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In the November issue of LEA, Guest Editor Michael Punt
introduces the first of two special issues exploring a little-
explored theme: From the Extraordinary to the Uncanny: The
Unusual and Inexplicable in Art, Science and Technology. In his
introduction, Punt writes that "it has ... become evident in
academic publishers' lists that topics that were once regarded
as the province of the dangerously unhinged - the paranormal,
spirit photography, telepathy, etc. - have not only exercised
respectable academics but are beginning to form a critical mass
in the humanities."

The first article, by Camille Baker, describes an installation
by the author and her work, which explores "embodiment via
technology and media art, while attempting to harness
telepathicabilities and enhance ordinary experience" - a tall
order indeed.

John F. Barber then writes on science-fiction literature,
giving an overview of SF works dealing with parallel worlds, the
fourth dimension and hyperspace and arguing that SF "encourages
readers to imagine and theorize new worlds and ways to inhabit
them."

Finally, Australian Christine Morris discusses "Parallel
Universes in the Daily Life of the Ancients," focusing on the
cosmology of Australian aborigines and the "jurisprudential
understanding of the ways these universes interact with the
daily reality of these peoples."

In Leonardo Reviews, associate editor Robert Pepperell brings
to light a review article on Ars Electronica and a conference of
the European Association of Social Anthropologists (EASA); a
review of the book *Jean Desmet and the Early Dutch Film Trade*;
and a review of the Leonardo book, *Women, Art and Technology*
by Judy Malloy.

ISAST News brings you up to date on the latest events in the
Leonardo/ISAST community, including publishing opportunities for
academic thesis abstracts.

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FROM THE EXTRAORDINARY TO THE UNCANNY: THE UNUSUAL AND
INEXPLICABLE IN ART, SCIENCE AND TECHNOLOGY

By Michael Punt, Guest Editor
E-mail: mpunt [at] easynet [dot] co [dot] uk

Over the past decade, it has become evident that there is an
increasing popular fascination with all things supernatural.
Articles and books on topics ranging from UFOs to crop circles,
from ghostly resurrections of the dead to electronic voice
phenomena, appear on magazine racks and in publishers'
catalogues with ever greater frequency. Similarly, it has also
become evident in academic publishers' lists that topics that
were once regarded as the province of the dangerously unhinged -
the paranormal, spirit photography, telepathy, etc. - have not
only exercised respectable academics but are beginning to form a
critical mass in the humanities. One reason for this is
undoubtedly that, in the wake of a rising tide of relativism,
there has been a general mistrust of materialism. Explanations
and descriptions of things that were once thought to be firmly
in the world no longer appear to be valid from all possible
viewing positions. Post-colonial studies, feminism and new
historicism may not have changed the fate of the under-
represented, but they have shaken some of our confidence in the
concept of certainty. It is hardly surprising then that some of
the more thoughtful and courageous philosophers and
practitioners of science have also been forthcoming about the
nature and extent of any truth claims that are made. This is not
to say, of course, that there has been an acceptance of reality
as contingent either in the hard sciences or even in the
humanities but, in publishing at least, there are signs of a
greater openness and tolerance of the idea that possibly there
is more to reality than we know.

This openness has certainly been good news for me, since I have
been researching the impact of the idea of the extraordinary and
uncanny on science and technology for the better part of a
decade and most of my material originated in the second half of
the nineteenth century. In this study, I have noticed quite
abrupt and significant changes in the science/art relationship.
For example, many of the key scientists in the first part of
that century had no difficulty reconciling their work with
commitments to ideas that we might now call "spiritualist." I
also noticed that at a particular moment, those ideas were
forcefully proscribed by various institutions and became
devolved to those regarded as less important players in the
community: artists, poets and entertainers. Arguably, certain
entertainment forms and technologies are reactions to this
devolution and, although there has been some attempt to
overwrite the significance of the spiritual dimension in say,
the history of art or the history of cinema, recent scholarship
is recovering this important determining aspect of the way that
early twentieth-century culture developed. As a consequence, we
are able to track more clearly the trajectories of those
discourses and practices in which the idea of another reality
has been disavowed, to come up with more sustainable

explanations of how one thing appears to turn into another. So much so, it seems, that today even in the hard sciences there is a recognition of the discursive significance (if not the actual existence) of a spirit reality. Attempts to eliminate superstition and the non-rational from explanatory systems shaped scientific research in the late nineteenth century and forced a number of important physical phenomena to be disavowed. Things are changing and, while not necessarily believing in angels and the afterlife, some scientific research is now openly founded in a non-materialist concept of the real. Nowhere is this more evident than in the study of human consciousness or in space science.

The call for submissions on the unusual and inexplicable in art, science and technology was a response to this perceived shift in publishing and academic circles toward a more inclusive view of the real. We called for papers and artworks on a number of topics: spirit photography, magic, conjuring and performance, consciousness, precognition and the uncanny subject. These were topics that, perhaps five years ago, would have seemed outrageous in a serious academic journal such as LEA. Indeed, even I had such apprehension about what might turn up in my mailbox that I set up a separate "free" e-mail account so as to have an "exclusion zone" around the sobriety of normal e-mail life. I had anticipated responses ranging form the serious to the frivolous and outright dangerous. In fact, only serious proposals turned up in the mailbox (if you exclude junk mail). Of the 60 or more proposals that I managed to extract from around 1,000 advertisements for Viagra, predictions of untold wealth (for a small investment) and requests from exiled princes for my bank details, all the submissions were fascinating, provocative and worthwhile. I trust that no important messages were lost and annoying as the junk mail was, the very process of extracting the proposals from a field of e-noise reminded me at times of the work of the nineteenth-century medium.

The experience of doing this sifting eventually guided the way that I thought about the selection. Virtually all the proposals were fascinating and would have made viable articles and I have to thank everyone for their interest and support. New insights about the topic leapt out as I read through the extraordinary essays on the extraordinary. The problem of what to leave out was somewhat overwhelming. I eventually opted to select on the basis of different intellectual "voices" rather than thematic or discursive coherence. As a consequence, what follows, in this and next month's edition of *Leonardo Electronic Almanac* on the extraordinary and the uncanny, is a heterogeneous compendium of articles and artists' statements that reveal a transdisciplinary coherence homologous with the call's original challenge to claims of an authentic reality. The result is not as speculative and undisciplined as I know a number of people felt it would be, nor is it quite what I imagined. Apart from the individual essays - which have their own fascination - these two editions, taken as a whole, lay down a marker for research in the arts, sciences and the humanities that works across disciplines rather than mixing them in ever inventive triadic combinations.

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# BIOSENSOR AND MEDIA ART-INDUCED MEDITATION AND TELEPATHY

by Camille C. Baker, #2-814 West 14th Avenue,
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ABSTRACT
This article contextualizes controversial concepts prototyped
within a participatory media-art installation by artist Camille
Baker as part of her masters' project [1]. Ms. Baker outlines
her discoveries exploring embodiment via technology and media
art, while attempting to harness telepathic abilities and
enhance ordinary experience. She illustrates how she facilitated
sensory awareness, mind-networking abilities and telepathic
communication using media-art tools. She describes how visitors
became attuned to their minds and bodies within the
installation, creating possibilities for future alternate
communications within immersive spaces as "portals" or
"telepathic phone booths."

Recent studies in physics, neuroscience, psychology and
consciousness research demonstrate how inexplicable phenomena,
such as telepathy, telekinesis and distance healing, are real
phenomena [2]. Numerous scientific discoveries in extra-sensory
perception have challenged former scientific models of
understanding the universe, legitimizing extra senses most of us
have suppressed. However, these senses persist and are the
conceptual basis for most computer systems, telecommunications,
wireless technology and the Internet [3]. Many people believe
that we have always had the potential to communicate
telepathically, connecting with one another in this "wireless"
sense. Hence, all that might be needed for telepathy to become
accepted widely is to enable people to use these abilities
regularly, leading to development of better natural
communication systems and "interfaces". If society were to value
and use these messaging abilities, we could aim to hone our
skills at perceiving, receiving and transmitting telepathically
and thus, with better understanding, explore their use with
technology.

Cluttered with too much stimulus and inundated with excessive
information and electromagnetic waves passing through us daily,
most of us are unable to clear our minds (and bodies) to become
sensitive to the environment around and within us. We have been
seduced away from our own self-generating perceptions through
manufactured experiences and sensations. Yet technology is also
bringing us closer to merging mind/body communication with
artificial, electronic systems and networks. Virtual reality,
holography, "mind-machines," nano-computers, thought control
helmets and wireless implant devices have pushed us closer to

these possible inter-connections [4].

Recently I contextualized these views within a participatory media installation [5]. Playing at the edge of art design and science, this immersive, experiential media space incorporated biosensors, multimedia, yoga and meditation in order to facilitate telepathic exchange. My discoveries, while attempting to harness these abilities in conjunction with media art to enhance experiences, were manifold. Ideally, this exploration could lay the groundwork for more sophisticated "telepathic portals." The impetus for this project came from inspirational imagery in my dreams, the basis for many of my projects. I wanted to induce this state in others, helping them to experience a receptive and creative consciousness, to connect, share and create with others non-locally [6]. I saw this as a return to the body for interpersonal exchange, wisdom, transcendence and exploration through body practices and technology.

My approach was to create a virtual experience that facilitated re-embodiment and explored altered states of consciousness, resulting in receptivity to new types of input. In doing so, I hoped to tap into deeper levels of sensory experience by exploring physical and emotional responses within a mediated space. To enhance sensory awareness and mind-networking abilities, I developed a device called "The Pod" as a "telepathic phone booth." This metaphor describes the space itself, as well as the process of making a telepathic interchange - like a telephone call - and included entering the pod and thus entering into solitude, quiet, intimacy and privacy, but also the act of connecting "outward," using biosensor /media interfaces, through "virtual" space to others remotely.

Assuming the body to be an integral site of the mind, the experience was intended to take place within the body. The combined use of body-based technologies, such as medical biosensors and multi-sensory media became the navigational interface for immersive engagement, placing the "control" in the minds/bodies of the participants.

As an enquiry into how embodied experiences can be embedded in media-art practices, I hoped to discover how they could be used to access memory and consciousness. With the body and mind intertwined, the questions that followed were: Which of the two controls sensory input, allowing for naturally occurring, embodied, psychic phenomena? How could controlled media stimulation facilitate telepathic interactions that begin at a sensory level, below conscious awareness? Is it possible to design an experiential environment capable of inducing psychic communication through sense consciousness?

My system worked from a new paradigm of virtuality: one can be transported within; that is, a virtual reality can be induced from within the mind/body of the user, instead of by conventional VR technology, such as headsets and gloves. This virtual world can be accessed through the imagination or the dream body [7], conveyed from within an altered state, expanded awareness or extrasensory perception. This virtual space is self-generating, requiring only coaxing and practice. This version of immersive experience brings people back to their own senses, instead of overwhelming or eroding their perceptions [8]. It thus encourages the virtuality of sensation, imagination and a dream-like imaginative state.

Hence, I looked at both altered, embodied perceptions of reality, which create natural, virtual consciousness and real experiences within an altered dimension, such as dreams, psychic experiences, meditation, mysticism, near-death experiences, intuition, vision quests involving physical pain, etc., to inform this pursuit. Accordingly, the two dimensions of the virtual (digital and transpersonal) came together: a return to the body to learn its power in this virtual domain and to allow technology to nudge us closer to what we are.

My goal was to answer these broad questions:

* Can technology (i.e. sensors and responsive environments) facilitate a natural telepathic affinity? If so, how?
* Can we eventually extend this type of communication between humans and technology?

Specific design questions became evident, such as: which construction design would be best; how do we induce quieting of the mind in a way that is mildly stimulating, does not induce people to sleep and allows associations, fantasies or memories to develop; how can we incorporate multimedia, rather than merely being meditative and unmediated. I was interested in stimulating emotional responses with the media elements and biometric devices, in recording and relaying these responses and in sending media stimuli to produce the emotional and physiological states of meditation, hypnogogic or altered states of awareness. The challenge was to create powerful, "real" experiences, incorporating art, science and cultural practices.

Within the space, participants constructed their own narratives, using their imaginations, associations, memories, thoughts and receptivity as key narrative elements. However, I had an obvious role in enabling the experiences: through my essence, design choices and creative investment in each seam, movie or sound. While I intended for the participants to have unique experiences within the installation, the challenge was to make it subjective, personal and intimate for each of them, recognizing that I was not removed from the artifact - resulting in an inevitable perspective collision.

My phenomenological method was to record first-person accounts of each experience as well as of my own creative process, that is, documenting each stage during the design and construction phase as a self-reflective analysis of my creative methodology. Studying mind-quieting techniques was an important aspect of this analysis, as it was necessary to experience these techniques from a first person stance before subjecting others to them.

PHYSICAL ENVIRONMENT DESIGN

The key criteria for this "non-local portal" design included ensuring that the space felt safe and comfortable - emotionally, physically and mentally - and ensuring that the technologies produced positive effects for participants. The design included a physical preparation to stimulate bodily sensitivity, allowing the mind/body to be the most receptive. Participants were taken to mental/physical pre-hypnogogic states between sleep and wakefulness, like meditating, dreaming or hypnotism, before they entered the environment. Each were stimulated by intermittent media elements, triggered by the biosensors connected to their bodies and only triggered when the body state or the response to

the media changed and vice versa. This loop was the means to facilitate this responsive state. The biosensors were the interface tools [9]: after data was collected from participants on analysis of the breath and blood volume and galvanic skin conductance, it was sent to the computer in order to choose which changes were significant enough to trigger different media clips. In the last ten minutes, another participant was asked to "send" thought messages of images and words, from another space to the first participant.

MEDIA DESIGN

The media for this project consisted of a database of video and audio clips and light projections. Breath/respiration data was mapped to variable hues of colored light, which was projected onto the pod. Galvanic skin response or conductance (GSR) changed the video, while blood volume changed the audio. The video content involved mundane activities, such as sailing, riding the train, a wedding, walking along the beach, a parade, etc. The video was ambient and non-narrative, using images commonplace enough to be paired with other media to create new associations in participants' minds. Similarly, the project made use of ambient audio, such as the sounds of a baby crying, wind, a telephone, someone laughing or eating, etc., which was paired with the video and light to trigger memories, new associations and fantasies from common experience. This approach was based on the fact that most dreams have ordinary themes and elements, often with odd twists and abstractions.

RESULTS AND CONCLUSIONS

The participants wanted more tangible feedback on the impact of their biostates on the media and a record of their data; many wanted to choose their own program, as with games, carnival rides, TV channels, movies or meditation tapes. In general, they enjoyed having the media screen so close to them, thus experiencing it more intimately; some wished to have the installation in their homes, as an entertainment pod or as a relaxation system for the office.

The telepathic component produced positive results: participants indicated they had not only received images, but made associations related to those being "sent" by their partners. However, it was unclear whether they became relaxed enough to receive details or merely general impressions. Once participants stated that they had received the images or words and found connections, it became obvious that more parameters could be developed to define which of these were meaningful messages.

In addition, other questions surfaced for future iterations: What meaning arose for participants from the non-linear narratives facilitated by the media combinations? What did the biometric data add? How could it be utilized in other ways?

I recognized that many issues would need to be addressed before I undertook this art project, some practical, some conceptual. Here are the issues and the results:

How can internal consciousness be seen as a uniquely physical part of the experience of being, yet utilized as a site for external communication?

From the biometrics and responses of each individual interacting in a feedback loop, the internal consciousness of each could be "physicalized" through sensory responses and influenced by the media: this influenced body-state responses, preparing the mind/body to become a site for external telepathic communication.

How can internal consciousness be externally represented within a media installation, thus demonstrating the conceptual grounding without influencing the participant and yet providing an intimate, interpretive and uniquely meaningful experience for each?

This was complex, addressed by bringing participants into the

space methodically, with each stage carefully structured and timed. The process was explained, while efforts were made not to influence individuals. By the end, participants seemed to understand what was being attempted, yet had intimate, meaningful and unique interpretations and engaged in unique, meditative journeys. This was the most successful aspect of the project.

How can a physical environment be created that alternates sensory stimulus and sensory deprivation, while facilitating telepathic receptivity, without being convoluted, vague and esoteric?

Facilitating telepathic communication was more complicated than I had surmised. This outcome was moderately successful, requiring (a) more participants and (b) that I gain further training in transpersonal methods of inducing non-ordinary states to achieve reliable telepathic connections. Finesse of the media choices and programming, combined with more refined telepathy facilitation techniques, is also desirable.

How does one approach potentially controversial ideas in a serious, methodical and artistic manner, while making it pleasurable for participants?

The controversial ideas herein were treated with the utmost seriousness in order to make a genuine contribution artistically and academically by integrating various investigative methods. Yet I was able to create a truly pleasurable experience for users, while achieving these other aims and making art. However, there is still much fine-tuning to be done to implement these concepts.

IMPLICATIONS OF THIS RESEARCH

At a time when physicists are discussing the teleportation of molecules [10], we should explore media art projects such as this one, which use new interfaces to provide an embodied "wireless" interaction. This investigation of the realms of embodied experience, consciousness and altered states will only become beneficial if we come to value and use such extrasensory perception and messaging abilities everyday, strengthening our natural affinities. Only then may we lessen the dependency upon electronic communication systems and devices, preventing further electromagnetic wave impact to our bodies and environment. Perhaps one day this communication could involve other technologies of human-computer interaction, thus revolutionizing the way we interact with devices and each other. Discoveries

here could branch into many diverse directions, with equally fascinating outcomes.


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1. Camille Baker, *Internal Networks: Telepathy Meets Technology in the Dream Pod*, masters thesis (with DVD), Burnaby, BC, Canada: Simon Fraser University Library (April 2004).

2. See Fred Alan Wolf, *The Dreaming Universe: A Mind-Expanding Journey into the Realm Where Psyche and Physics Meet*, New York: TouchStone/ Simon & Schuster Inc. (1994) and Robert G. Jahn and Brenda J. Dunne, *Margins of Reality: The Role of Consciousness in the Physical World*, San Diego, CA, New York and London: Harcourt Brace Jovanovich Publishers, of First Harvest/ HBJ (1987).

3. See Dean Radin, *The Conscious Universe: The Scientific Truth of Psychic Phenomena*, New York: HarperCollins Publishers Inc. (1997) and M. Talbot, *The Holographic Universe*, New York: HarperPerennial (1991).

4. See James Geary, *Body Electric: An Anatomy of the New Bionic Senses*, London, UK: Weidenfeld and Nicolson (2002).

5. See C. Baker [1].

6. See D. Radin [3]. Non-locality here refers to physical objects (or people or events) that are seemingly unrelated but connected, transcending the limits of space and time or taking place simultaneously.

7. Arnold Mindell, *Quantum Mind: The Edge Between Physics and Psychology*, Portland or: Lao Tse Press (2000).

8. See Oliver Grau, *Virtual Art: From Illusion to Immersion*, Cambridge, MA: MIT Press (2003).

9. See "Procompt+ system," Thought Technologies (cited 12/27/2003); available from: http://www.thoughttechnologies.com/ .

10. See Anton Zeilinger, "Quantum Teleportation," in *Scientific American: Special Edition* (April 2003) 34-43.

* IMAGES TO ACCOMPANY THIS ARTICLE CAN BE SEEN AT HTTP://LEA.MIT.EDU


AUTHOR BIOGRAPHY

Camille Baker is a recent master's graduate in applied science, from the School of Interactive Arts and Technology, Simon Fraser University, Surrey, BC, Canada. She is currently working as a curator / producer for the New Forms Festival, an annual media art and performance festival in Vancouver BC and hopes to continue teaching and developing her art practice.

Camille's research interests include: responsive environments, performance and interactive media, installation, online communities and new media curating. Her background includes work

as a web editor-in-chief of a pop-culture relationship support magazine (*Tales of Slacker Bonding*, www.slackerbonding.com ); in documentary and online video, photography and animation; as a gallery owner; as curator/conference director /producer for the New Forms Festival; in web design /development; in singing/songwriting/music composition and performance www.spiritualheroine.com and in sculpture and modern dance performance.

As an artist/researcher working within various artforms, Camille continues to refine her practice, both conceptually and constructively. She sees her work being about creating experiences using many tools, not necessarily imposing her vision or aesthetic per se, but collaborating with viewers. She will continue to explore this domain in future projects and writing. She sees herself as a creative facilitator, using art, performance, music, social science, philosophy, science and other disciplines as sources for making connections in her work.

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PARALLEL WORLDS IN SCIENCE-FICTION LITERATURE

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ABSTRACT
This essay suggests that the speculative literature of science fiction is, like work by social and scientific researchers in the areas of para-science, art, magic, consciousness and precognition, coincidence and accident, history, sub-cellular phenomena, unstable realities and memory and amnesia, a possible liminal portal to worlds never seen. The article presents an overview of science-fiction works focusing on parallel worlds, the fourth dimension and hyperspace. Science fiction is positioned as a literary genre that encourages readers to imagine and theorize new worlds and ways to inhabit them, as well as new ways to examine the extraordinary, the uncanny and the persistence of a parallel universe.

KEYWORDS
science-fiction literature, parallel worlds, fourth dimension, hyperspace, time and space

The persistent idea of parallel worlds drives a range of speculations in the areas of para-science, art, magic, consciousness and precognition, coincidence and accident, history, sub-cellular phenomena, unstable realities and memory and amnesia on possible liminal portals to worlds never seen. In addition, I suggest the speculative literature of science fiction (SF) as another point of liminality and, in this article, survey some notable examples of writing in this genre about parallel worlds, the fourth dimension and hyperspace. In the end, my purpose is to provide an overview of speculative explorations of parallel worlds within SF literature, to inform rather than interrogate.

I choose SF because it may be, according to John Clute and Peter Nicholls, a way to examine "possible dimensional limitations of human existence and perception" [1] and theorize about alternate realities that are complex and essentially "real" even though they are not inherent in the consensual dimensional reality we inhabit. In doing so, I stand in

agreement with George Slusser and others who argue that SF is the appropriate literary genre for such explorations because it offers legitimate alternate and critical perspectives and "may be the correct vector if literature is to become relevant and meaningful in our technocentury" [2].

If SF provides ways to speculate about alternate realities, then its authors are charged with the responsibility, as *Star Trek*-creator Gene Roddenberry once said, "to daydream, to portray that which we have never seen" [3]. And SF writers have done just that, producing a corpus of speculative literature dealing with temporal dimensions, time travel and simultaneous reality streams that encourage readers to imagine and theorize new, parallel, worlds and ways to inhabit them.

PARALLEL WORLDS

Parallel worlds are situated "alongside" our own, separate, unique, but occasionally intersecting. SF accounts of parallel worlds often follow one of several general themes: fairyland, intersection/intrusion, quirky corollary, multiverse and computer technology.

The fairyland theme focuses on finding adventure, love or fulfillment - all beyond reach in one's home world - in a parallel world. A notable example is Lyon Sprague De Camp and Fletcher Pratt's *Enchanter* series, where protagonist Harold Shea, a bored young research psychologist, is transported into a variety of parallel worlds based on various legends and myths. In "The Roaring Trumpet" [4], Shea finds himself in the world of the old Norse gods just in time for a battle that will destroy all creation. "The Mathematics of Magic" [5] has Shea cavorting in the world of Edmund Spencer's *The Faerie Queene*, again faced with a major battle, this time between knights and wizards [6].

In SF literature, intersections with or intrusions by other, parallel worlds often affect, injure and even destroy one's home world. "Infinity Zero" (1936), a story by Donald Wandrei (1908-1987) [7], features an intrusion of the fourth dimension or "ultra space" upon Earth, eliminating the space dimensions (length, width and breadth) and time factor of the third dimension. The protagonist, a hard-boiled newspaper photographer, watches as the fourth dimension devours Earth's matter, leaving an ever-increasing crater in its wake.

Some stories about parallel worlds speculate about quirky corollaries that might exist between these worlds. For example, "The Life Work of Professor Muntz" (1949) [8], by Murray Leinster, deals with "multiple time-tracks" - the idea that multiple present and future moments exist simultaneously. We see, experience and know the present moment in our world as the only present moment that exists because we lack evidence regarding the existence of other concurrent moments. In Leinster's story, the lives of two men - Professor Muntz, the world's leading authority on parallel time tracks - and Joe Grebb, a beer-truck driver, become curiously impinged upon each other, producing comic results.

Another recurring theme is the idea that our perceived universe is but a single aspect of a "multiverse," an infinite number of parallel worlds containing all possible Earthly histories and physical qualities. Each person on this Earth has an infinite number of alien doubles living parallel lives on parallel

worlds. Frederik Pohl's *The Coming of the Quantum Cats* [9] explores such parallel worlds in connection with alternate histories, while Pohl and Jack Williamson explore the psychological implications and philosophical paradoxes of a many-worlds cosmology in their collaborative novel, *The Singers of Time* [10].

Finally, there is the theme of parallel worlds created and maintained by computer technology. One recent example is the *Matrix* movie trilogy: *The Matrix* [11], *The Matrix: Reloaded* [12] and *The Matrix: Revolutions* [13]. Here, a computer hacker, Neo, discovers that his world is a computer-simulation controlled by artificial-intelligence machines. He joins with other underground rebels to destroy the system.

Daniel F. Galouye's (1920-1976) novel *Simulacron-3* [14], the basis for the movie *The Thirteenth Floor* [15], is another example of this story line. Here, people discover that they are players in an elaborate computer-generated world. As test subjects for advertising campaigns, their reactions are factored into the eventual utilization of these campaigns in another, larger world - the world of their creators. Some, seeking "immortality," search for ways to leave their computer-generated world and enter the creators' world.

THE FOURTH DIMENSION

In addition to parallel worlds, SF writers also speculate about "The Fourth Dimension," often playing out their conjectures against the backdrops of theoretical mathematics and higher dimensional science. Perhaps the best known example is *Flatland: A Romance of Many Dimensions*, by Edwin Abbott Abbott (1839-1936), a British Victorian clergyman and writer. This book has been popular since its first publication in 1884, under the author's pseudonym "A. Square" (Abbott Abbott; A2) in 1884 [16].

Square details the two-dimensional world of Flatland and explains how the shapes of its inhabitants (lines, triangles, squares, polygons and circles) determine their planar hierarchical status (the more angles, the higher the status) and produce different visions of reality. Square travels in a dream to the one-dimensional world of Lineland, where the inhabitants are unable to conceive of a two-dimensional world. Square is, in turn, visited by Sphere, an inhabitant from Spaceland, a three-dimensional world, who Square challenges (along with the reader) to believe in a four-dimensional world.

More recently, interest in the fourth dimension has been further popularized by Rudolf von Bitter (Rudy) Rucker, an American writer, mathematician and computer programmer. In his novel *Spaceland* (2002), which pays obvious tribute to Abbott's *Flatland* in more than title, Rucker's protagonist is Joe Cube, a product manager for a Silicon Valley startup whose use of an untested electronic device opens a gateway to a new fourth-dimensional universe. There he finds Momo, a siren who cons Joe into helping her people, the Kluppers, against their enemies, the Dronners. Only Joe's three-dimensional reality, Spaceland, separates the warring parties. Rucker's use of wicked satire, hard SF and solid mathematical speculation prompted many critics to hail Rucker as the only contemporary author to answer A. Square's challenge with verve and authority [17].

Other SF writers also found the idea of multiple dimensions fascinating and, like Rucker, took up Abbott's challenge. A

notable early story example is "The Appendix and the Spectacles" (1928), by Miles J. Breuer (1889-1947), a physician recognized as an expert on tuberculosis [18]. His story deals with the ability to enter a spatial fourth dimension from which it is possible to see and interact with the interior of the human body without having to create surgical openings. The protagonist, a man forced to abandon the study of medicine because a greedy banker called in a loan, retracts an infected appendix, a pair of spectacles and revenge from the banker.

Another example is Edward E. "Doc" Smith's (1890-1965) space-operatic novel, *Skylark of Valeron* (1934), where Dr. Richard Seaton, a Washington, D.C. chemist and his three companions enter a four-dimensional reality to address the efforts of Dr. Marc C. "Blackie" DuQuesne, a foreign villain-inventor intent on subverting the values of the United States [19]. American writer Clifford D. Simak (1904-1988) goes Smith one better in his story, "Hellhounds of the Cosmos" (1932), where not four, but 99 men enter the fourth dimension in a single body to battle a four-dimensional monster [20].

HYPERSPACE

Another popular notion among SF writers is that spaceships might take advantage of a fourth-dimensional "hyperspace" to travel quickly between distant points in "normal" space. The invention of the term "hyperspace" is credited to John W. Campbell, Jr. (1910-1971), who first used it in his 1931 novella, *Islands in Space* [21]. Since then, hyperspace, both as a concept and a mechanism, has become thoroughly incorporated into the SF genre and is often conceptualized as a higher dimension through which three-dimensional space can be folded or crumpled, thus allowing two distant points to be brought closer together or into contact with each other so that travel between them might approach the speed of light [22].

But what of the journey itself? What is it like? Probably one of the more graphical depictions is the journey taken by the astronaut Dave in the final segment of Stanley Kubrick's iconographic *2001: A Space Odyssey* [23]. The increasing speed, the prismatic colors, the prolonged disorientation as he travels through what appears to be inner time and space may all be part and parcel of the experience. Who knows, really? We are still talking about the intellectual audacity of this film.

Such dimensional chaos might be apparent in black holes, a term coined by physicist John Wheeler to denote the collapse of a star containing a mass about three times that of our Sun centered on a singularity, a point where infinite gravity crushes matter and energy out of existence. But, if it were possible, as some physicists theorize, to somehow dodge the singularity and enter a black hole, a space ship might instantaneously re-emerge at a distant point in our or another universe, after traveling via a hypothetical bridge or tunnel called a wormhole.

Pohl uses this concept in his novel, *Gateway* (1977), the story of future humans seeking to discover the secrets of and reap rewards from parts of the universe colonized by the Heechee, an alien race thought long-extinct [24]. The "gateway" is a convergence of black holes, each leading to some unknown destination. Some lead to artifacts and riches; some lead to nothing; some lead to death; and some lead back to safety. No one knows and the process of discovery becomes a game of Russian

roulette big as all the universe.

CONCLUSION

In this article, I have reviewed some examples of SF literature that imagine and theorize "possible dimensional limitations of human existence and perception" [25] by portraying alternative spaces/dimensions. As such, we can posit SF literature as a liminal portal to parallel worlds. As rich and varied as it is, our world and/or dimensional reality, or at least the consensus we consign to our notion of reality, may seem as confining as Abbott's "Flatland" when we compare it to other theoretical or speculative parallel worlds portrayed by SF authors, both those noted here and others.

SF authors incorporating notions of parallel worlds, the fourth dimension and hyperspace into their writing do so for a variety of reasons: to add plot components, to advance narrative structures and to envision, as Roddenberry says, that which we have never seen or possibly, imagined. It is to the latter that SF makes its best contribution by providing us ways to envision potential "what if" scenarios and to analyze their impact on and application to human culture.

It is possible, therefore, to situate the work of SF authors as parallel to that of social and scientific researchers working in areas such as para-science, art, magic, consciousness and precognition, coincidence and accident, history, sub-cellular phenomena, unstable realities and memory and amnesia as all "present us with their changed worlds in terms that are consistent with the language, the assumptions and the arguments of contemporary science or in terms that are consistent with our profound sense that human history is a continuous reality and that changes flow from what we know of that reality" [26].

In short, SF is "a literature of possible world changes, however unlikely they may appear" [27] or as Casey Fredericks says, "a new mode of consciousness, a new integrated way of viewing ourselves in the context of the universe" [28]. SF thus becomes a practical epistemology that, according to Alvin Toffler [29], coincides with the growth of knowledge and research, widens our repertoire of possible responses to change and helps us develop images of potential alternate realities to choose and pursue.

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SHAPE-SHIFTING THROUGH REALITY: THE INTERACTIVITY OF PARALLEL
UNIVERSES IN THE DAILY LIFE OF THE ANCIENTS

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ABSTRACT
As the concept of parallel universes moves away from the realm
of the paranormal to that of a fact of cosmological observation,
a more uninhibited dialogue can begin on the ways in which
ancient cultures perceive reality. Furthermore, this dialogue
can discuss the jurisprudential understanding of the ways these
universes interact with the daily reality of these peoples. The
existence of parallel universes or other dimensions of being are
taken as mandatory fact by these people and are seen to be
inhabited by beings, which influence their universe and must be
taken into account when any legal decision is being made.

These dimensions or universes and their occupants shadow into
the daily realities of these people. They can take the form of
silhouetted humans of the same culture and time frame; the dead,
who are seen as coming from the past or another dimension; or
beings of a different shape and form. The totemic relationship,
which is also common among ancients, provides opportunities for
those who so desire to blend with their totemic animal or flora
and actually inhabit their form. The use of other dimensions by
those skilled in such a domain of knowledge is also of interest,
the most well-known being for the user to move in time and
space. This article will explore this epistemology and
demonstrate that a fully cognitive ancient must be familiar with
the influences of parallel universes.

As the concept of parallel universes moves away from the realm
of the paranormal to that of a fact of cosmological observation,
we can begin a less inhibited dialogue on the ways in which
ancient cultures perceive reality. Furthermore, this dialogue
can discuss the jurisprudential understanding of the ways these
universes interact with the daily reality of these peoples. The
existence of parallel universes or other dimensions of being are
taken as mandatory fact by these people and are seen as
inhabited by beings, who influence their universe and must be
considered when any legal decision is being made. These
dimensions or universes and their occupants shadow into the
daily realities of these people, taking the form of silhouetted
humans of the same culture and time frame; the dead, who are
seen to be either coming from the past or another dimension; or
beings of different shapes and forms. In this article, I will
explore this jurisprudential tradition and demonstrate that a
fully cognitive ancient must be familiar with the influences of
parallel universes.

The ancient culture I will discuss to demonstrate my point is
that of my own, the aborigines of Australia. This culture is
known to be the oldest continuous jurisprudential tradition in
the world. David Suzuki, in his TV program *Sacred Balance* [1],
has described it as the most land-interwoven philosophy he has
experienced to date. The Australian continent furthermore
contains some of the oldest land forms in the world. It is

therefore logical that the aborigines see themselves as devolving from Australia, and not from some foreign land that suits the dominant paradigm's need to determine the cultural roots of the other. Furthermore, the aboriginal culture of the Australian continent is made up of over 200 nations, languages, cosmologies, legal and cultural jurisdictions. There is no single encompassing creation story or pan theology; however, there is a generic jurisprudence based on a custodial ethic [2], known as the "Law of Relationships" [3]. The way a human negotiates the multiverse is based on the jurisprudence of the custodial ethic.

The structure of this pure form of law is based on the double-helix structure, as found in DNA, the blueprint of life [4]. The phrase "The Land is the Law" is the colloquial way of explaining this deep knowing: the ancients tell us continuously that "Our story is in the land…it is written in those sacred places, that's the law. Dreaming place…you can't change it, no matter who you are" [5]. This law is an actualized law; it is about how to live in a land and its many dimensions, not how to regulate it as property. Just as there are two strands of DNA whose chemical bonds govern the growth of an organism, so too does the interactivity of these two strands govern the growth of the society under jurisprudence of the Law of Relationships [6]. But as in nature, diverse cultural groups also develop. In other words, this law is a reflection of the laws of the creation of life at its most fundamental level.

This jurisprudential structure divides the entire universe into the double-helixed epistemology. For example, in the case of the Kimberleys of North-west Australia, the Law of Relationships divides the world up into Wodoi and Djingu [7]; for the Arhemland of the central north of Australia, the world is divided into Yirritja and Dhuwa [8]. This does not, however, mean that their cosmologies are the same; it is the jurisprudential structure that is the same. Just as the structure of DNA is the same in all organisms, it does not mean they all look the same - diversity is fundamental to a balanced environment. Furthermore, this does not imply a gender divide. Both groupings (e.g. Wodoi and Djingu) are identical but independent, both containing the same elements - males and females, flora and fauna, animate and inanimate objects. This in turn has allowed the aborigines to continue as the oldest continuous jurisprudence in the world and one of those best versed in the notion of "intellectual property." That is, the jurisprudence is designed to appreciate intellectual property, not as property but as a way of life; a way of life that aligns itself with the creative process, rather than trying to control or determine the creative process. Furthermore, a jurisprudence, which is based on individual alignment with the universe and fine-tuning to the genetic material around oneself, has little need of objects. In other words the aesthetic mind combines the natural movements of its environment in its forms of communication.

The diversity of cosmologies in aboriginal cultures is also reflected in the diversity of languages, which, once again, in their structure more than in their expression, have a commonality with discoveries in genetics. To explain the element of language, I will refer to work by my Native American colleagues, who are far more advanced in the dialogue with physicists than are the Australian aborigines. Native Americans have enlightened physicists to the reality that Native American languages are more quantum in their structure and are therefore

more appropriate for describing quantum reality. Leroy Little Bear [9], one of the foremost speakers in this area, describes his reality as follows: "Some mornings I wake up with my head full of rhythms and rhythms of rhythms and rhythms of rhythms of rhythms. And to have to speak English is like having to put on a straitjacket" [10]. In other words, his language is not full of full-stops but is rather a continuum of creation, just like the double helix of creation.

Little Bear pointed out at a science dialogue at Te Papa Museum in New Zealand that to really understand Native American languages and the associated reality as described above, the notion of structured grammar must be dispensed with and replaced with a quantum structure [11]. That is, the 80 roots that make up the Blackfoot vocabulary each stand for a kinesthetic prime of animate motion, which are combined and recombined on the fly to describe what is as accurately as possible [12]. In other words, there is a sense of constant motion and rhythm and recombining, just as found in the double helix. However, the discussions so far only outline the bare minimum of what makes up the ancient jurisprudential structure (the limitations of this essay also do not allow for a proper discussion).

To negotiate a world in which the genetic levels of flux and subjectivity are the bases of the cognition of parallel universes, Senior Law Man Bill Neidjie of the Bunjti clan of north Australia beseeches the readers of his book of philosophy to be conscious of their feelings if they wish to understand the jurisprudence of the Bunjti clan.

"The first lines entitled Laying Down are as follows:
This story e can listen careful
And how you want to feel on your feeling.
This story e coming through your body
E go right down foot and head
Fingernail and blood… through the heart
And e can feel it because e'll come right through
Well I'll tell you about this story,
About story where you feel …laying down" [13].

As can be seen by this prose, the speaker is not calling for an emotional response but one that requires the mind to give way to the total body being in tune with the environment. It is a waste of intellectual space to think that one can "rationalize" cultural paradigms of the Other, as the cognitive editing of cultural relativism gets in the way. However, by feeling an experience, one finds that cultural bias has no valid currency. Furthermore, emotions can actually be seen as deterrents to true understanding through feeling; one is looking to feel how the universe touches their personal being, not how their emotions respond to a particular stimulus. That is the response for those who see themselves as observers of the universe rather than totally enfolded within its sphere. Bill Neidjie continues,

"Listen carefully this, you can hear me.
I'm telling you because earth just like mother
And father or brother of you.
That tree same thing.
Your body, my body I suppose,
I'm same as you…anyone.
Tree working when you sleeping and dream" [14].

And,

"This story e can listen carefully, e can listen slow.
If you in city well I suppose lot of house,
You can't hardly look this star
But might be one night you look.
Have a look star because that's the feeling.
String, blood… through your body" [15].

It is essential to have this basic ontological understanding,
which at its most fundamental ensures that there is no one
truth, but rather a subjective harmonizing. Once one moves away
from an ontology of the objectification of reality into that of
the feel of harmonizing, then one can move through other
dimensions without the ontological block of those who wish to
control their sphere of existence.

It is also fundamental that one must not seek to control the
experiences of life but learn how to navigate them. The world of
creativity is like an unknown sea full of competing currents; to
negotiate these currents, one cannot stick to a straight line
but must negotiates one's "being," both mentally and physically,
through the creative sea. To choose the right current or "tune
into the right frequency" is a matter of alignment; an alignment
with that which you wish to perceive. The crossing of dimensions
is therefore just a matter of turning the radio dial. However,
it is also a two-way interaction - the beings themselves also
turn their radio dials and enter our reality without our
knowledge.

It is therefore evident that there are laws that govern this
multiverse, but they are more like protocols than sets of rules.
The breeching of the protocols incurs more a payback of the laws
of physics. If you try and break these laws, the result is not
penal sentence but physics itself. For example a breach may
cause a change in your genetic makeup and so set off a cancerous
payback. There is also the notion of too much law, which
precipitates a mental illness. Often a mental illness is a
matter of "inter-dimensional" interference and therefore trained
Senior Law people are called to treat such patients [16].

The inter-dimensional interference and their occupants shadow
into the daily realities of these people. It must, however, be
understood that these experiences are not seen as uncanny but
rather as mundane and pervasive. When speaking of such things in
the aboriginal world, there is not the "intellectual tip-toeing"
of the anthropologist, who lives more with his own superstitions
than those of the aborigine, but rather a matter of an exchange
of personal intellectual property. This exchange, however, must
be contextualized. As with any contract of exchange, such
exchanges must be done with people of similar interests. In
other words, not every aborigine is privy to such knowledge or
exchanges. If the aboriginal person has no genuine experiential
knowledge, that is, their own intellectual property, then they
have no currency in such contexts. Therefore the inter-
dimensional experiences are not something everyone experiences,
but rather what everyone has the capacity to experience.

Furthermore, there is a factor of utility in the interaction
with parallel universes. The totemic relationship, or shape-
shifting - which is also a common notion amongst ancients -
provides opportunities for those who desire to blend with their
totemic animal or flora and actually inhabit their form. The use

of other dimensions by the skilled in this domain of knowledge is also of interest, the best known example being that the user is able to move in time and space. For example, this person may be found in the next town in a matter of minutes.

As stated earlier, due to limited space, this essay is not able to fully develop this hypothesis. However, it is meant more to draw attention to the developments in the understanding of the existence of parallel universes and the jurisprudential tradition of ancient cultures, which have acknowledged and negotiated these multiverses for millennia. The protocols of this legal system are based in the double-helixed law of relationships. These relationships place the human in a series of relationships with multiversed existence, which filters through their daily existence. Therefore the ancients do not look to parallel universes as being uncanny, but rather accept that reality is constantly shape-shifting around and through humanity.

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panelist on issues relating to genetic technology and indigenous
communication, advising the secretariat of the Convention on
Biodiversity.

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          |        LEONARDO REVIEWS            |
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Once again, we are pleased to welcome two new contributors who
further extend the range of expertise and critical insight
offered by the Leonardo Reviews panel. Martha Blassnigg, who
recently attended both the symposium at Ars Electronica in Linz
and the conference of the European Association of Social
Anthropologists in Vienna, considers how each event points to
possible future collaborations between artists, technologists
and social scientists. Meanwhile, Tom Gunning's review of Ivo
Blom's research on the invaluable early film archive preserved
by Jean Desmet, in *Jean Desmet and the Dutch Film Trade*,
usefully sets this important work in a context wider than that
of specialist film theory.

Sound and music are served well this month, with a piece on
*Audio Culture: Readings in Modern Music* by Dene Grigar; a
multidisciplinary collections of essays on the electric guitar,
reviewed by John F. Barber; a fascinating look at the musical
dimensions of synesthesia, considered by Bulat Galeyev; and a
wide range of audio CDs and CD-ROMS, covered by Mike Mosher.

Included here are the reviews by Martha Blassnigg, Tom Gunning
and a piece by Stefaan van Ryssen on Judy Malloy's *Women, Art
and Technology*, a book which emerges out of the Leonardo
network. But we would strongly encourage readers to catch the
rest of material by Coral Houtman, Rob Harle, Andrea Dahlberg,
George Shortess and others, which can be accessed at the address
below.

All of these can be read on-line at
http://leonardoreviews.mit.edu

Robert Pepperell
Associate Editor
Leonardo Reviews

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TIMESHIFT: TOWARDS AN ANTHROPOLOGICAL PERSPECTIVE
The World in 25 Years: Ars Electronica, 2-7 September, 2004;
Linz, Austria

Face to Face: Connecting Distance and Proximity European
Association of Social Anthropologists (EASA) Conference, 8-12
September, 2004; Vienna, Austria

Reviewed by Martha Blassnigg
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With the strapline "Timeshift," Ars Electronica 2004 proposed
an interface that would direct a review of the past 25 years of
Ars into a prognosis for the coming 25 years or, as the outline
of the symposium states: "an overview of the way we deal with
visions and prognosis in general [to] serve as a tool and point
of departure." Theoreticians, scientists and practitioners were
invited to give their insights and visions for the fields of
technology, art and society. While the past 25 years of
development in electronic arts were reviewed by several
conference participants in a very elaborate way (Itsuo Sakane,
for example), the future seemed to linger in the realms of dark
matter, as Roger Malina made evident in his treatment of the
small percentage of knowable matter set against the vast
indeterminacy of the universe.

Reviewing the symposium and the goals set by Ars Electronica
with this year's theme, it may seem at first glance that visions
into the future were greatly lacking, but on closer inspection
there were a few strands that made valuable contributions to
such a perspective. Roger Malina's contribution in the
*Timeshift* catalogue synthesizes a view into the past with a
prognosis for the future. Malina points out how the electronic
arts community, reflected by both Ars Electronica and
*Leonardo*, has from its beginnings staked out the international
scope, cross-cultural boundaries and emphasis on explorations of
"identity" and cultural difference. He sees a "timeshift" in the
beginnings of a period of social experimentation and locally
adaptive planetary cultures, quoting artist Max Bill, who, in a
Leonardo editorial board meeting in the 1970s, had already
identified "ethics" as the key issue for the next 25 years. With
a somewhat art-historical perspective (but a similar outcome in
some respects), Peter Weibel described future development in the
arts sector as a transdisciplinary re-mapping of competences, in
the same way that arts practice is expanding from its current
field of work into new domains, such as ecology or sociology.

These and some of the subsequent theoretical contributions
anticipated what might be called an invigoration of "human," in
parts ethnographic, perspectives in the previously often
abstract discourses on technology and art. One of the most
visionary stimulations at the symposium came from Roy Ascott,
advocating stronger consideration of the interrelations of
electronic art as a combination of organic and technological
advances with contemporary research in quantum physics and
biology. Toward the end of his presentation, in which he
advocated study of the effects of psychoactive narcotics, such

as the altered states of consciousness effected by the Ayuasca in spiritual and cultural contexts, Ascott anticipated an anthropological aspect of several of the following presentations, which emphasized a practical application of new media in various cultural contexts. In particular, the Timeshift symposium *Spirit* created space to revisit ancient mythologies and transfer some of these aspects into a contemporary perspective of new media and arts practice. Geetha Narayanan, for instance, promoted the importance of lived experience and subjective perspective as part of scientific discourses. In her presentation of new models of educational institutions in India and a creative implementation of technology, she introduced new reflections on terms such as "humanity," "wholeness," "ecology" and "spirituality." Sherry Turkle discussed the affective relationship between human and machine in a traditional Freudian context of psychoanalysis, her most interesting point being, again, the emphasis on human experience and subjective perspective. In the symposium "Disruption," David Turnbull's sociological research on the integration of indigenous knowledge into a discussion of scientific cartography in Australia is not a new approach, but should be mentioned here for its explicit ethnographic emphasis. Finally, Nadja Maurer introduced her presentation under the rubric "Topia," with a brief insight into the discipline of comparative cultural studies and ethnographic fieldwork, furthermore bringing attention to a transcultural perspective in her treatment of media structures of communication.

These approaches demand consideration of a more elaborate debate within the art, technology and culture communities and, as I would like to suggest here, a more rigorous transdisciplinary discourse. An event like Ars could more explicitly become one of the forums to serve as a social lever for shaping and constituting future collaborations and networks, a view that has been promoted by Ars from the very beginnings of its existence in 1979. Johan Brucker-Cohen reiterated this perspective in his treatment of disruption as a means of productive resistance and self-reflection, as did Joichi Ito, with his call for practical application of the concepts of democracy and emergence supported by social technologies, and Krzysztof Wodiczko, in his appeal to give voice to the nameless and speechless by animated testimony memorials, turning people into artists in socio-aesthetic environments.

Furthermore, treatments of the subject of time, synchronicities and relativity contributed to a prognosis of a timeshift and a threshold into other dimensions. Two outstanding presentations worth highlighting were Mark Hansen and Ben Rubin's installation *Listening Post* and Julien Marie's performance, *Half Step*. *Listening Post* consisted of an installation of 231 independent screens processing electronic information in apparently coincidental sequences using sound, text image and movement. This computer-controlled audio-visual environment reflected upon the immediacy and dynamics of global communication through the World Wide Web. Without being interactive with the audience, the rhizome of dispersed text fragments triggered and reflected the associative networking of the spectator's brain activities. By bringing attention to a historical dimension and questioning its chronological technological developments in visual media, Marie, Hansen and Rubin offer an experience in the form of a crystal image in a Deleuzian sense: a time image, neither past nor future, both oscillating in presentness. In a more materialist way, Marie merged nineteenth-century "magic lantern" technology with digital technology, turning an item of pre-cinema

technology into an exquisite audio-visual spectacle, which seemed to fascinate both the cinephile and the new-media oriented audience. Marie's minuscule high-tech glass-plate projection displays, thoroughly inspected by the audience after the show, transmitted a live spectacle that recovered some of the excitement of the pre-cinema period and stretched the time-span of the retrospective, in this case from 25 years to over 100 years.

Interestingly enough, immediately following the close of Ars Electronica, another international conference opened in Vienna: the biannual European Association of Social Anthropologists (EASA). This year titled "Face to Face: Connecting Distance and Proximity," the conference attracted more than 1,000 international cultural anthropologists - a fortunate coincidence for those able to attend both events since, as a scientific discipline, cultural anthropology has been treating the topics of technology and art since the very beginning of the first intercultural contacts, embedded in a social and economical research context. The conference brought the established discourses in the discipline of cultural anthropology, such as culture and identity, into a framework of contemporary tensions and developments, redefining and transforming them in the context of imagined or virtual communities, creole (or hybrid) contexts of culture and trans-national environments.

With regard to electronic media, the new branches of cyberanthropology (largely based on sociological research into "cyberculture" by Pierre Levy, the 2003 guest at Ars Electronica) and media anthropology have been founded in recent years. Within these disciplines, human interrelations with technology in new media environments are being studied more extensively than before. With regard to film technology, some visual anthropologists, such as Robert Flaherty, Jean Rouch and David McDougal, are well-known for having been involved in new technological developments and the reconfiguration of filmic style in the documentary genre throughout the twentieth century. One of the discipline's intrinsic predicates - participant observation and integration with and of the subject's perspective - which has otherwise been mainly applied by the art community, *directly* matches contemporary discourses and items in the field of technology and culture, such as interactivity, self-reflection and intelligibility. In this three-day conference, topics such as global interconnections, face-to-face interaction, compliance and confrontation, conditions of inter-subjectivity, identity and alterity in shifting contexts, were discussed in various subject areas within disciplines ranging from those with a focus on medicine, political science, philosophy, sociology, methods of ethnography and ecology to film and new media.

Whereas the first ethnographers were missionaries or scientists informed by travelers and their second-hand information, cultural anthropology has developed and transformed throughout the last century from a nineteenth-century evolutionary perspective into a most vivid, politically engaged, critically self-reflexive and inspired community. Through involvement and integration in various cultural fields in Western and non-Western contexts, cultural anthropologists bind their empirically grounded research into theoretical discourses to contribute to our understanding of the very basic questions about human life and cultural expression. In the workshop "Philosophy and Anthropology: Border Crossings and Transformation," Ananta Kumar Giri quoted philosopher and

anthropologist Johann Gottfried von Herder (1744-1803): "What fruitful new developments would not arise if only our whole philosophy would become anthropology?" Bruce Kapferer expresses a similar argument, defining anthropology as the practical extension of philosophy in a passionate response to T.M.S. Evens' presentation that applied Deleuze and Guattari's molecularist ontology in order to explain Nuer mythology. Kapferer explains why Deleuze has created an epistemological break in all scientific disciplines and emphasizes his engagement with ethnographic data and concerns. Deleuze, who has most prominently been used and interpreted by the arts and new media community throughout the last decade, has found entrance into social sciences and forms a link between theoretical, philosophical discourses and empirical research. During the conference, there were too many workshops taking place at the same time to gain anything near to an overview of the event, but certainly in this panel and in the plenary lectures, in particular those of the younger anthropologists discussing perspectivism, personal belief, resistance and conflict as inter-subjective activities, there was a spirit indicating a number of discourses with new perspectives.

While reception theory in new media studies, self-reflexiveness in consciousness studies and psychology, and interactivity in electronic art are popular items of the last few decades, cultural anthropology brings a long tradition of well-established methodologies into scientific discourses that strive for an interactive dialogue between subject and object, science and practice or personal experiences, playing the role of intermediary between different cultures or cultural fields. As both conferences, Ars and EASA, implicitly and explicitly have articulated, the emergence of global interconnectivity, both in social and technological respects, asks for transdisciplinary approaches and collaborations. One emphasis of such a collaboration - a spectrum of sociological, ethnographic and politically informed approaches, as it has been given voice in some presentations at Ars and as an intrinsic matter of discipline being discussed at the EASA conference - suggested an engaging vision into the future.

This perspective could provide a new impetus for the arts and technology community and an extension of the humanities as scientific enterprise, merging art, technology and culture in a dialogue and promoting more pro-active and productive exchanges for an understanding and participation with new artistic, technological and cultural developments in the near future. We may consider the work *Inter Dis-Communication Machine*, by Kazuhiko Hachiya, exhibited at Ars, as a starting point; an installation in which an experiment was undertaken in pairs with each of the two participants wearing a head-mounted display and a backpack with angel's wings. This enabled them to view the perspective of the other in the display in an entirely exchanged visual perception. It was both disorienting and engaging, simultaneously raising the question: Where does communion and communication start in a worldview experienced through the senses of the other?


Ars Electronica 2004: The 25th Anniversary of the Festival of Art, Technology and Society. *Timeshift*, by Gerfried Stocker and Christine Schöpf, Ostfildern-Ruit/Germany: Hatje Comtz Verlag (2004).

Eighth EASA conference 2004:

http://www.univie.ac.at/voelkerkunde/easa/

Ars Electronica 2004: http://www.aec.at/en/index.asp

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JEAN DESMET AND THE EARLY DUTCH FILM TRADE
by Ivo Blom, Amsterdam University Press, Prinsengracht,
The Netherlands, 2003. 480 pp., illus. Trade, €51.90; paper,
€35.90
ISBN: 90-5356-570-1; ISBN: 90-5356-463-2.

Reviewed by Tom Gunning, University of Chicago
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When I was rather young, I had a strong desire to be an
archeologist and read a number of old and rather classic books
on the subject. I recall one discussion in which a professor of
ancient literature had said with some disdain, "After all, we
aren't looking for the laundry lists of the ancient Egyptians!"
to which an archaeologist had replied, "Indeed that is precisely
what we are looking for! Laundry lists will tell us things about
a culture that love poetry or philosophical speculations never
will." Similarly, film history has moved from the confines of
appreciation and glorification of the few films that had risen
above the tides of mass culture and the demands of commerce and
trials of censorship to become Art. We are in some ways like
archaeologists, looking not only for masterpieces (which can
never cease to provide a principle, but hardly exclusive, motive
for our endeavors) but for the film culture they came out of and
fed back into. In this important new work, an authoritative
survey of the Jean Desmet collection at the Nederlands
Filmmuseum, scholar Ivo Blom has not only provided us with a
detailed "laundry list" of early cinema but a wealth of other
things as well.

Jean Desmet, a Dutch film exhibitor, then distributor, from
1907 to 1917, accomplished something for film history that far
outweighs his (as Blom confesses) fairly minor role as an
innovator in either aspect of the film industry that he
practiced: he threw relatively little away. Instead of simply
discarding his business records and publicity material (which
pioneers had a habit of doing), Desmet preserved them for
decades. In 1957, his heirs presented this treasure trove to the
Nederlands Filmmuseum. Although it may have taken film
historians some time to fully appreciate the uses that could be
made of this mass of material, it was carefully preserved. Now,
after more than a decade of work with the collection, Ivo Blom
presents us with a synoptic account of the film career of Jean
Desmet based on the collection.

The task of film history includes not only the description and
analysis of film texts, but also, increasingly, analysis of the
contexts of their production (technological, industrial,
financial) and their reception (which depends essentially on
their distribution and exhibition). The study of production –
the history of film technology and the set-up of the studio
system, for instance - is somewhat more recent but already
impressive. But film distribution remains, for the most part, an
under-researched area of film history, even though it formed the
central topic of the most recent Domitor conference (the
international scholarly organization for the study of early
cinema) this summer in Utrecht, and Kristin Thompson's

pioneering work on international distribution of American cinema around the world, *Exporting Entertainment*, has provided an important model. This new work by Ivo Blom combines a detailed account of a particular film exhibitor with perhaps the first thorough discussions of a film distributor, revealing how exhibition and distribution interacted during a specific period of time, within a specific culture (the Netherlands). However, this description sells this extraordinary work of scholarship short. I should state that this work provides one of the most detailed and comprehensive studies of early film history, focusing on the Netherlands but covering the international scope of the film industry in this era, extending not only through all of Europe but also from the United States to the Dutch East Indies (although illuminating only specific aspects of these last two areas).

Blom's close observation of the account books, correspondence, bills and receipts of Desmet's film business, as well as his publicity, allows him to deliver to us a fine-grained account of one of the most volatile periods in film history. What Blom's account makes clear is not only the many transformations that occurred in the film business during this period but also the need to realize that the various aspects of film history each have their own history. Although our ultimate task must be to interrelate these elements, we must also acknowledge their relative independence and their differences from locale to locale. Just as radical changes occurred in film form during its first two decades, transformations in the business side were equally intense. In the United States, the early period is dominated by exhibition of films in vaudeville houses, while in Western Europe, the traveling fairground exhibitor held sway. Distribution was handled mainly by the direct sale of prints to exhibitors with the extent of vaudeville circuits or the changing venues of the traveling exhibitor supplying constantly renewed audiences for the stock of films owned.

In the U.S., the major transition in exhibition came with the growth of the nickelodeons: cheap theaters, mainly urban, with initially a primarily working-class clientele, which began appearing about 1905-1906. In Europe the parallel transition would seem to be the transition to fixed permanent theaters. Desmet's career (and therefore the collection) covers this transformation. Desmet began as a fairground entrepreneur, graduating from his fairground attraction, the Canadian Toboggan slide, to motion pictures in 1907. He then moved into permanent theaters around 1909, gradually phasing out his traveling exhibition. As in the U.S., the switch to fixed exhibition sites prompted the growth of film distribution as entrepreneurs moved into the position of middle men between producers and exhibitors, purchasing films from the production end and then renting them to the theater managers. Desmet also began purchasing films from a number of sources, as cinema moved from French (mainly Pathé) domination to a less centralized, more broadly European business, doing business with firms in Germany, Belgium, France, England and even, at points, the U.S.

Perhaps the most novel information Blom gathers from Desmet's documents comes with the details about the film programs he offered. After the establishment of permanent theaters, the next major transformation is the increasing importance of longer films. Blom's discussion of the role of the long film in Desmet's career supports research recently undertaken by Ben Singer about exhibition in the U.S., revealing that feature films did not necessary immediately replace a program made up of

many shorter films. Longer films became common in Europe a bit earlier than in the U.S. (which did, however, begin importing these longer foreign films) and for several years the programs that Desmet bought, distributed and exhibited included both short and long films, with short films carefully programmed to lead up to the long feature film. It also may be that the growth of "elite" cinemas, catering to a higher class of audience, may have occurred earlier in Europe (although it is striking that fairground exhibitors often charged higher prices for certain showings and always had a graduated pricing scale for seats, whereas American film theaters more often had a one-price policy).

However, it was Desmet's lack of realization of the importance of longer films on their own, as well as his reluctance to pay top price for them and to recognize that the producers or their agents who controlled such films increasingly held the most powerful role in the film industry that led to his gradual extrication from the film business. Other distributors beat him out for the most popular films and the production companies or their own agents increasingly handled distribution. Although Desmet recognized and adapted to such innovations as exclusive control over a single film for a set area (the "monopoly" policy) or the switch by producers from selling prints to leasing them (occasionally willing to pay the new high prices), his way of doing business remained more in tune with an era where distributors called the shots. Ironically, it was his somewhat anachronistic policy of buying film prints and keeping them as his own stock for distribution that made his collection of films so valuable for film historians, whereas production companies often saw little value in preserving old prints.

Blom's book is as filled with striking and vivid details as a painting by a Dutch Master. At points, the reader can lose the thread and become overwhelmed by all the accumulated facts, but Blom's excellent sense for what is both significant and intriguing, as well as his engaging style, brings us back on track. There are repetitive aspects to the book, such as the tendency to go over the same point in Desmet's career several times from different viewpoints, and more careful editing might have streamlined it a bit. However, it is precisely the richness of information that makes this a book every film historian must read.

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WOMEN, ART AND TECHNOLOGY
by Judy Malloy (Ed.), Cambridge, MA: The MIT Press, 2004. 530
pp., illus. Trade, $39.95. ISBN: 0-262-13424-1.

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There are many reasons why a book with this title should not be published at all, the main one being that no one would think of writing or editing its mirror image, *Men, Art and Technology*. For some decades, women have been at the forefront of developments in art and technology, as they have been in diplomacy, politics, gardening and medicine. Yes and no. The facts are there, as well as the names, but perception is different and recognition appears to lag behind. Although art

and technology and their common ground may be the playfield of women and men alike, women seem to be absent in the public eye, at least in the public image at large. As is the case in many fields, women are underrepresented or misrepresented in the media and in public debate. No doubt it will take a few more generations before this situation is corrected, if ever. Meanwhile, books such as this one are necessary. Annoying as it may be for the reader who acknowledges and appreciates the contribution of women in the field, it is important that this contribution is documented, inventoried, published and critically evaluated so as not to let memory fade and public opinion hide what is clearly visible for the knowledgeable.

The book originates from a *Leonardo* project of the same name, trying to do exactly what it takes to put the work of women artists and creators of technology in the spotlight. It is a compendium of the work of women artists who have played a central role in the development of new media practice.

The book has a series foreword, a proper foreword, a preface and an introduction, of which we shall say nothing more. In the essays in the first section, "Overviews," five authors developed the main threads that hold together four decades of artistic creation by women. From the very beginnings in the 1960s and 1970s up to the more recent works in the realm of telecommunications art and the Web, the reader gets a well-informed overview of factual history and landmark works by groundbreaking artists and curators. It is not surprising to see how in so many new areas of development in art and technology, the first explorative steps have been taken by men and women alike, even though the names of the women may have faded faster than those of their contemporaries.

The second and largest section of the book has 26 contributions by women artists about their work, their goals, their obsessions and their successes. In my opinion, this is undoubtedly the most important part of the book and the real rationale for its publication, because most of these previously published writings are hard to come by today. Moreover, most of these short pieces are delightfully written, giving evidence of the clarity of vision, the enthusiasm, the necessity and the "drive" behind these artists' works. There are contributions from Steina and Dara Birnbaum, Donna Cox and Judith Barry, Nell Tenhaaf and Char Davies, Linda Austin, and Dawn Stoppiello, to name but a few. And the ones that I cannot list for the sake of brevity are just as interesting and necessary as these.

The third part has another five essays that shed light on the subject from a slightly different angle. Jaishree K. Odin does some cartwheels in a deconstructive reconstruction of Shelley Jackson's *Patchwork Girl* and this approach obligingly quenches one's thirst for any postmodern jargon. Simone Osthoff and Martha Burkle Bonecchi contribute some very interesting pieces on the contributions from Brazil and the situation of women in developing countries. Carol Stakenas connects the politics of the Web with the fight against HIV/AIDS and finally, Zoe Sofia peeks into a future that may be post-historic, trans-human and extra-terrestrial but will have to acknowledge the existence of the many voices and many visions of women artists.

As I said before, this is a necessary book because it brings together so many important artists. Its weakness, however, lies in the essays of the last section. Though they are interesting in themselves, more space could have been given to the

historical overviews of the first section, possibly integrating
some of the ideas and facts from the final ones. Why, indeed,
tell the Brazilian story separately from the main "herstory,"
and why give a separate section to activist artists unless, of
course, the authors of the main overviews have for some reason
or other overlooked those aspects. Nonetheless, this is an
important book, just like the artists and works that it
illustrates.

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LEA Special Issue: MultiMedia Performance
Guest Editors: Annette Barbier, Craig Harris and Marla Schweppe
mmedia [ @] astn [ dot] net
http://mitpress2.mit.edu/e-
journals/LEA/LEA2004/authors.htm#mmedia

The Leonardo Electronic Almanac (ISSN No: 1071-4391) is
inviting papers and artworks that showcase MultiMedia
Performance. This category includes works which span a range of
practices, which challenge the way performance has heretofore
been defined and examines the ways in which new technologies
have opened up the meaning and practice of performance.  We
expect that performance includes a live component, be it on
line, in an interactive installation, or on stage.

LEA encourages international artists / academics / researchers
/ students to submit their proposals for consideration. We
particularly encourage young authors and contributors from
outside North America and Europe to send proposals for
articles/gallery/artists statements (if applicable).

Expressions of interest and outline should include:
- A brief description of proposed text (300 words)
- A brief author biography
- Any related URLs
- Contact details

In the subject heading of the email message, please use "Name
of Artist/Project Title: LEA MultiMedia Performance - Date
Submitted". Please cut and paste all text into body of email
(without attachments).

Deadline for expressions of interest: 10 December 2004

Deadline for proposals: 15 February 2005

Please send proposals or queries to:
Annette Barbier, Craig Harris and Marla Schweppe
mmedia [ @]  astn [ dot] net

and
Nisar Keshvani
LEA Editor-in-Chief
lea [ @] mitpress [ dot]  mit [ dot] edu

http://lea.mit.edu

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LEA Gallery Special: Global Crossings (GX) Online Exhibition
Guest Curators: Dennis Summers and Choy Kok Kee
gxgallery [ @] astn [ dot] net
http://mitpress2.mit.edu/e-journals/LEA/LEA2004/authors.htm#gx

The Leonardo Electronic Almanac Gallery
(http://mitpress2.mit.edu/e-journals/LEA/LEA2004/gallery.htm) is
inviting submissions in conjunction with the Leonardo Global
Crossings Initiative. The Gallery is looking to make visible the
work of international artists, professionals and scholars who
live and work in a wide variety of situations where access to
established venues for exhibition, display and publication is
limited. Difficulty of access may be attributed to cultural,
geographic, ethnic, institutional or disciplinary diversity, or
issues related to the North/South divide, age, gender, etc.
Through this Gallery we seek to showcase little-known work in
the art-science-technology field and to counter the
natural tendency of networks to be inward looking, thus
reinforcing established points of view.

We are looking for work that considers the global earth in some
fashion or another. It can be work that addresses global social,
political economic, spiritual, etc. issues. It can be work that
physically or metaphorically lies in multiple locations on the
planet, it can be work that may have personal relationships to
multiple locations on the planet. Or anything else that loosely
falls along the concept of being "global" in nature.

LEA encourages international artists / academics / researchers
/ students to submit their proposal and explore global crossings
in an open context in their creative submissions and work. We
particularly encourage young authors outside North America and
Europe to send proposals.

Submission Procedure
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Interested artists should send:

- A brief description of proposed text (100 - 300 words)
- A brief author biography
- Any related URLs
- Contact details

In the subject heading of the email message, please use "Name
of Artist/Project Title: LEA Global Crossings - Date Submitted".
Please cut and paste all text into body of email (without
attachments).

Deadline for submissions: 15 November 2004 *** EXTENDED
DEADLINE ***

Please send proposals or queries to:
Dennis Summers/Choy Kok Kee
gxgallery [ @]  astn [ dot]  net

and
Nisar Keshvani
LEA Editor-in-Chief

lea [@] mitpress [dot] mit [dot] edu
http://lea.mit.edu

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Leonardo Abstracts Service - Call for Submissions

As part of the Leonardo Educators Initiative, the Leonardo
Abstracts Service (LABS) is pleased to announce its first cycle
of shortlisted peer reviewed abstracts. Scholars published in
the first cycle in the Leonardo Electronic Almanac October 2004
are:

* Peter Anders: A Procedural Model for the Integration of
Physical and Cyberspaces in Architecture
Thesis Supervisors: Roy Ascott, Michael Phillips, Michael Punt

* Principles of Metadesign: Processes and Levels of Co-Creation
in the New Design Space by Elisa Giaccardi
Thesis Supervisor: Roy Ascott

* Fatima Lasay: Phase Space Portraits of the Nuestra Señora
delos Dolores of Baclayon
Thesis Supervisor: Santiago Albano Pilar

* Maureen A. Nappi: Language, Memory and Volition: Toward an
Aesthetics of Computer Arts
Thesis Supervisors: Benjamin Binstock and Judith R. Weissman

LABS is seeking PhD, Masters and MFA thesis abstracts for its
next publication cycle. Authors of theses interested in having
their thesis abstract considered for publication should fill out
the Thesis Abstract Submittal form at
http://leonardolabs.pomona.edu

Deadline for submission is: 15 November 2004

What is LABS?
LABS is a comprehensive database of Ph.D., Masters and MFA
thesis abstracts in the emerging intersection between art,
science and technology. Individuals receiving advanced degrees
in the arts (visual, sound, performance, text), computer
sciences, the sciences and/or technology, which in some way
investigate philosophical, historical, or critical applications
of science or technology to the arts, are invited to submit an
abstract of their thesis for publication consideration in this
database.

The LABS project does not seek to duplicate existing thesis
databases but rather to give visibility to interdisciplinary
work that is often hard to retrieve from existing databases. The
abstracts are available online at Pomona College, Claremont,
California, so that interested persons can access them at no
cost.

The English language peer review panel for 2004/2005 are Pau
Alsina, Jody Berland, Sean Cubitt, Frieder Nake, Sheila Pinkel
and Stephen Petersen.

What is the Leonardo International Academic Community?
The Leonardo International Academic Community is a mailing list
to encourage discussion and exchange of ideas (to join email: lea
[@] mitpress [dot] mit [dot] edu with a brief introduction)

amongst leaders and thinkers in academia. Academics also receive
the Leonardo International Faculty Alerts - announcing job and
other opportunities in the field.

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LEONARDO 37:4 LAUNCHED AT BEAP
Leonardo/ISAST launched issue 37:4 of *Leonardo* at the
Biennial of Electronic Arts Perth (BEAP) in September 2004. As
part of the BioDifference conference within BEAP, Leonardo
publications were featured along with many members of the
Leonardo network.

Leonardo Editorial Advisor George Gessert delivered the
BioDifference keynote address and Leonardo/ISAST Governing Board
member Stephen Wilson was the conference plenary speaker.
BioDifference: The Political Ecology took place at the
University of Western Australia on 11 September, 2004. For more
information, see <http://www.beap.org>.


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LEONARDO EDUCATOR AND STUDENTS PROGRAM ACTIVITIES AT COLLEGE
ART ASSOCIATION

Leonardo has expanded its programs and collaborations that are
dedicated to promoting the advancement of scholarship in the
field of art/science/technology. As an affiliated society of the
College Art Association (CAA), Leonardo has joined the largest
professional community of artists and art historians in the
United States. With the Leonardo Abstracts Service (LABS), we
are now able to serve emerging scholars by publishing thesis
abstracts in the field.

The Leonardo-CAA committee is a working group of artists,
scientists and engineers that belong both to the Leonardo
Network and to the College Art Association. The purpose of this
committee is to develop joint actions between the two
organizations such as promoting the work of artists and art
historians in the art-science and art-technology
interdisciplinary fields. The working group will develop, among
other things, proposals for sessions at the CAA meetings and
mentoring programs for students in the field. This list is open
to any person both in the CAA and in the Leonardo Network.

The Leonardo/CAA working group members currently include:
Matthew Akers, Michael Anthony, Julio Bermudez, Jay Bolter,
Michael Century, James Coupe, Nina Czegledy, Mette Gieskes, Anne
Collins Goodyear, Diane Gromala, Kara Hammond, Gabriel Harp, Amy
Ione, Tim Jackson, Celine Jeffery, Nisar Keshvani, Ellen Levy,
Roger Malina, Steven J. Oscherwitz, Stephen and Lauren Petersen,
Tim Peterson, Sheila Pinkel, Dana Plautz, Michael Punt, Mark
Resch, Dan Sandin, Edward Shanken, Yvonne Spielmann, Ival
Stratford-Kovner, Ruth West and Karen White

To join the Leonardo-CAA working group, go to:
<http://groups.yahoo.com/group/leonardocaacommittee/join>.

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LEONARDO-CAA ACTIVITIES

Leonardo will hold three sessions at the 2005 CAA conference in
Atlanta, Georgia, 16-19 February, 2005 - a Special Session, a
Business Meeting Town Hall and a Mentor Workshop.

Leonardo's special session at CAA is entitled "Hybridity: Arts,
Sciences and Cultural Effects," co-chaired by Yvonne Spielmann
of the Braunschweig School of Art and Jay David Bolter of the
Georgia Institute of Technology. Confirmed speakers in this
session include Amy Ione, Diatrope Institute; Dan Sandin,
University of Illinois at Chicago; Diane Gromola, Georgia
Institute of Technology; and George Legrady, University of
California at Santa Barbara.

Every year, the CAA conference features Career Development
Workshops, in which students in art and art history meet one-on-
one with advanced professionals in their field of interest.
Before the conference, professionals volunteer to be mentors and
are matched up with students who have also signed up for the
program according to specialty to critique portfolios, review
CVs, guide through conference activities, introduce to other
figures in the field, or other mentorship activities.

CAA has offered Leonardo a 2-hour time slot prior to panel
sessions for a roundtable discussion featuring experienced
art/science/technology faculty and specialists who are willing
to share their knowledge, experience and perspective through a
question and answer session with students who sign up for
Leonardo Mentorship or plan to do further experimental and
scholarly work in the art/science/technology field.

These two mentoring opportunities will enhance the already-
active CAA mentoring program as well as widen the Leonardo
community by bringing emerging professionals into contact with
their more established cohorts in the field.

The Leonardo-CAA Working Group is currently seeking
art/science/technology faculty and artist/researchers who are
interested in improving mentoring available to students in the
emerging interdisciplinary field to discuss their latest
art/science/technology research. We also solicit students who
may be interested in sharing their experiences and perspectives.

This session will take place on Wednesday, 16 February, from
3:00-5:00 pm. For more information, please contact Steve
Oscherwitz, University of Washington, e-mail: sjosch [at] u
[dot] washington [dot] edu.


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MELINDA KLAYMAN LEAVES LEONARDO/ISAST

Melinda Klayman's last day at *Leonardo* was Friday, August 20,
2004. Melinda, who had worked at *Leonardo* since November 2002
as director of development and communications, brought a great
deal of enthusiasm and creativity to the post, working

energetically to build the organization's board of directors, to
raise money through fundraising and proposal writing and to
bring order to many of our internal administrative systems. Her
determination, work ethic and humor will be sorely missed at
*Leonardo*. We all wish her the very best in her new position at
Palm One. Certainly the same skills she brought to *Leonardo*
will serve her well in all of her future endeavors.

Communications that previously went to Melinda can now be
addressed to Kathleen Quillian at the main Leonardo e-mail
account: isast [at] leonardo [dot] info

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