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EDITORIAL
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Editorial

by Nisar Keshvani

Under LEA's new direction, this issue we present the kickstart of thematic LEA's guest edited by leading writers, artists and technologists.

In the May/June edition, we takes a step further with the myth of the divided child orchestrating the moistmedia of the future. Guest editor Fatima Lasay from the Philippines, and co-editor Joel Weishaus from the USA, present how cultural uprisings take place, not in war games and military exercises, but in LEA's double edition on the east-west perspective of cross-disciplinary practice, collaboration, and the notion of invisibility in networked artistic and curatorial domains.

Enjoy!

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This month's Leonardo Digital Reviews leads with a short review, by Wilfred Arnold, of "False Colors: Art, Design, and Modern Camouflage," a book written by one of our most active panelists, Roy R. Behrens. Behrens is kind enough to allow us to reprint the review from his own journal, Ballast Quarterly Review. Arnold's review repeats the informative economy of Behrens' reviews as it describes and evaluates the contribution in three elegant paragraphs.

As an alternative, we have a much more extensive discussion by Yvonne Spielmann of Oliver Grau's book, "Virtuelle Kunst in Geschichte und Gegenwart: Visuelle Strategien," which gives those of us without knowledge of German a valuable insight into the debate about art, artists and emergent media from a European perspective. Just what are the issues that are causing contention in the European take on immersive artworks? To what extent is there a "Mid-Atlantic" consensus over issues such as emergence, virtual worlds and cyberspace? Although not entirely sold on Grau's thesis, Spielmann's review exposes some fascinating issues that tend to be overlooked. A review by Robert Pepperell of Michael Sahlin's book, "Culture in Practice," is also posted this month (rather belatedly). It is evidently another of the quality publications that also reminds us of a certain ethnocentric tendency in Western academia. Sahlin asks us to reconsider structural anthropology as an historical moment that was subject to the larger sways in political power.

The legacy of structural anthropology, Pepperell argues, is valuable as a consequence of the stripping down that its re-telling forces. There is a certain charm in the explanation for the delayed publication of this review - especially given its topic. Lost among the inevitable clutter of the hard drives of the LDR machines, it only came to light after a review of the analog tracker by LDR managing editor Bryony Dalefield. Pepperell's choice quotation - "Memories, for example, are not interior to the remembering person but act upon them externally" - applies with ease to the LDR hard drive. It also provides a refreshing link to the review of the conference, Toward a Science of Consciousness, at the University of Arizona where, apart from anything else of considerable value, we were able to invite Amy Ione and Maia Engeli to join the LDR Panel.

These reviews and the archive are available in full at:  
<<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>>.

Michael Punt  
Editor-in-Chief,  
Leonardo Digital Reviews

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< False Colors: Art, Design, and Modern Camouflage >

by Roy R. Behrens, Dysart, Iowa: Bobolink Books, 2002. ISBN:  
0-9713244-0-9. 223 pp., illus. b/w, \$22.95. <[ballast@netins.net](mailto:ballast@netins.net)>.

Reviewed by Wilfred Niels Arnold, <warnold@kumc.edu>.

During Australian Army training back in the mid-1950s, I had my one and only experience with a camouflage exercise. We were asked to blend with the landscape and to sneak up on another neophyte platoon. Most of the fellows started rubbing their faces with charcoal from last year's bush fire, but I imagined something more creative (and cleaner). I pulled off a huge piece of eucalyptus bark, big enough to cover my head to my belly button, fashioned a couple of eye-holes, and stuck it in my belt. It looked great in the line-up but did not work in practice. Trees do not move through the forest. And now my friend and colleague Roy Behrens explains all of this, and much more, in a delightful volume that delves into so many aspects of art, war and living.

Major chapters include an historical perspective, the quantum jump in World War One camouflage techniques for warships and a potpourri of current camouflage artists. The outlandish designs on surface vessels (so that submarine captains could not tell at first glance the direction of travel of their prey) are alone worth the price of admission. This era has passed. Directing missiles is now a very remote thing, and I suppose somewhat less emotional for those who press the trigger. Nonetheless, the last decade has shown a resurgence in World War One and Two interests and the present volume will be as well-received in that arena as it will be in the classrooms and libraries of art theory and appreciation.

The book is nicely produced, in 9 in x 6 in format, and copiously illustrated with well-chosen items. The spatial arrangements make for happy reading, and there is a bibliography of over 400 references (including 21 papers by Behrens), but no index. The book is complemented by numerous glosses and asides in the margins, ranging from biographic tidbits through carefully attributed quotations, to simply amusing snippets.

Roy Behrens is Professor of Art at the University of Northern Iowa, Cedar Falls, where he primarily teaches graphic design and illustration. He is widely published, has three other book titles, and is the editor and publisher of Ballast Quarterly Review. He is currently writing a biography on Adelbert Ames II, inventor of the "Ames Demonstrations" in psychology.

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< Virtuelle Kunst in Geschichte und Gegenwart: Visuelle Strategies (Virtual Arts in History and the Present) >

by Oliver Grau. Dietrich Reimer Press, Berlin, 2001. 300 pp., illus. Paper. ISBN: 3-496-01230-7.

Reviewed by Yvonne Spielmann,  
<spielmann@medien-peb.uni-siegen.de>

Artists not only appropriate new technologies, but research, develop and sometimes "invent" new types of media arts, such as computer, network and software art. They also merge different media (for example literature, fine arts, film, music, architecture, dance, kinetics and so on) in complex artificial environments that tendentiously interact with or immerse viewers/users. Traditional disciplines, most prominently art history, are thus challenged by such expansion of their fields of study. Furthermore, discourses regarding "art" and "artworks"

come into question when arts and sciences overlap in collaborative projects and when programming, software development, problem-solving of hardware and mechanical issues and aesthetic decisions, taken together, comprise the essential characteristics of a particular artwork that we, sloppily speaking, call a "piece." What exactly is all sewn together in one piece is often not obvious and sometimes the various media that are used become less and less distinguishable.

Nevertheless, today's collaborative practices and modes of synthesis are not without precedent or historical parallel. To combine expertise in different fields has been essential to technical media at least since the advent of film - a medium which, at the time, was conceived to synthesize all artforms and to offer synaesthetic pleasures. In addition, many contemporary scholars have pointed out analogies to the Renaissance artist-scientist, who had hands-on experience of the "science of art:" geometry, optics, anatomy and so on. Given the present diversification within the arts, the expertise needed to create art at an advanced technological level (as with "virtual arts") certainly requires knowledge of more than one or two fields of discipline and science. Thus we now face new dimensions of interrelationship and complexity, particularly when approaching virtual reality.

The notion of virtual reality revitalizes metaphors of the merging of human and machine. Moreover, it provokes the idea of the actual realization of a human-machine interface that would improve the impression of immersion and interactivity in simulated dataspaces. Consequently, the development of artforms with immersive and interactive effects technically demands the visualization of image "worlds" that are, in principle, endless and multi-dimensional and that transform in a coherent manner. When we look at the achievement of virtualization as developed for medical purposes and military tasks, we find that strategies of visualization play the same major role as when artists work with 3-D computer graphics and motion control systems to create a "world" as virtual environment, artificial reality or cyberspace. The common features concern questions of transformative images, implementation of moving images and shifting velocities. Concurrently, the higher modes of complexity achieved in virtualization inevitably raise questions about the representational function of images and their fictional content, which brings us back to debates from art history around illusion and realism. These issues were also highly disputed at the time of the advent of earlier technical media, starting with photography and film, in what we nowadays would call a "media discourse."

This brief overview may demonstrate that an approach for coming to terms with virtuality in the arts demands comparative analysis of the phenomena of merging and of the terminology attributed to this phenomenon. An interdisciplinary discussion is needed in order to discuss virtual art in its own right and to re-establish a discourse about the image that can adequately address the transformation of its characteristics, namely through computer-based image processing. The traditional approaches of art history need to be informed by the basic ideas of media analysis, most importantly cinema and media studies, which have provided a set of approaches for comparative discussions of different types of images in various media.

With regard to the importance of techniques of visualization in new media, Oliver Grau's dissertation (published as the book

"Virtual Arts in History and of the Present") courageously tries to take up the challenge to broaden the scope of art history so that the discussion of image and medium might match discussions regarding technological development of visualization. The book argues we find many historical examples of visual representation that place the viewer in the space of the represented scene. Grau refers to these works as immersive. Applied to our contemporary understanding of virtual realities (which can present possible or impossible spaces, albeit spaces that are possible according to the source code of the computer), Grau maintains a metaphorical understanding of virtuality, with historical and actual connotations of immersion. He sees the essential immersive quality of virtualization as defining the fundamental premises of the book, understanding the key concept of immersion as resulting from the merging of image and media under the condition that the medium itself is illusionist. Of course, from a media studies perspective, we may argue against a concept that presents a single medium as illusionist or non-illusionist, because we might rather refer to modes of application and say that the media images express illusionist or non-illusionist features, whereas the medium itself does not have such characteristics. But regardless of Grau's critical stance towards understanding media, he is right to focus on the convergence of image and medium as the leading paradigm that helps to discuss historical models of virtual reality (e.g. panorama and fresco painting) with regard to the specific parameters of immersion.

Immersion occurs when the viewer is physically surrounded by the image space, such as by a series of fresco paintings covering the walls of an interior space or, more prominently, in the panorama. When a panorama depicts real events, such as a battle scene, the visitor feels immersed in the totality of an image that, as Grau argues, produces an illusionist visual world that is perceived as absolute image. What happens when such an illusionist representation becomes immersive is that conscious perception of the medium and the actual physical reality fades in favor of the strong bodily experience of being physically connected to and inside the artificial visual space. Computer-based interactive works similarly challenge the borders of media, increasing the viewers' impressions that they are directly communicating with what has actually been created by software. This happens when the viewer/user (not necessarily in a virtual reality setting) almost naturally connects with animated figures that result from image algorithms that have "behavior." In the striking example of "A-Volve" by Christa Sommerer and Laurent Migonneau, the level of immersion depends on one's awareness of the media level and on the viewer's willingness to interact with the paradigm of the machine. Grau demonstrates the close relationship between immersion and interaction when he describes the viewer/user's experience in Charlotte Davies' well-known virtual reality work, "Osmose," which aims to recreate the bodily sensation of diving. Even though the viewer has to use a heavy head-mounted display to interact with the piece, Grau identifies a "natural interface," a term frequently used in current debates on artificial realities and that also relates to Davies' and Sommerer's and Migonneau's works.

In view of the multitude of terms in relation to virtual reality and artificial life, it would have been helpful for Grau to include some discussion of the conceptual history and signifying practices of such seemingly contradictory metaphors. I would also have appreciated clarification on what exactly is meant by a "natural interface" in a virtual environment. With such a long list of titles of theoretical literature on virtuality,

interactivity and immersion in the bibliography, it would have been reasonable in such a dissertation to discuss some of the leading positions in the field. This would also have helped to better explain where discussions on virtuality and immersion come from and how we should understand interactivity. For example, the book seems to present interactivity as simply a creative tool that increases the more virtual reality techniques evolve. As for the concept itself of interactivity, there is no reference to parasocial interactivity in the television setting, which is widely discussed as a building block for the further development of interactivity in virtual environments (as Margaret Morse states in her book, "Virtualities"). Oddly enough, "Virtual Arts in History and the Present" does not build up a theoretical framework, so that we find explanations and definitions of terms and concepts throughout the descriptions of individual works that are not always coherent.

Aside from some of the book's critical stances, however, it is highly valuable that such a work, incorporating both historical and contemporary discussions on immersion, illusion and interaction, takes its place in a debate on images that sometimes escalates into meaninglessness (e.g. discussions of "images without images"). By saying that recent technological possibilities that improve immersive effects in virtual arts should be studied within the broader context of visual strategies, Grau introduces to the traditional field of art history different ways of looking at spatial "visual effects," enabling him to trace a line from the pre-history and shifting concepts of immersion up to today's virtual reality settings. The book's historical perspective begins with a discussion of fresco paintings that cover all four walls of an interior space - the earliest example being the "Villa dei Misteri" in Pompeii - and moves on to Baroque ceiling frescoes, the most prominent of which is Andrea Pozzo's illusionist painting, which, as a "ceiling panorama," effectively transgresses architecture. Here, Grau is not interested in further discussion of Pozzo's work, which uses a fixed viewpoint marked by a small disc on the floor; such discussion would naturally lead to the question of immersive arts in regard to the position of a mobile or immobile viewer. Certainly, this matter is of importance to virtual reality pieces, since they allow a mobile viewer to perceive constantly moving images, and in regard to film since it, like Pozzo's fresco, also uses the fixed viewpoint of an immobile viewer (although with film, the images are moving).

Leaving aside issues of mobility and movement, the book's tour through painterly illusion turns to interior spaces in the Renaissance, wherein the apparent size of a room is extended through painted three-dimensional columns. The argument that these settings connect viewer and image in ways that can be described as immersive is highlighted with discussion of the panorama, another medium that, although static, demands some mobility from the viewer in walking around the rotunda. The panorama serves as the "potent" model for producing the necessary spatial illusion that immersively engages the viewer, in a mode similar to virtual reality. While the previously mentioned illusionist spaces form the pre-history to the panorama, this medium sets the parameters for the following discussion of computer-based virtual reality arts. Furthermore, the manufacturing of the panorama sheds light on the interrelationship between artist, artwork and viewer against the background of the emergence of mass media that set the production frame for all future media arts.

On the whole, this book historically traces aesthetic concepts of virtual "visual spaces," connecting them to the present state of interactive media arts. The book clearly shows that discourse in a field like art history, which is still believed by some to be the dominant discourse on images, needs to be contextualized with examples of media images that fall into quite different categories. However, the theoretical discourse of the book hardly merges with other disciplines. This, of course, would not matter at all if we were solely dealing with single and static images. But, when we are primarily discussing moving images and mobile viewers, I would argue that consideration of transformative images is quite important to "virtual arts."

Surely, the immersive qualities in painting and panorama foreground aspects of virtual reality arts, but we can also argue that the history of film, stereoscopy and optical toys is of the same importance to virtualization. Ignoring not only film but the larger discourse on moving images and image movement in relation to the viewer's movements seems to result from a methodological problem that Grau cannot solve here. While the study wants to pursue historical-systematic research in a comparative analysis, the actual outline of the chapters and the line of argument rather follow a linear and historically chronological pattern, so that there is hardly any space left to engage cross-references. More importantly, the lining up of illusionist images in fresco painting, panorama, cinema and 3D dataspace cannot give rise to an overriding discourse of media specificity, as the introduction of the book promises, simply because relevant theories of photography, film and media (to name but three) are not considered to have a say in the field of "virtual arts." Thus, the discussion becomes inappropriate when expanded cinema is seen as an example of immersion, whereas the expansion rather points to multi-sensory interactivity and to intermediality, the latter being a term that reads as subtitle of the book but is not discussed.

Because of missing definitions of key terms such as "image" and "media," some confusion occurs when visual media are dealt with under the general category of illusion. As I mentioned earlier, this argument is implausible, particularly with reference to early film, where the differing practices of illusionist and anti-illusionist film co-exist. While the first tended to make the medium invisible and led to fiction and narrative cinema, the latter revealed the medium, producing different stages of realism, and motivated Soviet montage film and experimental film. Although film is of minor importance to the book, the misconception of Lumiere's and Eisenstein's intentions reveals Grau's general perspective on the nature of visual media under the narrow angle of illusion. For the most part, it certainly makes sense to discuss illusionist fresco painting and panorama, but the one-sided characterization is no longer true with cinema and it is questionable if all virtual realities necessarily foster illusionist patterns. As the book primarily focuses on the tradition of illusionist images in visual spaces that foreground the idea of virtual reality but have not yet been viewed together in the theoretical debate, the prime concern with illusion is reasonably motivated. A clearer definition of terms and more developed methodological concepts would have helped to strengthen the book's attempt to introduce immersion and interaction into art history's discourse on the image. For a further approach to the challenge of media images, surely more expertise in other fields will be needed.

< The Myth of the Divided Child > by Fatima Lasay  
 <fats@up.edu.ph>

In Philippine Ifugao culture, there is a myth that speaks of the "divided child," the offspring of parents from the skyworld and the middleworld. Born and raised in the Benguet Province, the day finally comes when this child, named Ovug, is beckoned to the skyworld. The people of Benguet refuse to give up the child, and so the child's father, the god Dumagid, takes a knife and divides the child into equal parts straight down the middle - one part for the heavens and the other for the earth. Both parts are also to receive new life to account for the voices of lightning in the sky and thunder rolling across the earth. This magnificent light and sound display of whirling fire and sharp thunder is the orchestration of the divided child, to the delight of the ear and eye.

This is the myth and tradition by which I see the process of collaboration and the role of the artist as a cross-disciplinary and cross-cultural worker - as Ovug, the divided child. There is a critical metempsychosis, the splitting and transmigration of souls, in Ovug, as he is conceived from both sky and earth and is split bodily into two separate beings. Similarly, in the artist's movement from individual to collaborator, the identity is divided and whatever constitutes a personality is transfigured or relinquished. Furthermore, both entities must, like thunder and lightning, act as a single symposium of light and sound.

But true to the complexities of the collaborative process and cross-disciplinary practice in the arts, the myth of the divided child does not begin and end in a mere "severe and multiply" affair. On his first return to the skyworld, Dumagid was forced to bring along his wife, Dugai, and leave their child as security for their return. It meant to surrender Ovug and to sacrifice Dugai as no human can bear the path to the skyworld. Creative collaboration can also be so goal-blind as to make that uncalculated risk that delivers and consumes the eros and exigency in the creative process; cross-study in the arts may mean threading unfamiliar terrain (or the extra-terra) and a surrender of inherited powers.

In conversations with visual artist Nšell El Farol, I came to realize that the courageous Dugai, who takes the perilous path with Dumagid skyward, figures prominently in El Farol's undertaking of an archeological sound recording of ancient burial sites. Unblinking, Nšell told me how he seeks to distill the incorporeal presences in prehistoric gravesites into an installation work yet to be unearthed, entitled "Hukay." Himself engaged in archeological studies, Nšell works in collaboration with experts in the field. "Hukay" is an expedition, through prehistoric archeological studies, into eliciting conversations, channeling signals, between the living and the dead. In "Hukay," an artifact is not a fossilized bone of ancient traditions, but a re-living and re-creation of what has been distilled and passed on; it is almost Dugai resurrected.

According to the Ifugao myth, Dumagid met his future wife while on a solitary walk in the forest. For the cross-practitioner, one is likely to meet new strategies of merging diverse disciplines while treading on transcendental ground and allowing one's self to be "carried in by love." The eventual marriage of music and math took place for Rowena Guevara when she decided to go into digital signal processing. I had tossed signals with Guevara, currently based at University of California at Berkeley's ICSI Speech Group, to talk about her research interests. When she returns to the University of the Philippines, she will be, like the adventurous Dumagid, ready to jumpstart a speech research program at the DSP Lab and, like the expectant Dugai, eager again to balance complexity and controllability in making music with technology.

Of course, in the myth there is the ghastly phenomenon of Dumagid cutting his own child in half. In 1979, visual artist Al Manrique was assigned to document depressed areas of Samar, Leyte and the urban squatters of Cebu. When I met him three years ago, Manrique had embarked on the digitization of negatives that comprise 20 years of photography. He had also started work on his "Latay" series of digital images. In one composition, I saw his beheaded image of a plantation worker. I visit Manrique occasionally at his office, for coffee, dinner, to chat and to get insights on what it was like being an artist and advocate working in the Marcos era, over 30 years ago, with refrigerator-sized computers. In his painting, prints and digital works, Manrique has used the human body as record of and commentary on socio-political realities. In "Latay," like Dumagid, who willingly divides the body to let one half dwell in the skyworld and the other, the earth, Manrique takes on the open source model of authorship as he invites others to join him in the "digital soir e of creating art beyond documents." Developed and stored under the most inevitably unforgiving conditions, his hundreds of negatives, documents of an era, now beg to be restored, a process which may take him another lifetime to accomplish. Unless, of course, Ovuɡ divided is re-animated in the spirit of collaboration.

In this issue, we open the magical ear and eye as we sit down with these three Filipino artists, who cross sky and middle worlds and divide bodies in their work. As we go outside the electronic monastery, there are no bells and whistles, only thunder and lightning where the soul rejoices under the divided child's chorus of signals.

In the following issue of LEA, under the baton of literary artist and collaborator Joel Weishaus, we continue to look into the processes of collaboration that use the Internet as artistic and curatorial domain.

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< Hallowed Ground >

The Filipino word "hukay" means excavation, digging or pit. Figuratively, "hukay" also refers to a burial excavation or a grave in the ground. N sell El Farol's expedition into archaeological studies takes his artistic practice to new depths as he investigates the intangible and substantive elements of site and space in "Hukay."

FL: What is the project "Hukay" and what does it seek to accomplish?

Nšell El Farol: Our materialistic society greatly emphasizes wealth and the possession of valuable things, and many feel an urge to possess the past, to keep a piece of antiquity on the tabletop. Archaeologists continue to dig, excavate, explore and scientifically record glorious finds of antiquity and other artifacts that enrich collections of museums and covetous collectors, processes by which the excavation site (such as settlements, burial grounds, trading places, hunting grounds and other defined potential areas rich [in] new discoveries), both within the ground and under water, are explored.

The "local position" and the occurring specific work, the performance or actions, utterances and their meaning have to be recorded and "read" in the future. The emphasis [in "Hukay"] is on the performance of language, dialogues, utterances and actions by the situation in relation to location and site. The functioning of language, sounds and actions provides an initial model for the "archaeological recording." Rather than [a] place being established simply as "site" and "space," it operates to order activities.

"Hukay" hopes to record the occurring actions, utterances, sounds or languages during the process of scientific investigation of a site defined as archaeological ground. This is a location of a resting place for departed souls, the souls of the underworld, the inhabitants of the earthworld. The intangible elements are substantive definitions of site, where[by] its presence is subjected to instability, ephemerality, and temporality.

FL: How did you come about "excavating" the idea for "Hukay"?

NEF: While indulging my fascination with themes of my works in previous years, my interest [in archaeology] grew when I had an opportunity to practice actual digging on some prehistoric archaeological sites in the northern part of the Luzon island, in Cagayan Valley, where discovery of prehistoric remains is more evident. The discovery of burial grounds in two different locations and the process by which these sites and artifacts were carefully investigated made me deeply aware of phenomena in the contemporary world.

I have been doing mixed-media work using glass, wood, sawdust, stone and found objects and [I have] incorporated different processes and techniques in production. At the same time, I am involved in creative or experimental photography using installation as a manner of presentation. My collaboration with some Japanese contemporary visual artists has given me opportunities to interact with them professionally and artistically. The latest was with Japanese installation and performance artist Ichi Ikeda, at the Cultural Center of the Philippines. Since 1996, I have been doing glass sculpture and have [developed] installations and processes in presentations in spaces formed [specifically for] my glasspieces. Cross-study in archaeology is something very new and exciting [for me], if applied with glassworks and woodworks.

FL: How will the "archaeological recordings" be done, technically?

NEF: It is said [that] without "presence" there is no "location," only the process or activity of locating. This project aims to determine the boundaries between the object being discovered or explored, which will eventually occupy a cultural significance, the site, or location, and the occurring performance, or actions

undertaken. The project operates to order activities, [rather] than simply establishing the place as "site" and "space." Thinking of a "felt space," the definition of space becomes inseparable from the ground, artifacts and geographic location. Significantly, the activities and sounds produced in a location can lay a foundation for the interpretation of meaningful phenomena. The concept of site and space and the experience will be articulated most clearly through geomorphological characteristics, geological evidences, archaeological data of material culture and intervening actions, sounds, utterances or voices that occur during excavation work.

The position of the specific site will be technically recorded through mapping or aerial photography and is to be installed and presented in large-scale format (both wall-bound and floor-bound), using a two-piece aerial map, viewed through a mirror stereoscope, [in order] to virtually experience the three-dimensional quality [of the work].

The open site excavation will be recorded [and then the recordings will be] placed in a gallery space for documentation and presentation purposes. The site in Porac, Pampanga (a three-hour drive from Manila proper) will be the possible location for this project. The site has been excavated and established as a possible thirteenth- to fourteenth-century settlement of prehistoric people in the Philippines, based on leads from previous archaeological excavations. Experts from the National Museum Archaeology Department and graduate students of the University of the Philippines Archaeological Studies Program will form part of the excavation team. All related scientific documentation will be made to probe the possibility of a cultural layer beneath the deeper volcanic deposit.

FL: Sound in a gallery space asks the audience to negotiate for meaning in their sonic experience quite differently from sound work installed in public spaces. In presenting archeological space - burial grounds particularly - in a gallery space, what limitations and opportunities do you see in challenging the sonic experience of your audience?

NEF: There may be particular locations for the listeners where in various directions and at various times, reflected waves of sounds emitted by viewers may interfere. Dead spots can result from obstruction of the direct sound or destructive interference between various reflected sound waves presented in each gallery space. In order to enhance the volume and clarity of the sound, digital enhancement will be applied. [The] sound produced will be characterized as subjective and psychological, rather than scientific.

Given enough space (around three separate rooms/exhibition spaces), I hope to fill up each area with earth, a basin of water and rocks or stones respectively. This will allow sound to reflect in various media once installed in each room under various circumstances. [Hopefully, this will lead] to understanding how pitch apparently rises and drops according to physical situations. The speed of sound reflected in various media under various circumstances varies considerably within a common order of magnitude. Speed tends to be greater in solids than in gases.

FL: As the project borrows greatly from archaeology, how will the "Hukay" process contribute to archaeology?

NEF: Significant to the formulation of a new body of knowledge are activity artifacts and situational artifacts. The acoustic performance and other intangible elements other than material culture and the solid material structure of a celestial body can yield information and are considered interferences in a given activity and place. These intangible elements and interferences are part of post-processual archaeology, where phenomena can be carefully investigated while gradually reaching the depth-limit of the excavation. This offers new chances to probe deeper.

FL: Do you expect a paranormal experience in this project? How alive is the presence of the supernatural or the mythical in your work and in your research for "Hukay" and in previous projects?

NEF: It is expected that part of [what] recording devices can achieve is the documentation of different living energies from the ground, within the surrounding, from above, and the intangible qualities produced by all living energies within the site. The presence of these elements will be experienced as substantial to the documentation of the "felt space."

My previous works, although [done using] glass, have a connection to these natural energies found in its raw material as silica and the firing process involved in it. Glass is cooled material forces of nature; it has the ability to present both form and inner space, alluding to some previous existence of matter and forces. Some of these glassworks [were] form[ed] in part by the experiences felt during occasional visits to the mystical mountain of Banahaw, where the unusual behavior of rain, water, energy and stones and the forces of the surrounding area are evidence of the living presence of energies.

Since sound-recording devices will be installed within the perimeter of the site, the living energies within the surrounding area will most likely be felt and gallery viewers may experience such phenomena. This will allow us to make commentaries on our relationship with the appearances of the world, which are essentially non-corporal and ethereal.

Nšell El Farol <pasko\_pasko@yahoo.com> is a sculptor, printmaker and multi-media artist based in Manila, Philippines. He is also a faculty member of the Studio Arts Department, College of Fine Arts at University of the Philippines. El Farol's current cross-studies include prehistoric archaeology, glass art and mixed media installation.

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< Crossed Signals: Music and Math >

Creativity could be what makes a difference in setting up a nationwide technological development plan that can transform the way young people think about research and development. An advocate of a shift from a culture of political nationalism to creative research, Rowena Guevara talks in the following interview about her work and love for both music and math.

FL: You are currently with the Speech Group at UC Berkeley's International Computer Science Institute (ICSI) for post-doctoral research. Can you tell us about your work at ICSI?

Rowena Guevara: I am working on Filipino speech recognition at ICSI. We are developing a Filipino speech corpus at the DSP Lab

back home, and we have a speech-research program mapped out. My stay at ICSI is part of our efforts to jumpstart the research program. The other project that I am working on at ICSI is the analysis of speaker dominance in recorded meetings.

FL: Can you tell us about your work on SOS-MDA for synthesis of piano tunes?

RG: Modal Distribution Analysis (MDA) was the [subject of a] dissertation by Dr. William J. Pielemeier, who was also an advisee of Prof. Wakefield. MDA is an analysis tool for musical instruments that estimates amplitude and frequency as a function of time. Being a pianist and having been exposed to synthesizers and keyboards, I knew that the sound of a piano is difficult to synthesize. I also knew that a good synthesizer starts with a good analyzer. At that time, the additive synthesis of musical instruments was thought to require a noise component and a harmonic component (sum of sinusoids). I basically showed that one can [achieve additive synthesis] with just a sum of sinusoids as long as the amplitude and frequency estimators are good and one has a keen understanding of the underlying physics of the sound production mechanism.

FL: Which came first, the music or the math?

RG: The music came first. I started playing the piano at age three, and discovered the wonders of math five years later. Engineering was a practical choice, but eventually I found a way back to music when I decided to go into Digital Signal Processing while working on my MS thesis on monophonic music analysis. Music and math - they really go together.

FL: Way back in 1990, while taking your MS in Engineering, you were also enrolled in the College of Music with a double major in Piano and Composition. What compelled you to take up the music double major and engineering all at the same time?

RG: Since I was in my 20s, I thought that my "fingers" were too old for the piano, so I just enrolled in composition and took piano as a minor. I did not know much about composition and thought it would be fun to learn something new. However, I did really well in my minor and my teacher encouraged me to go for a double major. I did and I had a great time!

FL: As computers have entered the picture, has there been any aspect of the craft of composition that has been affected? For instance, form or the pattern of construction in a composition? Is it possible that the use of computers or engineering gives [you] an extended freedom in the exploration or invention of new forms?

RG: This is a hard question and I am sure there are many answers to it. I enjoy the freedom of having control of all the aspects of sound. However, there is a price to pay for the freedom - there are more variables to control. Today's composer will have to balance complexity and controllability in making music. Depending on the balance, the composition process will change accordingly. In the end, what matters is still the musicality achieved in crafting the composition.

FL: What kind of relationship do you see and experience between music and engineering? Have these relationships changed?

RG: There are several levels of this relationship. On the

surface, engineering contributes a lot to the music - acoustics, recording, synthesis and analysis, just to mention a few. On a deeper level, I believe that making music is a form of engineering. It involves design (conceptualizing the theme, form, instrumentation and so on), initial implementation (writing the music), simulation (trying out the music on a keyboard), iteration (re-writing the music) and final implementation (performance or recording of the music).

With advances in technology, the relationship between music and engineering will evolve. For example, music delivery on the Internet is changing the way music is made and distributed. Twelve years ago, when I wrote music, I confined myself to traditional and indigenous musical instruments. These days, I can compose music and synthesize the instruments as well.

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< Art Beyond Documents >

In "Latay", visual artist Al Manrique talks about over 20 years of photography in depressed areas around the country under oppressive regimes. As his photographs speak volumes about the struggle of the oppressed classes, Al Manrique discloses, in the following interview, thoughts on his ongoing digital work, the need to save photographs of an era, Flash and escapist art, and the Internet as domain of the independent creative.

FL: "Latay" means a welt on the skin from lashing. When and how did "Latay" begin to appeal to you as the theme of a series of works based on documentary photographs?

Al Manrique: The photos were part of a 1979 documentation series for a rural health advocacy group. My assignment covered the depressed areas of Samar and Leyte, and the urban squatters of Cebu. The photos in the series were made into sound slides and illustrated publications and extended to thematic photo exhibits aimed towards raising the consciousness of health professionals and students as well as the rural and urban poor communities.

Such campaigns helped in the establishment of volunteer medical missions and later the establishment of paramedic training in the project areas. My salary was, aside from a meager sum, the chance to travel all over the country. [ I felt] that as an artist, my work was more meaningful [viewed in this way] than if exhibited in a gallery viewed by people insensitive to the realities of the rural and urban poor. In those days, the deadlines were really terrible. After traveling from one area, there was darkroom work, then after a few days, another scheduled trip. The darkroom was poorly ventilated and hot as hell. The funding for materials was just enough to buy re-packaged 35mm black-and-white cinema film,

which I developed using diluted Dektol (yes, the paper developer). This process produced a contrasty, grainy print. Even if there had been the foresight or consciousness to archive and preserve the negatives, there was no time to do such a task.

FL: Produced under such difficult conditions, how are the photographs and the negatives now?

AM: The negatives' present state - full of dust, scratches and mold. The negatives were stored in shoeboxes, wrapped in acidic bond paper or newsprint, or sandwiched in magazines and telephone directories. These were exposed to dust and humidity, which was conducive to the growth of mildew and fungus. An army of black ants leased one box. Some of the series' negatives and slides were also lost, due to borrowing or mishandling by the agency that funded the project. Most of my negatives taken during my travels and assignments to various places of the Philippines also suffered the same fate.

To restore these negatives in the traditional archival method would have taken more than my lifetime. Twenty years later, digital technology provided a solution to my dilemma. I started scanning on an "as opportunity allows it" basis, and stored these on CD-ROMs. Of my negatives (which comprise 20 years of photography), I have scanned around 100, which belong to the "worst condition" category (i.e. those that amateur photographers would have thrown away without batting an eyelash). But I was scanning for content, since these were documents of an era.

I am 52, and showing signs of hardware failure and bad memory cluster errors. I may need another lifetime just to work on the 99.9% of my negatives if I were to do it alone. And still I will not be able to finish, because I will be producing more documents than what is there. But I need to work and feed my family. Is there an archive out there who will undertake the scanning of my negatives, so that others can join in the digital soiree of creating art beyond documents?

FL: Is there any particular photograph you consider most important in your collection? How do you go about using these photographs to create "Latay"?

AM: The Samar, Mountain Province and Mindanao are the most important (and personally meaningful) in my collection. These are mostly documents of the peoples' situation in a particular time of the Marcos' martial law regime. Conceptually, the photos are simply documentation - the objective was to photograph situations and events and to use these [photos] to produce issue-oriented sound slides. But some photos stand out in terms of capturing the emotions of the moment or as visual symbols representing certain issues or effects of the era's socio-economic-political policies. One example is the Polomolok series, where pineapple plantation workers were being interviewed about their plight or situation. The subjects overcame the presence of the photographer as they narrated their experiences. I am at a loss during those moments because of the language gap. It was only after the interview that they (the interviewers) translated what was being said and days later in the darkroom that I got the full impact of the moment.

Visually, some photos can stand alone, like the [one of the] farmer with a torn shirt. But still there is need for words to explain what was happening at the moment the picture was taken. The gap from the subject's moment to the audience is even wider. Digital manipulation bridges this gap or need - it can make the

artist (and audience) go beyond the document's moment to a deeper dimension of interaction. To purists and traditionalists, this can be outrageous. They simply label the photos as inadequate or attack the medium's capacity to manipulate.

The "Latay" series was initially conceived to illustrate the myriad uses of digital technology as an archival and artist's tool. The slot that follows me was on digital photography, while mine went from analog to digital. But then, as I was cleaning and manipulating the photo, several insights manifested probabilities. Can this photo stand alone without the need of words? What lies beyond a document? Can this photo present the subject's plight and issues during the shutter moment and beyond? Can it show their hopes and dreams (as well as mine)?

Photo manipulation tools were sufficient. Overlays became welts. Welts are products of healed wounds. But what of internal wounds that cannot yet heal due to lack of nurturing elements or forces? In some cases, what resulted were not welts but tattoos. But hey, tattoos were also welts except that these were deliberately induced to project identity and (false?) hopes. The muscular farmer's body and tattered shirt presented a consistent symbol of an oppressed class and its struggle. I have to keep the composition simple because my main message for the exercise was (initially) the medium - so I observed the IT worker's rule: Keep It Simple, Stupid (KISS). I had to be-head the image - another symbolic element, or was it simply artistic license? The result was [that] more than a hundred variant frames were shelved due to lack of time. I also made some GIF animation of the series but I was not satisfied with the result. I had to KISS so there went the Flash animation - Ha!

FL: Guns and pigs appear in your "Latay" series. I get the message that guns and pigs figure in the internal and external wounds of the people represented in your photographs - from 20 years back till now. What has changed over 20 years? And what do people, art critics and galleries keep missing in your work?

AM: After 20 years I haven't returned to most of the places I have visited but the issues remain the same and, in some cases, like Samar, the situation has become worse. Of course there are positive developments in certain areas where the people themselves have taken certain steps to change their situation or to counter governmental and corporate policies. Questions like "Who benefits from the development programs being planned or implemented?" still remain.

For art critics and galleries, my works simply are not the saleable escapist art that they patronize or promote. Most of my themes antagonize their patrons for obvious reasons - they are part of the cultural apparatus that perpetuate the class disparities and oppression. One may say that I have a niche market and that the art business gallery is not the marketplace for my work. The Internet provided the logical alternative venue.

Born in 1949, Al Manrique <alman@csi.com.ph> trained as an architect at the University of St. Tomas in Manila, and worked as a printmaker, photographer, health worker, painter and advocate. With over 30 years of active and cross-disciplinary involvement in the fields of art, education, architecture, systems design and administration and business management, Manrique is both a pillar and pioneer in Philippine digital art. He has served as Director of Cyberspace, Inc., an internet service provider, MIS and System

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