banff Center for the Arts, Canada), and he has recently given papers at the Pacific Centuries Conference (Melbourne) and at the conference Musical Cognition and Behavior: Relevance for Music Composing (Rome). He is Associate Professor and Chair of Music Composition and Theory at the Conservatory of Music, University of the Pacific, where he directs the Conservatory Computer Studio for Music Composition and Ensemble 20/21.

E-mail: <rcoburn@jarl.cs.uop.edu>.

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ANNOUNCEMENTS

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< Leonardo/ISAST Executive Director Position >

Please forward for posting and to possible candidates:

Executive Director Position (Northern California). Leonardo, The International Society for the Arts, Sciences and Technology is seeking a self-motivated professional with fund-raising experience to work with its staff and international Board of Directors.

Send E-mail to: Attn. Arana Greenberg, <leo@mitpress.mit.edu>

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< The Art and Science of Interstellar Message Composition >
Douglas Vakoch, E-mail: <vakoch@seti.org>

The Search for Extraterrestrial Intelligence (SETI) uses radio and optical telescopes to seek signals from distant civilizations. If some day humankind decides to transmit messages of its own, rather than merely listen, how might artistic and cultural perspectives be incorporated? This one-day workshop will address strategies for integrating scientific and artistic perspectives on interstellar message design. Topics will include the challenges of creating intelligible messages, as well as the unique contributions of the arts, humanities and sciences.

The workshop will be held in Paris, France, on Monday, March 18, 2002. Attendance will be limited to invited participants only. Potential participants should contact workshop coordinator Douglas Vakoch at <vakoch@seti.org>.

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< BRIDGES: International Consortium on Collaboration in Art and Technology >

www.annenberg.edu/BRIDGES

Summary Report of the First Annual Summit 2001, prepared for Leonardo Journal of the International Society for the Arts, Sciences and Technology

ABSTRACT

by Celia Pearce, Sara Diamond and Mark Beam

The BRIDGES Consortium was formed in 2001 to create a network for the development and dissemination of strategies to improve and support the practice of interdisciplinary collaboration in the arts, sciences, engineering and technology. The goal of the BRIDGES Consortium, initiated jointly by the Annenberg Center for Communication of the University of Southern California in Los Angeles (USC), California, and The Banff Centre New Media Institute (BNMI), in Banff, Alberta, Canada, is to create an international forum and think tank to study and enhance the process of interdisciplinary collaboration in these areas.

The BRIDGES Consortium "think tank" brings together top experts from educational, research and funding institutions, the private sector, and independent artists, technologists and scientists, to explore art and technology collaboration and its own unique set of issues, challenges, opportunities and skills. It pinpoints collaboration itself as a skill to be identified, studied and learned, and proposes practical strategies for including it as a vital component in education, creation and research. The Consortium also recognizes the need for institutional "bridges" that help aggregate our organizations, our knowledge, our skills and our resources.

In the spring of 2001, the BRIDGES Consortium held its first annual summit. The summit consisted of case study presentations, discussion groups, brainstorming and hands-on workshops. The summit took place May 31-June 1, 2001 at The USC Annenberg Center for Communication. The results of the summit were compiled into a summary report for publication in the Leonardo Journal of the International Society for the Arts, Sciences and Technology. They include a summary of the main issues discussed, a report on workshops, including language exercises and brainstorming sessions, as well as a series of work group initiatives that were developed at the summit. A full-length report will also be made available at the BRIDGES Web Site at <www.annenberg.edu/bridges>. A second Summit is planned for October of 2002 at Banff Centre for the Arts.

Full text of this paper is at:
http://mitpress2.mit.edu/e-journals/Leonardo/isast/articles/bridges/bridges.html

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< Solar Art Web Site >

Juergen Claus, E-mail: <www.juergenclaus.de>

The website of Leonardo International Co-Editor Juergen Claus offers seven chapters, including his different areas of work, his Solar Art realizations and lists of his exhibitions and books as

well as actual publications. There are many links to English-language websites and pictures that illustrate his visual work.

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