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< 2002 - LEA' s next lap >  
by Nisar Keshvani, <lea@mitpress.mit.edu>

This comes to you from a tourist bus heading to Singapore from Malaysia' s Genting Highlands (pilgrimage ground for casino high-rollers). I' m surrounded by folk who firmly believe in figures and numbers. To them any sign could mean a field day at

the stakes.

According to Chinese belief, the figure 2002 is 'shuan shuan dui dui' or in English - 'correct double pair'. For them, the digit two and it appearing twice in our reversible year, 2002, is an auspicious sign for union. So matrimony queues in Asia seem to stretch for miles now.

At LEA, we aren't gamblers but auspicious signs can't hurt :)

With this issue, we announce the Leonardo Electronic Almanac's (LEA) alliance with fAf. Both publications have a rich history, and were linked since its earliest days. Last month, Leonardo Executive Editor Roger Malina reminisced Leonardo's early experiments on the Web, and how Leonardo's electronic news outlets have evolved over the years.

I came into the fAf picture in 1998, and have seen it grow very quickly in four years. From here I take on the LEA hotseat and am delighted the fAf-LEA paths converge exactly ten years after.

We intend to hold true to Leonardo founder Frank Malina's vision to aid the cause of artists, scientists and technologists and the LEA advisory panel; Roy Ascott, Michael Naimark, Craig Harris, Paul Brown, Julianne Pierce and Seah Hock Soon will guide us.

From here, LEA concentrates on original peer reviewed content while fAf will focus on news and be ASTN & Leonardo's news outlet.

We also introduce a new LEA to suit the times. Much effort went into redesigning our site architecture & look by web developer, Andre Ho. From here, we launch a new model. All LEA subscribers will continue receiving the LEA digest via email.

The edition will continue to be uploaded online, and it will be free access. Our editions will move to our archives section which will be known as LOLA. Only LEA subscribers can access the password protected sections and via Catchword to online issues of the Leonardo journals. LEA subscribers will continue to be listed in Leonardo's members list. (You'll receive an email with details shortly)

We welcome international fAf-LEA corresponding editors; Ricardo Dal Farra, Young Hae-Chang, Fatima Lasay, Jose-Carlos Mariategui, Marcus Neusetter, Fion Ng and Marc Voge who will feed us latest information from their unique geographic locations improving our coverage from the world over.

Through this alliance we aim to balance news and critical content via the fAf-LEA publishing channels. We are on the lookout for writers, artists, and curators to publish essays, reviews, and commission online exhibitions. If you have ideas, please do email [lea@mitpress.mit.edu](mailto:lea@mitpress.mit.edu) We'd be happy to hear from you.

We aspire to build east-west bridges exposing upcoming communities to the established and enhancing opportunities for exposure through the Leonardo - fAf networks and resources.

Our mission for the Art, Science and Technology Network from here, is to build a resource for global art, science & technology organisations and to become the first stop for newcomers to this field.

Here's to this new 'auspicious' alliance, and to better things yet.



< The Electronic Space >  
by Axel Wirths, <project@235media.com>

No new artistic development or medium of expression should be seen in isolation. Each new form builds on the past and is connected to it by a host of different reference points. It complements and extends what has gone before, without making past forms redundant. Video art, and the resultant media art development per se, is a multi-faceted area which is undergoing extremely rapid development. It is also undergoing the same level of debate about content as other more traditional artistic forms of expression, and some key parallel themes are emerging. One of the pivotal issues of artistic debate in recent years has been the treatment and definition of space, with all its formal, social and urbane components.

Being able to communicate in a digital way using multi media functions across large distances amounts to a communicative meta-tool. Existing electronic art forms like video art, computer music, computer animation etc. can now be connected to one another, transmitted and presented by means of the new technology network. At the same time, this new electronic network gives rise to countless new creative and artistic opportunities. Nowhere is this more obvious than on the Internet where artistic development is growing at an incredible rate. This is probably the largest global sphere of activity currently available for creative and artistic projects and applications.

Digital networking itself as well as complex interactive installations are constituting a new medium in all its complexity and they are capable of integrating many other media. Like every other existing media form of expression, they are subject to the laws of structural development. That was the case with cinematography, which had to develop its own film language, and it was the same for the history of photography and the 30 year development of video art.

On the other hand, the ways in which complex electronic communication can be received are only partially understood. In practice there are no presentation and layout formulas tailored to people's needs which give interested viewers with different visual and technological experiences the same level of access. The fact that the electronic industry has had considerable difficulty marketing its new technology underlines the discrepancy between technical development on the one hand and consumer acceptance on the other. That is why the inherent quality and aesthetics of new electronic media need to be demonstrated by using examples which point to a new quality of life and which are referring to our cultural background. Interfaces tailored to people's needs and receptive capability are central to this process. The perfect interface in this context is a fluid transition from the real space to the

constructed media reality, which could also be described as the electronic space.

One of the effects of electronic media on the concept of reality is that it has opened up and vastly extended human understanding of the concept of space. A multiplicity of electronic communication systems has overstepped all individual and collective boundaries and we live today with an altered perception of media realities. The basic question Ð whether virtual space really exists along with real space, or in fact should be allowed to exist at all, is obsolete and strongly reminiscent of the discussions held during the 70s about whether computers should be used or not.

When historian Fernand Braudel was asked in 1986 why he associated the beginning of France as a nation with the introduction of the railway network, rather than with Joan of Arc, he replied that he saw no evidence of an nation before this point. It was not until trains shortened the distances within France at a rapid pace and thereby condensed the space. (1)

Media art is an open system, integrating current social, scientific and economic elements, which attempts to put human consciousness in touch with complex electronic information. In this way, science and art form a kind of joint search party on the lookout for the culture of tomorrow. They have to do so with a constant critical attitude to new technology and in search of the aesthetic within communication systems. Or in other words: the technology is not the message.

In among the turmoil of all these changes, it is not a matter of whether art has a place in the telematic world, but rather whether art can be the vehicle for bringing us to new concepts of individual identity, new levels of consciousness and a new understanding of community. It seems the jury is still out over whether (to use McLuhan's words) new interactive digital media are hot or cold Ð whether they create distance or closeness. Advocates of new digital media and networks argue that, in theory, these interactive media are inherently more decentralised and democratic. However there are also indications that the opposite is true. Electronic ghettos of people who all agree with one another and who only communicate among themselves.

Studies of the behaviour of typical art gallery visitors reveal that the average length of time spent in front of any one painting is about 8 seconds. This is due in large part to our becoming increasingly programmed to process image/sound components in rapid succession. The iconography of a Renaissance painting and the cultural depths hidden within it do not stand a chance of being absorbed by the visitor under these circumstances. But what happens in the case of digital art works, which require just as much time and critical reflection. Do we have the time and leisure to engage in the kind of intense reflection that the work or project deserves? The chances of interactive and digital art on the net receiving the attention they demand, depend on their making an immediate impression on a whole host of different senses, so that the person is sufficiently captured on as many levels as possible. This spatial and sensory capture must take place by means of interfaces which equate to their natural perception of the real world. On the other hand: as soon as the visitor or user is engaged with the work he longs for content.

Florian R tzer's words, which appear on the wall of the media art

gallery in ZKM in Karlsruhe, express this very appropriately: "Whereas the Renaissance was concerned with uncovering and presenting hitherto unknown realities, as well as proving that natural skills and technical construction can be optimised by using mathematical methods, the paradigm of how to present reality today has now been overtaken by the question of how to produce reality."

Interactive sensory perception of electronic art in many ways reflects the way in which people go about their lives. Instead of watching and judging from a safe distance, it allows me to become directly involved and monitor the force of my own actions. Unlike normal art galleries, where touching anything is strictly forbidden, a visitor interacting with a digital work can be literally in touch with it and potentially examine and change not only the surface but also the inside, outside, front and back of an object. In his book on the subject of space, Franz Xaver Baier remarks: "As sensory constructions have a life of their own, we are learning that wherever open processes are achieved they have the effect of generating a sense of reality." (2)

Extensive research projects like the joint programme of the Institute of Visual Media in Karlsruhe and the GMD in St. Augustine and some other European universities and "shared virtual environment, or the haptical interface solutions of Hiroshi Ishii at the MIT in Boston, lead one to believe that in future we can expect to move further and further away from purely visual experience, to whole body experiences, beginning with hearing and touching and eventually incorporating all senses.

As an optimist, one could claim that this different form of sensory perception provides a new quality dimension. Tele-vision, tele-hearing, tele-feeling, tele-roboting, and tele-presence with all its potential perceptual systems, represents a different quality of experience than that which up until now could be experienced in the so-called the real world. The value we place on this experience will depend largely on those involved in creating and transmitting it.

A number of people who experienced Paul Sermon's 1993 installation, Telematic Dreaming, where people connected on-line were able to go to bed with their real, long-distance counterparts, reported a stirring of those very senses. And not only protectionists like Roy Ascott from the University of Wales, or the artist Myron Krueger mention this heightened sensory awareness. . Franz Xaver Baier has this to say about it: as Michel Foucault rightly suggests, phenomenology experts have taught us "that we do not live in a homogeneous and empty space, but in a space which is charged with qualities, a realm that may also be inhabited by phantasms. The realm of our initial awareness, the realm of dreams, the realm of our passions & they all possess inner qualities, as it were." (3)

So we are faced with two options, of treating electronic media as a prostheses of our selves, as Paul Virilio pessimistically refers to it, or taking the more positive standpoint of McLuhan that they represent extensions of our central nervous system and also an extension of our senses and our being. However, one thing is clear, and that is that our sphere of activity has become extended far beyond the limits of our bodies, which means that any standpoint we can adopt has been transcended into points of being.

If I am able to immerse myself in the electronic world with my

whole being, the question of aesthetic surroundings and an aesthetic relationship to these surroundings does arise. Do I generate these surroundings within the electronic realm, or create them in real space, or better still create both realms in such a way that they are connected, through an adequate interface.

As part of a conference with the meaningful title "Art and Consciousness in the Post-biological Era" Roy Ascott from the University of Wales wrote: "All our instincts now are towards the construction of new realities rather than the representation, reiteration, interpretation or expression of world views which have been laid upon us.... Where philosophers see a radical constructivism, we artists see a radical connectivism.... Where the ancients were nomadic, we are restlessly telemadic, our minds traversing the part interspaces of the worldwide networks, of technology and consciousness." (4)

Interactive installations and virtual spaces that are networked to form an installation, are multi-layered and rich in associations. And a model of complex dimensions cries out for an equally complex interface. Or in other words: how can I deal with so much information in such a small real space? Hiroshi Ishii from the MIT in Boston, compared the boundary between the real and electronic space with the extremely energy-rich boundaries between the sea and the dry land, between the mountains and the sky. He describes as the basis of his interface research: "all boundaries are energy-rich environments with interchanging bits and atoms..... the boundaries between the physical world and cyberspace give rise to multiple sensory impressions and represent a multi-modus for human interaction. (5)

The physical and psychological dimension which digital technology has opened up to us has only been partly researched and demonstrated by a mere handful of examples. However it is significant that it is the artists who are leading the way in this high-tech area and producing the definitive ideas. We can only prevent the raging standstill prophesied by Paul Virilio, turn it around and take a positive step forward, if we link real space with electronic space in such a way that the specific qualities of both dimensions are harnessed in accordance with human physiology and psyche and culture.

Footnotes:

- (1) Franz Xaver Baier: Der Raum, Kšln 1996, p.25
- (2) Franz Xaver Baier: Der Raum, Kšln 1996, p.24
- (3) Franz Xaver Baier: Der Raum, Kšln 1996, p.30
- (4) Roy Ascott: Consciousness Reframed, p.10
- (5) Hiroshi Ishii: Lecture at the Symposium: Fleshfactor, Ars Electronica 1997

Born in 1960, Axel Wirths is founder and director of 235 MEDIA in Cologne (international agency for media art). Since 1985 he curates and organises exhibitions and festivals in the field of electronic media and media art. Additionally he publishes numerous articles in magazines and books and holds several lectures in Germany and abroad. He is co-founder of the first "Mobile Electronic Caf" (documenta 8, Biennale Venedig) and initiates the TV Serie "Donnerstag", for which he receives the Adolf Grimme Award in 1991. From 1993 to 1999 he is curator for Media Arts at the Art and Exhibition Hall of the Federal Republic of Germany in Bonn. As media-consultant he works for the theme park of the EXPO 2000 in Hannover. In May 2000 he realises as

artistic director the major media art exhibition vision.ruhr in Dortmund.

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LEONARDO JOURNAL
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< Leonardo Music Journal, Volume 11, 2001 >

LEONARDO MUSIC JOURNAL

The LMJ series is devoted to aesthetic and technical issues in contemporary music and sonic arts. Currently under the editorship of Nicolas Collins, each thematic issue features artists/writers from around the world, representing a wide range of stylistic viewpoints, and includes an audio CD or CD-ROM. LMJ is available by subscription from the MIT Press. Visit <<http://mitpress.mit.edu>>.

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VOLUME 11: Not Necessarily "English Music": Britain's Second "Golden Age"

After the first installment of Cool Britannia beguiled the 1960s with its peculiar conflation of Pop, Art, Fashion and Politics, musical experimentation flourished in the U.K. Styles of improvisation, minimalism, electronic music, performance art, political music and "amateur" music grew out of British art schools, universities and urban villages; styles neither as self-important as those of Europe nor as blithely technocratic as those of North America Ñ a peculiarly "English Music" (and Scottish and Welsh). Some practitioners became well-known and influential artists outside of the U.K. (Cornelius Cardew, Michael Nyman, Derek Bailey), while others have remained far too unrecognized abroad.

This volume of Leonardo Music Journal highlights observers and participants who have contributed their accounts of this latest "Golden Age" of British Music. It is accompanied by a double CD of 27 pioneering U.K. works, covering the period between 1960 and 1977.

Leonardo Music Journal Vol. 11, including the double CD, is available from the MIT Press for \$30. To order, send e-mail to <[journals-orders@mit.edu](mailto:journals-orders@mit.edu)>.

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LMJ 11 DOUBLE COMPACT DISC

LMJ 11 includes the double audio CD, Not Necessarily "English Music," curated by musician, composer, writer and sound curator David Toop. The two CDs feature pieces from pioneering U.K. composers and performers from the late 1960s through the mid-1970s: AMM; Max Eastley; Intermodulation; Frank Perry; Michael Parsons and Howard Skempton; Daphne Oram; abAna; Hugh Davies; Robert Worby; Lol Coxhill and Steve Miller; Spontaneous Music Orchestra; The People Band; Evan Parker and Paul Lytton; John Stevens; Steve Beresford; Cornelius Cardew and Jane Manning; Ron Geesin; Gentle Fire; Rain in the Face; Ranulph Glanville; The Campiello Band; Mike Cooper; A Touch of the Sun; The Scratch

Orchestra; and Frank Perry, Mongezi Feza and Chris McGregor.

The double CD (without the journal) is available for \$27 from the Electronic Music Foundation's CDeMusic. The full journal with double CD can also be ordered through CDeMusic. Visit [http://www.cdemusic.org/store/cde\\_search.cfm?keywords=em136](http://www.cdemusic.org/store/cde_search.cfm?keywords=em136).

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The Introduction to this issue and to the CD Companion section are available on-line, along with Abstracts of the articles. Visit <<http://www.leonardo.info/lmj>>

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LEONARDO DIGITAL REVIEWS 2002.01
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Introduction, by Michael Punt

This month we introduce a new category in Leonardo Digital reviews called "review articles." The existing categories of books, CDs, films, events and websites will appear as usual, but some links will go directly to a longer article by one of the members of the review panel. This represents a move that we have long anticipated in Leonardo Digital Reviews, towards material that both synthesizes and analyzes the interventions in our field. We are naturally looking at existing review literature such as TLS, NYRB and LRB for the intellectual format, but we want to focus on a much more specific agenda. Single-item reviews will continue as before and these are intended to be reactive, informative and analytical as far as possible within the terms laid down by the author or artist. Of course, our single-item reviews often comment on the relative merits of the assumptions that are behind the work, but this is largely secondary to situating the material within an existing body of practice or a bibliography. A review article for Leonardo Digital Reviews, on the other hand, will be one that normally deals with two or more items. Using these as the primary data source will show the significance (or otherwise) of the material to the reviewer's own intellectual position and research interests relative to the Leonardo project.

One of the purposes of introducing this category is that, in the past year or so, many reviewers have wanted to write substantial articles and make immediate position statements that have been triggered by a publication or event. However I felt that this was not what our readers would expect, especially as our primary conduit of distribution is electronic and anything above three screens is thought to be problematic for a magazine format. Most of the review articles will be less than 2,000 words, but considerably longer than the usual 500-700 that we are accustomed to. Perhaps now is the moment to test this folk wisdom of interface design, especially since space restrictions in Leonardo will mean that these articles may not appear in print in full. This should provide a strong incentive to engage with them onscreen, in their complete and immediate form.

This month's reviews are available at our website (<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>), as usual, together with a number of review articles. I do hope that this change meets your needs and will contribute to the intellectual development of the Leonardo community. As an introduction to this, we publish below a report by one of our regular contributors, Wilfred Niels Arnold, on the recent intervention into the debates about instrumentation in Western art by David Hockney. Hockney's thesis is timely and seems to have excited a broad interest, creating a chasm of opinion that is in itself

refreshing at a moment when attention to the history of art has not been not especially popular; it is fortunate that Leonardo Digital Reviews is able to respond to it with such rapidity.

Michael Punt  
Editor in Chief  
Leonardo Digital Reviews  
<http://mitpress.mit.edu/e-journals/Leonardo/ldr.html>  
January 2002

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< Conference Report >

Art and Optics: Toward an Evaluation of David Hockney's New Theories Regarding Opticality in Western Painting of the Past 600 Years

The New York Institute for the Humanities, New York University, New York; 1-2 December, 2001

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

David Hockney, one of the most accomplished of contemporary artists, is in a new limelight because of a recent scholarly pronouncement: Hockney is convinced that many of the old masters, starting as early as the fifteenth century, employed optical devices such as lenses, mirrors, cameras obscura and cameras lucida for mechanical assistance in outlining subjects directly onto paper, canvas or wood panel. The nature of this process would anticipate a confident line as well as an accurate perspective within the range of the instrument. The artist might make several drawings (for example, a separate one for each figure in an ensemble), arrange them into the desired composition and then complete the painting by applying pigments. The alternative process, in a view cherished by most historians and curators, posits that the successful artist would "eye-ball" the subject and, with wonderful coordination of hand and eye, construct an outline drawing. After long years of apprenticeship in a workshop, the emerging master was supposed to render these sketches with increasing dexterity and speed. For architectural settings and highly patterned segments (tiled floors, checkered tablecloths, leaded windows, ceiling joists), the painter might follow the rules of one-point perspective formulated by Brunelleschi (1377-1446) and begin by laying down geometric guidelines on the drawing surface with a pencil and ruler. An equally laborious method, the use of viewing grids and proportional graph paper, as illustrated by Dürer (1471-1528), would also be "acceptable" to their modern admirers.

Commentators of this persuasion find no support for optical projection and they assert that "tracing" by an old master would be unthinkable; suggestions of "cheating" have been overheard in museum halls. In contradistinction, Hockney believes that any artist who had seen the projected image and possessed the means would have embraced the optical projection technique because it provided a new and exciting two-dimensional view, and was less arduous to use than mathematical and drafting devices. He also sees a connection from the camera obscura of van Eyck (1370-1426) all the way to the Kodak slide projector of Andy Warhol (1928-1987).

This is the substance of Hockney's recent lectures, interviews and a book, "Secret Knowledge: Rediscovering the Lost Techniques of the Old Masters" (October 2001, Viking Press). Several of his colleagues have assisted, most notably Dr. Charles Falco, a

physics professor at the University of Arizona, who brought scientific expertise to the project and also provided the resources for understanding the working hypothesis by a wider audience. In this context, I would add the masterful book by Philip Steadman, "Vermeer's Camera: Uncovering the Truth behind the Masterpieces" (Oxford University Press, 2001 - see my review in the June 2001 Leonardo Digital Reviews). By exploiting the great precision of Vermeer (1632-1675), Steadman was able to reconstruct the architecture of the subject room and to measure absolute sizes from extant museum pieces of furniture, maps and other pictures that the artist incorporated into his domestic scenes. The geometric evaluations indicate that Vermeer worked optically rather than through the painstaking mathematical methods of perspective.

Awareness and anticipation about the Hockney and Falco endeavor had been intensifying ever since Lawrence Weschler's long article in the New Yorker (January 2000, pp. 64-75), "Onward and Upward with the Arts: The Looking Glass," which spawned further media attention. With admirable timing and aplomb, Mr. Weschler then organized the Art and Optics Conference, sponsored in part by the Sloan and Norton Family Foundations, at the Tischman Auditorium of New York University Law School. The conference was open to the public and free, on a first-come, first-served basis, starting at 9:00 am on Saturday, 1 December. I was fortunate to arrive just in time, thanks to Michael Henschman and his colleagues from Brandeis University, and we were all amazed at the long line of attendees that subsequently grew down the hall, out the front door, and even along the sidewalk. Some of the overflow crowds were accommodated in the neighboring Greenberg Lounge with television coverage piped live. Estimates circulated of over 2,000 people. The enthusiasm was unabated on Sunday morning and those of us who had secured reservations from the previous day trotted in under fierce looks from the long queue.

The conference was organized into seven sessions and designed to bring Hockney, Falco and their principal supporters (including Steadman, John Spike, Chuck Close and Martin Kemp) into the same auditorium with oppositional art and science historians (including Keith Christensen, Walter Liedtke, Svetlana Alpers and David Stork) for a full public airing of their disparate views. There were an additional 20 invited presenters, the majority of whom were both instructive and entertaining. However, they ranged from a delightful contemporary practitioner of camera obscura techniques, Abelardo Morell, through fence-straddlers and egocentrics, to those who addressed subjects quite outside Hockney's working hypothesis. More than one speaker tried to gain notoriety by declaring that we were addressing the wrong subject, but they were felled by silence. Small enclaves within the multitude clapped when they thought that points were made on their side. After each session, several questions were taken from the floor on aisle microphones, but many of these struck me as exercises in building self-confidence by young local artists and historians. A few of the mature artists on the panels were better at responding to questions than offering a prepared speech.

It was quite an event, with the most instructive responses coming from Hockney and Falco. The opening session was introduced by Weschler, who had recently suffered a torn ligament and now used his single aluminum crutch to visual effect in calling the audience to order. The first item on the agenda was the American premiere screening of a BBC documentary on Hockney's thesis, which was listed as 75 minutes, but was so good that it seemed much shorter. Hockney had obviously worked hard on it - the

cinematography was exquisite, the sets were beautiful and a few well-chosen "experiments" set the stage. Brief talks by Falco and Hockney followed the screening, with succeeding sessions entitled General Perspectives, Scientific Vantages, Experts on Individual Artists, Artists' Responses and Wider Perspectives.

The tide of battle went back and forth and it was announced that developments and their aftermath would appear on the conference's website, [www.Artrkrush.com](http://www.Artrkrush.com). Hopefully, transcripts of the proceedings will also be available - this is all the more important given the ample but deficient coverage of the conference in the popular media. A case in point is the New York Times story, "Paintings too Perfect? The Great Optics Debate" (4 December, 2001). Therein, Sarah Boxer highlights objections from invited participants to Hockney's working hypothesis (although she calls it a theory), but fails to report on clarifications and refutations to the criticisms. Just as too many art historians lack even the introductory elements of physics and the scientific method required to comprehend such evidence, so journalists have a difficult time reporting what happened at this conference because they are unable or unwilling to do the work of learning and evaluation.

David Stork noted that the camera obscura demonstration across the hall revealed a nice image, but worried about the intensity of the theatrical lights used to illuminate the bowl of fruit. With sarcasm and derision, he projected on the auditorium screen a cartoon slide with hundreds of candles, remarked on the fire hazard, and asked where Vermeer got his light in seventeenth century Delft. "The sun!" said Hockney, and indeed one of the first things Hockney had brought up at the opening was "sun in the face" and the wonderful shadows. Stork also tried to rubbish the concave mirror lens hypothesis by postulating that a huge and improbable glass bubble would have been needed in order to manufacture the correct curvature and overall size required for the whole painting. From the aisle microphone, Falco gently reminded him that much smaller optical devices could be used to create multiple drawings, which he and others had been at pains to explain earlier.

Along these lines, I feel that one of the most compelling pieces of supporting evidence for Hockney's hypothesis comes from pictures in which the foreground and background are in focus but the middle ground is fuzzy, implying that a lens system was moved in a two-stage process. Walter Liedtke announced that the ceiling joists in Vermeer's paintings were running in the wrong direction, counter to Delft houses of that era. He thereby threw himself on the sword of Philip Steadman, who has an architectural colleague in Holland busily assembling data that support the realism of Vermeer, and who actually lives in such a house of that vintage. Sidney Perkowitz, a physics professor at Emory University, presented a very good primer on optics, but again many in the audience were reluctant to get started. Christopher Tyler, a neuroscientist from San Francisco, gave a reasoned and balanced presentation on perspective, but the paintings on which he has worked and now reported were not among Hockney's examples. Ellen Winner, a developmental psychologist from Boston College, showed us some drawings of horses in motion by an autistic child - interesting, but any connection with the theme escaped me. Linda Nochlin spent all of her ten minutes showing two slides of herself in a wedding dress - a photograph and then a commissioned painting by Philip Pearlstein. An assistant was instructed to bring the dress on stage and Nochlin declared that this was "scientific evidence." The next day, Pearlstein himself appeared

on another panel, supposedly selected as a figurative painter who eyeballs his subjects and hates to be associated with photorealism. This tandem exercise was belabored by the wedding dress picture appearing for yet a third time. Nica Gutman, a conservator of paintings from the Philadelphia Museum of Art made an important contribution, reminding us that Thomas Eakins (1844-1916) relied heavily on chemically fixed camera images and slide projections onto his canvases for tracing but he (along with his widow) did his best to deny using the technique. This speaks against the criticism espoused by some historians about Vermeer's methods, i.e. based solely on the lack of written documentation. In this vein, John Spike referred to a contemporary description of the studio of Caravaggio (1569-1609), which includes description of an item resembling a camera obscura but is rarely commented upon in later literature.

Closing remarks by Falco and Hockney expressed their appreciation of the event and all the views presented. Last words by Lawrence Weschler echoed the audience's delight with the experience. He declined, however, to follow through on his metaphorical promise to the media of either burning Hockney at the stake or declaring him pope. "Rather," he shouted, "I'm cured," and forthwith threw his crutch off the stage.

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< The Transdisciplinary Wunderkammer >  
by Michael Punt <mpunt@easynet.co.uk>.

Books: Visual Analogy: Consciousness as the Art of Connecting

by Barbara Maria Stafford, The MIT Press, 219 pp., \$29.50, cloth, ISBN:0-262-19421X.

Devices of Wonder: From the World in a Box to Images on a Screen

By Barbara Maria Stafford and Frances Terpak, Getty Trust Publications, Los Angeles, CA, U.S.A., 2001. 416 pp., illus. Paper. ISBN: 0-89236-590-0.

Exhibition: Devices of Wonder; Getty Research Institute, Los Angeles, 13 November, 2001 - 3 February, 2002

Lecture: Intensified Reality: Visual Devices and the Remaking of Worlds

Barbara Maria Stafford, 15 November 2001

Web site: [www.Getty.edu/exhibitions/devices](http://www.Getty.edu/exhibitions/devices)

Perhaps the most liberating intellectual movement of the last few decades has been "New Historicism." Paradoxically not a movement at all (according to Catherine Gallagher and Stephen Greenblatt, authors of "Practicing New Historicism," Chicago, 2000), the "new" historians of this informal, transdisciplinary coalition have (re)organized empirical evidence, fretted over their own histories and doubted their own conclusions to show us that the very substance of historical study is as unstable as a wave (or a particle) of light. They have inspired a generation and as a consequence, if nothing else, we are no longer constrained in our understanding of the past by the totalizing monorealisms of technological progress, modernization or mimesis (to name but three). Revisionism in the examination of science, technology and the arts has offered convincing ways to account for the present,

as it has also revealed the skewed evidence and occult agendas of Whig histories. While many emerging fields of study have benefited greatly from this approach, the more established disciplines appear to have been thrown off course. Art history, perhaps more than biography, archaeology or political history, has suffered the most, moving from the center stage of culture to become an option in cultural studies and, as a final indignity, subsumed into the catch-all of (an unreconstructed) visual culture.

To be sure, Art History (with capitals) asserted its authority in education and academia with restraint and dignity but sadly, as it left the academy, often purveyed bad history when in the public eye. History was a relay race from the caves of Lascaux, in which the current holder of the baton was the historian's favorite. The very heterogeneity of art practice since the thirteenth century, the compelling ruptures and discontinuities, were often sewn together with dubious thread that linked the past to the present with a single imperative. As a consequence of substantial criticism of its methods and assumptions, art history as a popular publishing and television topic appears to have lost its way in indirect proportion to the assurance of, for example, film history, which daily extends its intellectual constituency as it excites curiosity. The losers in this decline are not just the ranks of superannuated academics (for whom few may be willing to shed tears) but, in the atrophying process, art itself has been sidelined as a significant and meaningful determinant of the present and has been replaced by the vacuous and the technophilic Emperor's shell-suit of postmodernism.

It is in this breach that Barbara Maria Stafford's interventions over the past decade can be best understood. Unable to subscribe to unsustainable explanations of continuity in art practice over the past seven centuries, and unwilling to resort wholesale to French theory of the 1980s, Stafford has reconciled the heterogeneity of the history of Western art through the concept of visual analogy. As one would expect, Stafford's intellectual method reflects new historicism's preferred understanding of history as the proliferation and nature of connections, as opposed to the chaining of causality from an initial imperative. Rejecting the seductive homologies of structuralism and the reification of productive rupture in Foucault, her book "Visual Analogy: Consciousness and the Art of Connecting" examines "areas of contemporary life that cry out for fine-grained formulations of resemblance and distinction" (p.30). The spaces between differences are the focus, and these are subjected to a teasing analysis not practiced since the rise of the Jena Romantics and the insistence on difference. "Areas of life" to be sure, since Stafford's ambition is not simply to put the study of the history of art back on the rails — that is in the forefront of culture — but to connect it (reconnect it) with the spectrum of preoccupations that any contemporary observer might share with an artwork: hence the subtitle, "Consciousness and the Art of Connecting."

Barbara Maria Stafford's residency at the Getty Research Institute laid the foundations for "Visual Analogy," as well as for a collaboration with Frances Terpak to mount the exhibition "Devices of Wonder" in Los Angeles (also represented on the website). The exhibition is a small collection of the very best examples of the epistemic instruments and technologies that have been used to mediate the world around us. They will be familiar to anyone with an interest in what might be called "media archaeology;" there are no surprises, just the pleasure of the

finest examples. What will be unfamiliar, however, is the cogency of the argument Stafford expresses in the precise selection and organization of the collection in nearly perfect conditions, the transparency of the thesis, relative to the density of the writing in "Visual Analogy," and the enthusiasm of the Los Angeles audience. In short, the big surprise is that artefacts have been returned to the domain of the public eye (and brain) from which they were appropriated for study, not as an expression of the refined and educated taste of the scholars, but as an important burning intuition that has to be shared.

This reciprocity was also the tenor of the lecture Stafford gave at the Getty Research Institute on 15 November, 2001. Alert to the proximity of the events of September 11 and dedicated to the late Ernst Gombrich, Stafford articulated the thesis in a sparkling revision of the history of mirrors, lenses, magic lanterns and optical toys, in which she was determined to uncouple them from the dominant realist teleology. She argued that these and other devices of wonder did not so much enhance reality as interrupt the relationship with the real to produce a knowledge that was better than the normal world. In this model, human perception was not extended by technology but, on the contrary, was the agent through which technology was amplified to expose the enduring reality as a limited construction. Her journey was familiar to readers of her most recent books: a fastidious archaeology of the cultural imaginary revealed the persistence of a desire for bringing the remote down to earth. In particular, she dwelt on the fascinations of what might be called "natural magic," which were combined with the romance of the magic lantern to produce not cinema, as most histories assert, but the confirmation that reality had long had a competitor. They were what might be called "polyopticals," which were both extensions of and stand-ins for technology. The magic lanterns (and the host of affiliated apparatus) was not to be consigned to the pre-history of cinema as failed attempts to make moving pictures, but to be regarded as machines in their own right that spoke of the uncanny, the remote and the other-worldly.

For Stafford, the significance of uncoupling cinema from these devices is that it opens the way to an analogous understanding of how biology has seeped into cybernetics - how to explain, for example, that the impact of computer science on philosophy has not been towards the machinic but quite the reverse. By returning to wunderkammer, the diminutive "cabinet of curiosities" that greets the visitor to the exhibition, Stafford suggested that the object shared with some instruments the particular intensity of reading as the rush of space and time is temporarily halted in the bonding of human consciousness with the apparatus. The objects in the cabinet and the images produced by the "devices of wonder" existed as specific unconnected moments that ruptured the flow of everyday reality.

As such, shadows and shadow plays were not mere yearnings for the true representation of movement, but also functioned as portals to other realities, trapping figures in a dark and distorted world with sufficient resemblance only to insist upon its otherness. Similarly, projecting mirrors, often used by artists after the sixteenth century (not as early as David Hockney argues), were also to be regarded as "phantom ware" more accurately understood as a critique of the rationalism of the Enlightenment. By detaching the image from the concrete reality, these lenses could contradict the real by restoring the dead. In contradiction to some accounts, Stafford holds that the camera obscura also contested rationalist science in its projection of a condensed

and intensified image of the world in color. It created a moment of perfection that stood in opposition to the regulation of vision. Such distortions of conventional representation were also to be found in what she called the "re-purposing of media" by, for example, carefully and painstakingly shaving the back from etchings and pricking them so that when they were held up against the light, they could be reversed and animated. Magicians conspired with this effect as they used anamorphic devices in a reversal of this process, collapsing the biological with the geological and thereby recovering from the stratified images the representation of the human. What these distinct forms shared was a particular resistance to the idea of linear development and the effect of focusing on analogy was to see these devices as blurring the boundary between the natural and the spiritual. In this context, Stafford argued that the images of 11 September (not the events) were a moment of perfection, in that they were in a similar sense of another reality  $\mathbb{D}$  beyond our current domain  $\mathbb{D}$  analogous to the warping mirrors that reflected the world back not so much as a bizarre and comic version of what was before it but the realities lost to normal vision.

Drawing this thesis into the present, she revisited William Gibson's bleak assertion that "The non-mediated world is one that we cannot get back to." But, she questioned, was there ever a time when reality was not mediated? Perhaps the reverse may be the case, that is, the lust for immediacy insists on mediation since it must confirm the existence of another reality - in this sense nanospace and the newest mediations of human consciousness were merely confirmations of the continuing fascinations with another reality. What such realities offered was not mere escape, however, but the opportunity to enhance the total person - these technologies were amplified by human consciousness  $\mathbb{D}$  they provided the means by which consciousness was able to change and continue to be changed through the construction of competitors to existing realities.

Stafford and Terpak's book, which accompanies the exhibition "Devices of Wonder: From the World in a Box to Images on a Screen," is an extension of the material and its support and is not as teleological as the title suggests. It is a mixed reality, with Stafford's introductory essays occupying the first third, but dependent upon Terpak's following fastidious and engaging description of the objects (and images) that makes explicit the connections between apparently mutually exclusive technologies of the eye. Carefully illustrated and bound together in an intelligent design concept by Bruce Mau, Chris Rowat and Daiva Villa, the book itself becomes a device of wonder, a wunderkammer that temporarily halts the rush of space and time in a flurry of fascinating and perplexing images and compelling argument.

The "Devices of Wonder" exhibition is an unrecoverable experience, since it finishes on 3 February, 2002. The website will no doubt be active after that but is, of necessity, temporary. What remains, however, are the two books, "Visual Analogy" and "Devices of Wonder." They are important books; together they not only pitch a brilliant and refreshing thesis, but they also throw a lifeline to anyone interested in a beleaguered discipline that is in serious danger of being selectively plundered by whatever totalizing vision of reality becomes the next academic vogue. At stake in this rescue is not the nostalgic recovery of discrete intellectual territories but, more importantly, the future of transdisciplinary research based on resemblance and the discovery of sameness in otherness.



ISAST NEWS

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< Frank J. Malina Symposium at Texas A and M University >

The first Frank J. Malina Symposium will be held at Texas A&M University, College Station, Texas on 22 February, 2002. Frank Malina was the founder of Leonardo in 1967, but also an American rocketry pioneer, the first Director of the NASA Jet Propulsion Laboratory (JPL) and a tireless worker for international collaboration in UNESCO and the International Academy of Astronautics.

This symposium will honor the lifetime artistic and scientific achievements of Dr. Frank Malina. The program will consist of distinguished scientists, engineers, architects and artists, making a series of presentations drawn from the left-brain/right-brain creative spectrum that Dr. Malina's many diverse contributions collectively spanned.

Speakers include: <br>

- Scientist-Artist Dr. Roger Malina<br>
- Artist-Sculpturer Ms. Janet Saad-Cook<br>
- Aesthetic Architect-Artist Dr. Thomas Linehan <br>
- Aerospace Engineer Dr. John Junkins<br>
- Propulsion Expert Dr. Joseph Schetz<br>
- Technical Historian Dr. Benjamin Zibit<br>

The Symposium will also include a tour of the George Bush Presidential Library and a banquet.

Direct inquiries to the Symposium Organizer: <br>

Ms. Lisa Willingham, 1-979 845 3912 (USA), <willingham@tamu.edu> <br>  
Department of Aerospace Engineering, <br>  
Center for Mechanics and Control, <br>  
Texas A&M University, 3141 TAMU, College Station, <br>  
TX 77843-3141, USA<br>

For more information on Frank Malina, see:<br>

<http://www.olats.org/pionniers/malina/malina.shtml>

For more information on Leonardo, see:<br>

<http://mitpress2.mit.edu/Leonardo>

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OBITUARY

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< Gyorgy Kepes >

Gyorgy Kepes founded MIT's Center for Advanced Visual Studies to break down the barriers between art and technology, but the internationally known painter, sculptor and photographer never learned to drive a car or even ride a bicycle, and his Wellfleet summer home did not have running water. Nevertheless, Kepes was "always interested in finding the connection between science and art," said his son, Imre of Pelham. "He probably felt there was no separation."

Mr. Kepes, who died 29 December in Cambridge, MA, at age 95, lamented that many people fail to see the connections among diverse disciplines. The result, he said, is a feeling of isolation and rootlessness in a cold, contemporary world. "Essentially what I feel is that the public - artist and scientist, too - have lost the ability to communicate with each other," he said in an interview in 1965. "What I'm interested in is how we re-establish communication of ideas."

He spent much of his career at the Massachusetts Institute of Technology, where he was a professor of visual design from 1946 until retiring in 1974. He founded the Center for Advanced Visual Studies in 1964 and was its head until 1974. The Hungarian native was often described as a "renaissance man." He was the author of "Language of Vision" and "The New Landscape," and was widely known for his abstract paintings. His work was shown in one-man exhibits around the world. He produced symphonies of color and mood in his paintings, which were often sand-textured (he painted many of them in Wellfleet). Kepes' son and daughter say he was fascinated by the geometry and symmetry in nature.

Kepes was born in Selyp, Hungary, in 1906. After graduating from the Royal Academy of Fine Arts in Budapest, he joined the Germany studio of Laszlo Moholy-Nagy, a famous Hungarian artist who experimented with many materials. Kepes met his wife, the late artist Juliet Appleby Kepes, on a London street in 1936. In a Globe interview in 1989, Kepes said that on the autumn day they met he was a "restless" soul who had wandered the capitals of Europe.

He spied 17-year-old Juliet walking with her mother up and down Shaftesbury Avenue, looking for the studio of a photographer who was supposed to take Juliet's picture. Kepes was smitten. "My life is saved," he recalled thinking. They began meeting and fell in love, and when Kepes got an offer to teach at the Chicago Institute of Design in 1937, he asked her to go with him. At MIT, the shy, soft-spoken Kepes discovered that "scientists have a clearer and richer horizon than most artists have."

"So I started a series of seminars to find meeting areas for scientists and artists in understanding the world," he recalled. The Center for Advanced Visual Studies, which he described as his "dream project," was born. Asked why Kepes, a man who spent much of his life trying to bring artists and scientists together, rejected some popular technological inventions, his daughter, Juliet Stone, said he was "a man of many contradictions." Stone recalled that the family did not even have a television - "He felt strongly we should use our imaginations and read and draw," said Stone, of Watertown. In addition to his son and daughter, Mr. Kepes leaves six grandchildren and a great-grandchild.

By Edgar J. Driscoll Jr., Boston Globe Correspondent and Scott S. Greenberger Boston Globe Staff, 8 January, 2002. This story ran on page B7 of the Boston Globe on 8 January, 2002.

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OPPORTUNITIES

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< Position available - Assistant Professor of Photography >

College of Liberal Arts, University of Minnesota, Twin Cities Campus

The Department of Art, University of Minnesota, Twin Cities seeks a full-time, 9-month, tenure track assistant professor in the area of photography to begin in the 2002 Fall semester. The successful candidate will demonstrate interest and ability in the areas of research, teaching and service - engaging in outstanding creative activity, dedicated teaching and multifaceted service in the photography area of an interdisciplinary fine arts department.

For a complete position description and application procedures, visit the Department of Art website at: <<http://artdept.umn.edu>>, call (1) 612-625-8096, or fax your request to (1) 612-625-7881. The application deadline is 1 March, 2002.

The University of Minnesota is an equal opportunity employer and educator.

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