

LEONARDO REVIEWS

LEONARDO DIGITAL REVIEWS

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BOOKS

THE STRUCTURE OF EVOLUTIONARY THEORY

by Stephen Jay Gould. The Belknap Press of Harvard Univ. Press, Cambridge, MA, U.S.A., and London, U.K., 2002. 1433 pp., illus. \$39.95 Trade. ISBN: 0-674-00613-5.

Reviewed by David Topper, The University of Winnipeg, Winnipeg, MB R3B 2E9, Canada. E-mail: <David.Topper@ds1.uwinnipeg.ca>.

I've been a fan of Stephen Jay Gould ever since reading *Ever since Darwin* (1977), his first book of collected essays drawn from his monthly column in *Natural History* magazine. For 25 years, without cease, he cranked out 300 of these often wonderful and usually provocative pieces, publishing the last one in 2001. How he accomplished this in addition to writing about a dozen other books, including the huge tome I am reviewing, plus pursuing a parallel career as a paleontologist, is only partially explained by the fact that he slept only about 4 hours a day. Seemingly, like Newton, he was "never at rest." In size and scope, *The Structure of Evolutionary Theory* is undoubtedly his magnum opus.

A source of my admiration of Gould was the way in which he was able to wear the "two hats" of science and history. I started as a science student and it was not until graduate school that I was first exposed to, and immediately enthralled by, the history of the subject—so much so that I abandoned a career in physics and subsequently obtained my Ph.D. in the history of science. I think the fact that Gould continued to pursue both fields

(around the same time in both of our lives) was a major source of his philosophical and methodological approaches to the history of science. He walked a fine line between, on the one hand, imposing our current knowledge of science upon the past (namely, viewing the past fully from the present and thus not being sensitive to the historical problems within their original context) and, on the other hand, over-contextualizing the past to the point that scientific knowledge is viewed as completely constructed by local conditions and thus without a core of objectivity. Although this latter issue has become widely known through the rise of so-called postmodern thinking (and the debate over it dubbed the "Science Wars"), the problem was at the heart of the history of science even as I (and probably Gould, too) was first studying it in the latter 1960s. Gould often points out that an idea that today may appear rather stupid may not really be so if seen in its original context; it clearly bothered him that too many scientists of the past, who made important contributions to their field, were only known by some mistake they may have made. Yet, when something was clearly wrong, he vehemently believed it should be exposed; this is manifestly seen in his widely read book *The Mismeasure of Man* (1981), in which he analyzed the methodological errors in the original work of those supporting so-called scientific racism. This is also shown in his vehement and protracted campaign against various varieties of creationism.

These tensions—and the "two hats"—are apparent in the book under review. It starts right on the dust-cover, with the superpositioning of two images: a drawing of a fossil coral from the plate of a 17th-century text and a picture of a snail on tall grass with the sun setting in the background. The fossil coral Gould fancied as a visualization of the logical structure of Darwin's theory presented in the book; the lovely photograph of the snail, as readers familiar with Gould's essays will know, is not surprising—for snails were a major locus of his scientific research. Believe me, Gould had the ability to engage the reader with this lowly crea-

ture (something I usually only think about when occasionally dining in a French restaurant), and in one essay brought a woman to tears over the extinction of a species of his beloved snails on a south Pacific island.

After a long (about 90-page) introductory/summary chapter (containing an epitome of his long argument), the work is divided into two sections: the historical ("The History of Darwinian Logic and Debate," about 500 pages) and the scientific ("Towards a Revised and Expanded Evolutionary Theory," about 750 pages). Each section, a book unto itself, contains material that readers of his essays will recognize, but here it is discussed in greater detail and incorporated among other material and other matters. There are wide-ranging analyses of, for example, the influence of William Paley's *Natural Theology* (both the positive as well as the obvious negative factors); the importance of economic theory (Gould asserts: "the theory of Natural Selection is, in essence, Adam Smith's economics transferred to nature"); or the impact of Jeremy Bentham's Utilitarianism on Darwin's "Principle of Divergence"—and many, many more of both pre- and post-Darwin thinkers. At best, I can present only a spotty outline of the richness of this work. I believe that Part I will stimulate forthcoming projects for historians, by just randomly opening a

Reviews Panel: Peter Anders, Fred Allan Andersson, Wilfred Arnold, Roy Ascott, Curtis Bahn, Claire Barliant, Marc Battier, Roy R. Behrens, Andreas Broeckmann, Annick Bureau, Chris Cobb, Robert Coburn, Nicolas Collins, Donna Cox, Sean Cubitt, Shawn Decker, Luisa Paraguai Donati, Maia Engeli, Bulat M. Galejev, George Gessert, Elisa Giaccardi, Thom Gillespie, Dene Grigar, Craig Harris, Josepha Haveman, Paul Hertz, Amy Ione, Stephen Jones, Eduardo Kac, Richard Kade, Douglas Kahn, Curtis E.A. Karnow, Nisar Keshvani, Julien Knebusch, Mike Leggett, Roger F. Malina, Jacques Mandelbrojt, Rick Mitchell, Robert A. Mitchell, Mike Mosher, Kevin Murray, Frieder Nake, Maureen A. Nappi, Angela Nalainis, Simone Osthoff, Jack Ox, Rene van Peer, Robert Pepperell, Cliff Pickover, Patricia Pisters, Michael Punt, Harry Rand, Sonya Rapoport, Stefaan van Ryssen, George K. Shortess, Joel Slayton, Aparna Sharma, Christa Sommerer, Yvonne Spielmann, David Surman, David Topper, Ian Versteegen, Stephen Wilson, Arthur Wood, John Wood.

page and reading; Part II, I suspect, may do the same for scientists.

The historical section (Part I) begins with a detailed reading of the first edition (1859) of Darwin's *Origin of Species*, with copious quotations. Gould sees a structure to Darwin's book based on this trilogy: (1) the basic arguments of Natural Selection; (2) difficulties with the theory and related matters; and (3) the grand summary and synthesis. As well, Gould makes the case that the *Origin of the Species* is one long argument for the methodology of historical inference as a legitimate scientific methodology. The essence of this section on Darwin's thought is, as Gould has often pointed out, that the structure of the theory of Natural Selection is based on three simple facts; except here Gould goes deeper into their origin and meaning in Darwin's work.

First, organisms vary (progeny differ from progenitors, some dramatically, as in the case of what was later called mutations); and second, at the same time, progeny carry traits from progenitors (the principle of inheritance, a fact whose mechanism was unknown to Darwin at the time because Mendel's work was not recognized); and third, nature overproduces, such that all organisms do not survive, resulting in the struggle for existence (also called the Malthusian Law). Because of these three facts, any change in a local environment may be such that an organism with a characteristic different from its progenitors but better adapted for survival under the new conditions will survive and pass these traits on to its offspring. Given the accumulation of such small changes over long periods of time, varieties of the original species will result and over even longer time spans more dramatic modifications may arise, such that different species eventually descend from among the varieties. In *Origin of the Species*, Darwin wonderfully presents the theory as a logical challenge this way: if the above three facts are true (and they are), then, "considering the infinite complexity of the relations of all organic beings to each other and to their conditions of existence, . . . I think it would be a most extraordinary fact if no variation ever had occurred useful to each being's own welfare, in the same way as so many variations have occurred useful to man [under artificial selection—that is, breeding]." Given the above conditions, Darwin continues, "if variations useful to any organic being do

occur, assuredly individuals thus characterised will have the best chance of being preserved in the struggle for life; and from the strong principle of inheritance they will tend to produce offspring similarly characterised. This principle of preservation, I have called, for the sake of brevity, Natural Selection." This was a brilliant strategy.

As Darwin developed the theory over the course of his life, several key features emerged: the role of the individual organism as the key element in the model (the terminology "individual differences" appears throughout *Origin of the Species*); the emphasis on gradualism (that changes accumulate slowly over long periods of time), with this gradualism taking place in both the biological and the geological realms; and, as a result of these, all intermediate types arise such that their features are adapted to the local conditions. This view of evolution, which was only established as dogmatic well into the 20th century, Gould calls "Darwinian fundamentalism." And, over the course of Gould's career as a scientist, he believed it needed modification in three ways (two of which originated primarily in his mind).

In the longer scientific section (Part II), the "revision" of Darwinian theory is primarily a comprehensive discussion of the three aspects of the theory that Gould felt require modification from Darwin's original exposition. Darwin was convinced that the gaps in the fossil record in the late 19th century would be filled in over time; and it did happen, partially, with many so-called "missing links" being found. But still there were many gaps, so Gould, along with Niles Eldredge (in 1972 and later), argued that paleontologists should call off the chase for transitional fossils; perhaps the gaps are there because no transitional types actually existed. Evolution may take place rather rapidly (rapid, in evolutionary terms, being in tens of thousands of years), since species otherwise tend to remain stable over long periods of time. They called their hypothesis "punctuated equilibrium." Although not widely accepted at first, Gould thinks that it has stood the test of time, and in this book treats it as verified.

The second challenge centers on the issue of adaptation. Strict adaptationists argue that Natural Selection dictates that every transitional type must have had some survival value. This means, for example, that every structure in an organism must have been useful at

some stage, independent of its present function. Working with his colleague Richard Lewontin (in 1979), Gould made the case that the present function of a structure can be co-opted for a structure that arose for reasons other than the original structure; moreover, as is the case with (say) male nipples and the (female) clitoris, some structures have no function but arise as part of the structure of the organism. Gould makes much of an analogy to the architectural feature of spandrels. When a series of arch-supporting columns spans a wall, a series of triangles are formed between the arches in the spaces above the columns. Sometime these triangles, called spandrels, are filled with designs or images, but originally spandrels had no functional purpose. The structure comes first, the spandrels arise from the structure, and the architect is free to fill in the spandrels or not; thus spandrels did not originally function as a place for decoration. Gould carries this analogy further, looking at another variation of this aspect of architecture. When a hemispherical dome is placed over a square floor plan, four triangular spaces are created in the corners as transitional forms from the walls to the dome. These spaces are usually called pendentives, but Gould is a bit loose with terminology and calls them spandrels, too (spandrels are conventionally only the triangles on two-dimensional surfaces). In any case, pendentives also are spaces that may or may not be filled in with imagery but that are not initially intended as spaces for decoration. Again, we see here an architectural analogue with Gould's non-adaptive model of evolution. Indeed, Gould was so confident about this idea that in 1982, he, along with his colleague Elizabeth Vrba, coined a term for it: "exaptation." So, if punctuated equilibrium is true and some non-adaptations are really exaptations, then, Gould surmised, evolution may act on species, not just individual organisms, which accounts for the relative speed of evolution. This is especially germane to "evolutionary psychology" (what used to be called "sociobiology," before the cosmetic name change), a subject of which Gould has been a very vocal critic. Thus he writes:

Any "evolutionary psychology" that neglects the nonadaptational origins of many features now useful . . . and that limits the domain of evolutionary inquiry to arguments (often speculative) about initial adaptive causes and benefits, will become more misleading than enlightening.

This dismissal is emphasized by the lack of any other references to the subject in this huge book. Another conspicuous lacuna is the role of genes in evolution, betraying Gould's feud with Richard Dawkins and his theory of the "selfish gene."

The third critique of Darwinian fundamentalism contests the gradualism thesis of geology. When in the late 1970s the physicist Luis Alvarez, along with his geologist son Walter, first put forward the idea that the dinosaurs became extinct due to the impact of a comet or asteroid on the Earth about 65 million years ago, it was met with skepticism at best and downright ridicule in some cases. But as the evidence mounted—that, for example, corresponding marine organisms also went extinct at the time; and when the "smoking gun" was even found (a crater in the Yucatan peninsula)—the notion of mass extinction was incorporated into scientific theory, rather the way the hypothesis of continental drift (also initially rejected and now called plate tectonics) became a fundamental element in a variety of Earth sciences. Gould was not involved in the genesis of this idea but he is convinced that gradualism must be abandoned.

When Darwin formulated his mechanism of evolution (along with Alfred Russel Wallace's almost identical model), its radical nature was apparent, for it was based on a random series of events grounded in local conditions: no plan, no inevitable direction, no grand scheme. At its core, Darwin's theory was blatantly, essentially, materialistic. Darwin knew this, and it has been (among those who can get beyond simpleminded creationism) the intellectually difficult and even offensive feature of the theory—more significant than Copernicus moving the central Earth, for Darwin displaced us further, as mere accidents of nature. (Wallace, fully aware of this materialism, tried to steer the theory in another, more "spiritual" direction.) One may, in turn, view Gould's challenge as digging the theory deeper into a materialist framework (or groundwork): note that adaptationism still carries an iota of functionalism/design, whereas exaptation expunges even that. Moreover, the randomness of mass extinction caused by the impact of unpredictable objects from outer space contradicts one of the principles of the geological sciences as set by Charles Lyell in the 19th century (who Darwin read extensively)—in opposition to the

Catastrophism of the times—namely that geology can only be a science if it is based on gradual law-like changes grounded in the regularity of nature, not unlike the laws of planetary motion. Indeed, and in contrast, there is now evidence of six or more mass extinctions, the most massive one occurring about 250 million years ago, when 70% of land species and 90% of marine biota were wiped out. From this point of view (what we may appropriately call neo-Catastrophism), those species that do survive mass extinctions are merely the lucky ones, and are in no way planned by a higher being for a higher purpose. At least that is all that is entailed in the theory. This is materialism, par excellence. And it was certainly Gould's position—to, as far as I know, his dying day.

THE GREAT EXHIBITION OF 1851: NEW INTERDISCIPLINARY ESSAYS

edited by Louise Purbrick. Manchester Univ. Press, Manchester, U.K., 2001. 232 pp., illus. Paper. ISBN 0-7190-5592-X.

Reviewed by Roy R. Behrens, Department of Art, University of Northern Iowa, Cedar Falls, IA 50614-0362, U.S.A. E-mail: <ballast@netins.net>.

It is because of the Great Exhibition of the Industry of All Nations (the first international World's Fair) that the Modern era in industrial design and architecture is commonly said to have started in 1851. Erected temporarily in Hyde Park in London, this 18-acre structure (the world's largest building at the time) was made of glass with iron struts, all of which had been prefabricated elsewhere, then shipped to the site and assembled. It was nicknamed "the Crystal Palace," partly because it resembled (and in some ways also functioned as) a huge, resplendent greenhouse, with live historic trees inside. In the first 5 months, nearly 6.5 million people streamed in to witness 14,000 displays and demonstrations from throughout the world (nearly half from England) of the latest devices and products to come from the Industrial Revolution, among them the Colt revolver, Thonet bentwood furniture, and stereoscopic photographs. Arts and Crafts founder William Morris, who was 17 years old when the event opened, got as far as the door with his parents, then sat on a bench and refused to go

in, because, he said, it was "wonderfully ugly." It is now generally agreed that, while the building's structure and the process of erecting it were astonishing, the products inside were a mixture at best. *The Great Exhibition of 1851* is a collection of essays on various social aspects of the Crystal Palace by scholars from varying backgrounds, who take turns addressing such issues as the fair's appeal to the working class; the event as satirically followed in *Punch*; the socio-economic strata of those who attended; the concurrent promotion of technical and mechanical drawing ("an industrial vision"); and reactions to the exhibition on India, regarded then as the British Empire's "jewel in the crown." For anyone interested in design or architectural and cultural history, there are portions of all of these essays that are both surprising and informative. Unfortunately, the book as a whole is distressing because its page layout (or form) is greatly at odds with its content (or function). The layout, as Morris might argue, is blatantly ugly (and not wonderfully) and borders on being outrageously dull. Inadvertently then, at the end we are faced with the question(s): Has there been no progress in design since the Crystal Palace? Have we learned nothing in 150 years? And, if not, then why publish these essays?

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EXPERIMENTAL CINEMA IN THE DIGITAL AGE

by Malcolm Le Grice. British Film Institute, London, U.K., 2001. 484 pp. Paper. ISBN 0-85170-873-0.

Reviewed by Mike Leggett. E-mail: <legart@ozemail.com.au>.

In *Experimental Cinema in the Digital Age*, Malcolm Le Grice is sparing in his use of the term "new media." This wins my undying gratitude, and in this revealing and thorough book there is much else to challenge such tropes associated with the tools of expression and communication. His engagement with the institutions of cinema and the visual arts has infected many others over the years, but he is far from obsessive about the "features" that media technologies, new or old, can offer to the "creative" person. Le Grice is intent upon re-examining the exchanges that occur, the economy that can exist, in the

spaces that we call the filmic or cinematic experience.

Throughout a production period from the early 1960s to the present, as a filmmaker, television program maker and painter, Le Grice has kept a track of his thoughts and expressed them through a series of published articles and an earlier book (*Abstract Film and Beyond*, 1976) [1]. Collected together here for the first time, the articles provide access to a series of discourses that excited and stimulated, for many of us, the production of a group of films that, in moving through a range of descriptors, became known more widely as structural materialist (though this term risks misleading audiences) [2].

Thoughts into action was the rhetoric put into practice by the London Film-makers Co-op group, of which Le Grice was a founder, chief negotiator and ambassador. In the face of a film and cinema industry run by Hollywood, television dominated by ratings and a gallery culture still coming to terms with the “conceptual and art,” the discourse this work produced was not based on criticism but the polemics concerning film.

Le Grice was able to maintain a sense of investigation, an air of the provisional. The range of articles he produced from the 1960s to 2000 (and the present) fed the minds of magazine and journal readers [3], together with fellow filmmakers at the co-op and elsewhere, in the U.S.A., Europe and Australia. The common intention was the pursuit of a rational creative process separated from narrative form at best and Hollywood melodrama at worst. The articles on film appeared between 1970 and 1980—most are reprinted here with only minor editing, providing the background that progresses towards the major summarizing article, “Towards Temporal Economy.” It was “an ambitious attempt to synthesise a range of concepts and ideas at the same time promoting the debate about experimental film practice among the—largely hostile—critical academics then in the ascendancy within the British Film Institute and Screen” (p. 7). Fittingly, it was published by *Screen* in 1980.

The context of the times is only occasionally hinted at. This was the period when the left in Britain, as elsewhere, was factionalizing, when the anarcho-libertarianism of the “alternative culture” at the beginning of the period was becoming the “counter-

culture” of the 1980s, when enclosures were being thrown up and redoubts being built from where to insult the neighbors. Allies were recruited from France mostly, to stiffen the resolve of the cultural shock troops and, as Le Grice confesses in his Introduction, “I did my duty reading Metz, Lacan et al.” (p. 2), along with the earlier luminaries of 19th- and 20th-century thought. This helps uncover the layers contained in the text, which rather than reading as an argument instead reveals the processes of deliberation occurring as Le Grice’s own work and that of others develops.

“Almost by habit now I begin an article with a health warning. The reader should know that firstly I am a film, video and digital artist. My theoretical work is almost completely based on the issues I have encountered in analysing my work and understanding its relationship to other artists, culture, technology and society” (p. 297). Written comfortably in the first person, the anthology of essays (with one excerpt from his previous book) is organized by theme (History, On Other Artists, Debates, General Theory, Digital Media) and therefore places material out of chronology for those wishing to follow the processes that make up the ontological whole. With effort this can be reconstructed using several pre-chapter sections—there is also a full index. A colorful preface by Sean Cubitt makes some useful links to the contemporary world of cyberculture and an *aux armes*: “we take responsibility for art, or there is no art at all” (p. xv).

Le Grice’s use of computers goes back to the 1960s, when he was able to access Britain’s largest computer to output material incorporated into several later films. In 1970, he wrote speculatively about computer networks describing a state we now know as video-on-demand. Le Grice later experimented with early personal computers, interrogating their potential for expressing form, color and sound in the service of the on-going campaign against linear and narrative constraint. His own realization of the difficulty of extending materialist polemics into the digital domain enticingly bounces on and off some of the issues (cyberspace and presence, the non-linear and interactivity, memory and consciousness) raised in a torrent of literature by others over the last decade, some of whom at least would also demand “a priority for physical experience over interpreta-

tion” (p. 293). I have a sense that Le Grice would be hugely productive in the digital arena, as he has been with film, if the structural-materialist trope was regarded as a marker behind rather than a pointer in front.

My own assessment of the period, the films and the polemics—on paper and in person—is that while it was the institution of cinema that was addressed, the strategies (theorized but unplanned) emerged from the modernist project of 20th-century visual artists described by Le Grice. The traditional cinema audience was unprepared for the importation of rigorous and reductive codes, an experience and education that was largely eclipsed by the significant simultaneous development and establishment in the tertiary sector of courses in cinema history and media studies—the long-running arguments with *Screen* are referred to in Le Grice’s excellent “Introduction.” The traditional visual arts audience, though engaged, further confused wider acceptance of the work by celebrating a (false) appearance coinciding with the “minimalist” visual art aesthetic of the time, together with a reluctance by gallery spaces to manage the different demands of time-based and technology presented work. In short, the polemics and much of the work arising from an ontological project commenced back in the 1920s, and for much of the time it was hung out to dry between the two cultural pillars. Only recently has it been re-appraised by a new generation less provoked by the contemporary media landscape but more attuned to the transparency of the apparatus, helping to develop some level of wider acceptance of the hybrid and cross-disciplinary artform.

Shoot Shoot Shoot is a retrospective of eight programs of films made at the London Film-makers’ Co-op from 1966–1976 and is on a tour of international venues between 2002 and 2005. While the ample newsprint catalogue provides a mass of contextual material, it is only able to hint at the rationale, the polemics, the theoretical substructure of the work that Le Grice’s book addresses so wholeheartedly.

References and Notes

1. Le Grice, Malcolm, *Abstract Film and Beyond*. (London, U.K., Studio Vista, 1977).
2. *Structure, structural, structuralism and material, materialist and materialism* are all terms used by engineers, script-writers, anthropologists and philosophers and are irrelevant to use in this context,

though convergence of meanings and uses, often encouraged by various authors, have been temptingly apt—hence the misleading usages.

3. Publications including *Studio International*, *Art & Artists*, *Afterimage*, *Millennium Film Journal*, *Undercut*, *Time Out*, *Screen*, *Screen Education*, etc.

MAKING SENSE OF LIFE: EXPLAINING BIOLOGICAL DEVELOPMENT WITH MODELS, METAPHORS, AND MACHINES

by Evelyn Fox Keller, Harvard Univ. Press, Cambridge, MA, U.S.A., 2002. 388 pp. Trade. ISBN: 0-674-00746-8.

Reviewed by Curtis E.A. Karnow, Sonnenschein, Nath and Rosenthal, 685 Market St., San Francisco, CA 94105, U.S.A. E-mail: <cek@sonnenschein.com>.

Each of us has dutifully learned an explanation of a physical or biological process—why the planets have their course, or how the phenotype of an anemic human is generated by the genotype responsible for his or her blood cells' development. The explanations sometimes are enough, sometimes not. Why and how is gravitation, we might ask. Why is it that DNA replicates? When have we reached an "explanation," and what counts as a convincing one? Shifting directly to one of the largest of these questions, author Keller explores explanations given for life itself, tracing the shifting elucidation of life in the last hundred years.

What counts as an explanation for life, not to say an adequate explanation, depends on the time and its needs, Keller establishes. This sounds tautological, but Keller's detailed review of the differing criteria for explanation is a story about the essential nature of scientific examination as it makes different analogies and calls on shifting metaphors from time to time. Life's explanation took on the model of mechanical simulacrum a century ago; today computers and artificial digital "life" appear to capture some essential nature of life, so we say. Keller establishes the link between, on the one hand, technological and other developments in the world at large and, on the other hand, the criteria of scientific explanation. She carefully traces the use of language and its not-so-hidden assumptions, the use of figures of speech and metaphors to provide the sense that a phenomenon has been identified and understood.

It is a convincing, thorough recitation, because Keller relies directly on

the then-contemporaneous sources. By the same token, for those interested only in the epistemological and linguistic issues it can be slow going—there's more detailed history here of quaint, superseded theories than one might wish. But one cannot really argue with Keller's decision to let the old explainers speak for themselves. It is a powerful lesson to see that even in the last 100 years the very nature of scientific inquiry and its goals has shifted so profoundly. We may advance in our scientific understanding, to be sure, but we are also continuously changing the criteria by which such "advances" are measured. Even questions such as "what is life?" Keller notes, are not answerable absolutely (p. 294); these questions pose historical conundrums, and answers can never be better than good enough for the time.

ORIGINS, IMITATION, CONVENTIONS: REPRESENTATION IN THE VISUAL ARTS

by James S. Ackerman. MIT Press, Cambridge, MA, U.S.A., 2002. 328 pp., illus. Trade. ISBN: 0-262-01186-7.

Reviewed by Stefaan Van Ryssen, Jan Delvinlaan 115, Gent, Belgium. E-mail: <stefaan.vanryssen@pandora.be>.

This collection contains some dozen studies on the origins and evolution of architectural representation written by Harvard art historian James S. Ackerman over the past decade. Ranging from a detailed analysis of "the Origins of Art History and Criticism" to a more sketchy "On the Origins of Architectural Photography," it includes studies of Leonardo da Vinci's church designs and Thomas Jefferson's affection for classical Italian architecture. Each study can be read separately, but together they form a multi-faceted, impressionistic view of the earliest stages of the formation of architectural representation as we know it and of the continuing influence of classical aesthetics on Renaissance and early modern architecture.

Ackerman's original problem appears to have been: how did modern representational conventions (orthogonal drawing, elevation, ground plan, etc.) develop from pre-modern architectural drawing? He answers this question in four detailed and amply illustrated studies, starting with an analysis of—among others—Villard de

Honnecourt's drawings of Reims cathedral and moving on to a discussion of Hippolyte Bayard's photographs of the Church of the Madeleine in Paris. In each study, the author emphasizes the interplay of tradition and imitation, on the one hand, and innovation, on the other. He certainly makes it clear that development cannot be understood in a teleological sense and that what we call progress, or the process of modernization, is an incremental, sinuous and piecemeal transformation that took place in small steps scattered throughout hundreds of representations by architects and artists in different places and times. What actually drove this development was a combination of the creation of meanings, the pressure of technologies, new building practices (the emergence of the professional architect, among others) and the adherence to tradition.

Three essays punctuate the collection: "On the Origins of Art History and Criticism," "Imitation," and "The Conventions and Rhetoric of Architectural Drawing." Here, Ackerman reflectively synthesizes the results of his more detailed and analytical work. In each, he discusses one leg of the tripod upon which architectural representation rests. "The Conventions . . ." is perhaps the most interesting study for anyone generally interested in architectural practice. Ackerman convincingly argues that no representation is "objective" or the result of a Cartesian move. In every single drawing or plan several layers of meaning lay hidden, and consequently the representation becomes first, a goal in itself and, next, a way to convey ideas and theories as exemplified in works by, for example, Tschumi, Koolhaas, Himmelblau and Asymptote. Paradoxically, the expression of new ideas calls for the use of well-understood and traditional conventions of representation. "Therefore, unlike architectural styles or drafting techniques, they have almost no history. . . . Although it is interesting for a historian to examine the reasons, the ideology, and the conditions of the invention, issues of evolution are of only minor historical interest. This field of investigation, then, is more closely related to semiology than to standard architectural research." *Origins, Imitation, Conventions* is well written and well illustrated. It ranges widely, but it is neither a bedside nor a coffee table book; it probes deeply, but it is not a theoretical treatise proper. One wonders who its audience could be—apart

from LDR reviewers and anyone who is just genuinely interested in architecture as a language or in what could possibly connect Vitruvius, Leonardo, Thomas Jefferson and Rem Koolhaas.

SURROUNDINGS SURROUNDED: ESSAYS ON SPACE AND SCIENCE

edited by Peter Weibel. MIT Press, Cambridge, MA, U.S.A., and London, U.K., 2002. 719 pp., illus. Paper, \$34.95 ISBN 0-262-73148-7.

Reviewed by Amy Ione, P.O. Box 12748, Berkeley, CA, 94712-3748, U.S.A. E-mail: <ione@diatropes.com>.

Although produced in conjunction with Olafur Eliasson's show *Surroundings Surrounded* at the Neue Galerie am Landesmuseum Joanneum (Graz, Austria) and ZKM/Center for Art and Media (Karlsruhe, Germany), *Surroundings Surrounded: Essays on Space and Science* is not a conventional catalog published to comment on the exhibition. Instead, and at Eliasson's request, the artist's work was interspersed with a number of essays, in lieu of a catalog. The resulting mosaic contains over 60 scholarly articles, many of which are reprints of previously published work, and the collection exposes the reader to a number of ideas that have influenced Eliasson's work. As Eliasson explains: "We spoke about collecting all my favorite matters into one system just like a studiolo, where the idea of the all-encompassing everything is organized as artifacts and objects in small systems and structures." The resulting "studiolo" gathers the work of many who investigate our understanding and perception of spatial relations, physical environments and other time-space related structures and concepts. Due to his decision to have the art function as an insert or interface to the individual chapters, I found the images almost secondary in the final product.

Perhaps it is because the book is both an anthology and an exhibition catalog that I find it so difficult to review. Based on Eliasson's epilogue it seems this publication met Eliasson's intentions and his goals as an artist. Yet, as a reader who had been hoping to learn more about Eliasson's art, I was disappointed to find that so little within the encyclopedic anthology connected me with his art, although there was some measure of success. The excellent reproductions do expose the reader to

the beauty of his work, and these images also shed some light on how Eliasson combines the ephemeral, natural effects of light, water and wind with more tangible materials such as wood, moss and grass. Nonetheless, the commentaries did nothing to aid my understanding of what it is like to actually be face to face with the elegance he contrives. My belief that the book doesn't actively invite the reader to experience the art came to the fore when I began to write this review. I turned to the table of contents and, when I looked closely, discovered that the articles were not listed in the order in which they appear in the book. Instead, the order within each section seems to have been randomly generated. Given my exposure to Eliasson's interest in urging us to look closely at what we see, and my failure to find any elevating rationale on studying the format, I was led to conclude that this non-linear list was provided simply as a device to remind us of one of our assumptions about order. In my case, the reminder did not strike me as a particularly illuminating one. Perhaps I missed what I was supposed to uncover, and this explains why I concluded that, rather than leading me to a stimulating insight, the challenge posed by the enforced disorder, instead, seemed trivial, annoying, unnecessary and intrusive. It is not difficult to adapt to this kind of disjunction between reality and expectations. Being compelled to adapt does not strike me as being particularly creative or even a useful artistic device.

In summary, this book is most likely to be of interest to those who share Eliasson's intellectual inclinations. Clearly the articles are tied to his sensitivities. They also, in fact, cover areas of great interest to me as a reader. Yet I believe that those who turn to this book to learn more about Eliasson's art will find little contained in the book that explicitly illuminates his projects. The sourcebook approach makes the challenge of relating to his work more of an intellectual one, and this, in turn, seems to isolate his interspersed work from the text surrounding it. It is left to the reader to attempt to conceptualize (or imagine) how the ideas of the collection's authors are actually made manifest in the art. A large selection of images is included, but those who have not experienced Eliasson's work directly will find the well-produced visuals hard to translate in the small-format views. Unfortunately this lengthy volume does little to help acquaint the

reader with what it might be like to view the work. There is no commentary to walk the reader through the installations and aid her in acquiring a sense of the scale. In addition, there is little attempt to capture how the installations were conceived, to visualize the relationships in real space, or to understand how engagement in real time and real space would actually affect a person who could walk around within the environment, see the work in the light and dynamically view it from many positions. It strikes me as odd that this artist who seems intent on encouraging people to participate with his art would choose to produce this kind of publication in lieu of a catalog. As one who came to the book hoping to learn how Eliasson translates the questions of interest to him into his projects, I was disappointed to find a contrived package, rather than a tool aimed at elevating our experience of the art. In fairness, my reaction might speak to the fact that I bring a different vantage point to his work than he does. While this work is a fine encyclopedic anthology, I would have preferred a catalog.

THE PSYCHOLOGY OF GRAPHIC IMAGES: SEEING, DRAWING, COMMUNICATING

by Manfredo Massironi. Lawrence Erlbaum Associates, Mahwah, NJ, U.S.A., 2002. 319 pp., illus. Paper, \$35.00; Cloth, \$89.95. ISBN: 0-8058-2932-6; ISBN: 0-8058-2933-4.

Reviewed by Ian Verstegen, Art Department, Ursinus College, P.O. Box 1000, Collegeville, PA 19426, U.S.A. E-mail: <iverstegen@ursinus.edu>.

Too often, psychological discussions of visual images are wooden, the mere application of principles of experimental psychology to visual material. The same cannot be said of Manfredo Massironi's *The Psychology of Graphic Images*, which marvels at the richness and complexity of graphic signs and the ways they create meaning. Massironi writes in the best tradition of the European intellectual. A professor at the University of Verona, he is an experimental psychologist and practicing architect and obviously a deeply cultured man. His discussion is both rigorous, often making fundamental contributions to aspects of picture perception, and humane, as he preserves the greatness of what he is examining. Historical examples are not

chosen willfully, and the psychological reasoning is clearly yet convincingly mobilized. In this sense, his work is a worthy companion to Rudolf Arnheim's classic *Art and Visual Perception*.

Like Arnheim, Massironi sketches an approach with application well beyond just pictures. Massironi structures his presentation with a convincing taxonomy of graphic productions. This discussion can be fruitfully compared to the parallel efforts of James Elkins (*The Domain of Images*, 1998) to rethink canonical distinctions in the history of visual culture. This taxonomy does not favor the representational over the non-representational, and finds a place for everything from graphs to Raphael's paintings. Massironi's most important discussions are devoted to graphs (non-representational), illustrative drawings and icons (representational), and operational drawing using descriptive drawing (somewhere in between). Also somewhere between representational and non-representational graphics is what Massironi coins "hypothetigraphy," the study of graphics for scientific hypotheses (pp. 141–177). Models, metaphors and mental images are often cited in discussions of scientific invention but they are rarely broken down to their constituents as graphic tools that (1) connect, (2) reconstruct and (3) identify phenomena. The discussion of hypothetigraphy should be read by all interested in the connection of science and graphics. There are other discussions that represent the latest thinking on individual perceptual problems. Among these are Massironi's pages on the "structural components of drawings" (pp. 104–112), which report on a vocabulary of illustrative drawing (lines as objects, edges, cracks and texture) as well as the pages on "holes" (pp. 215–242) and "figural ambiguity" (pp. 243–258). These last two sections relate back in important new ways to the old figure-ground phenomenon.

Massironi, the author of a general text on visual perception (*Fenomenologia della percezione visiva* [Phenomenology of Visual Perception], 1998), approvingly cites the "directed realism" of James Cutting, with whom he has collaborated, and his overall approach can be located here between constructivism and direct realism. At one point Massironi dutifully reviews—and rejects—computational approaches to pattern recognition (pp. 218–221); elsewhere he recounts the tribulations of the

main alternative to computationalism, Gibson's ecological theory, also pointing to shortcomings (pp. 25–35, 83–86). Against Gibson, Massironi argues for the usefulness of studying "ecologically invalid" drawings: "Because they stop the flow of information in the changing optic array, images are a useful tool for cognition. They provide information that does not change over time and can wait for the completion of cognitive processes" (p. 86). The closeness of Massironi's intermediate solution to gestalt theory is striking. Indeed, his commonality with Arnheim goes deeper, as Massironi was trained in a strong gestalt tradition in Padua. Reading Massironi's reviews of contemporary visual science, one can see that there is much alive in Arnheim's approach. Perhaps in addition to arguing its own points, *The Psychology of Graphic Images* will make us reconsider Arnheim's work in a new light. With that said, we can only lament that Massironi does not tackle a second concern of Arnheim's *Art and Visual Perception*, the expressiveness of visual forms. We can only hope that Massironi might consider this as the subject of a second study yet to come.

THE BAUHAUS AND AMERICA: FIRST CONTACTS 1919–1936

by Margret Kentgens-Craig, Lynette Widder, trans. MIT Press, Cambridge, MA, U.S.A., 2001. 283 pp., illus. Paper. ISBN 0-262-61171-6.

Reviewed by Mike Mosher, Art Department, Saginaw Valley State University, University Center, MI 48710, U.S.A. E-mail: <mosher@susu.edu>.

This book reaffirms how any intellectual movement—whether aesthetic, pedagogical or political—hinges on individuals and their relationships. Through historical accounts and reprinted letters, the reader becomes aware of how two primaries of the Bauhaus, Walter Gropius and Ludwig Mies van der Rohe, were courted by universities and brought to the United States via the personal interventions and influence of well-placed Americans such as Philip Johnson, Alfred H. Barr and Joseph Hudnut. In many cases this was because these Americans authored books or curated exhibitions that familiarized their countrymen with progressive architecture, design and artwork coming from Germany. Figures such as Laszlo Moholy-Nagy, Marcel Bruer and

Josef and Anni Albers are discussed by Kentgens-Craig, but not with the thoroughness with which she approaches Gropius and Mies.

The Bauhaus was a combination of aesthetic predilections, pedagogical program and occasional vaguely socialistic political sentiments. All three met with opposition from the Nazi regime, as it defined itself by designating and distancing itself from what it perceived as non-German. Yet precisely for the reason of Nazi opposition were Bauhaus style and its practitioners welcomed in the United States, as evidence of a sophisticated internationalism for which the United States then hoped to be recognized around the world. An amusing sidetrack in Kentgens-Craig's book discusses the wartime and McCarthy-era FBI reports of citizen sightings of mysterious Germans with charts at obscure Wisconsin resorts, which turned out to be Mies and friends on vacation, discussing at the lunch table his Illinois Institute of Technology commissions.

In focusing on American publications about the Bauhaus and personal connections in the 1920s and especially the 1930s, the book speeds over the Bauhaus impact in the 1940s and later decades, when its influence was demonstrably greatest. I was left wishing for a second volume to pick up the story and further trace the spread of Bauhaus ideas and methods through American universities. It might begin with the teachings and writings on color by Josef Albers and Johannes Itten, yet could include the many lesser-recognized Bauhaus graduates, such as Hannes Beckmann (diploma #64), a postwar emigré who taught for many years at the Cooper Union and Dartmouth College.

LEON BATTISTA ALBERTI: MASTER BUILDER OF THE ITALIAN RENAISSANCE

by Anthony Grafton. Harvard Univ. Press, Cambridge, MA, U.S.A., and London, U.K., 2002. 417 pp., illus. Paper. ISBN: 0-674-00868-5.

Reviewed by Amy Ione, P.O. Box 12748, Berkeley, CA 94712-3748, U.S.A. E-mail: <ione@diatropes.com>.

Anthony Grafton's well-researched and extensively annotated biography of Leon Battista Alberti is a superb book. Reading through this engaging publication, I was particularly impressed with

Grafton's ability to effectively breathe life into Alberti as a human being, and simultaneously to place Alberti's achievements in the context of his culture. Having been born out of wedlock in 1404, created some measure of complication for Alberti within the structure of his society. Grafton exposes this and examines how the social difficulties were abated due to his father's commitment to providing him with a quality education. Building on this fine educational foundation, Alberti went on to achieve recognition in a number of fields. When examining the various trajectories, Grafton acquaints the reader with Alberti's role in building the Italian Renaissance in art, architecture and engineering. We come to better understand how this historical figure made manifest his desire to fuse distinct cultures and occupations. In addition, Grafton not only analyzes Alberti's work as a humanistic writer, but he also speaks in great detail about how Alberti's training in rhetoric influenced his theories in other areas. As a result, we come to see why Alberti defined creativity as "not making something completely new but as reusing a classic idea or theme in a novel way." Finally, Grafton's evaluation of Alberti's extensive use of rhetorical techniques and facility in applying them in other domains is useful today.

The author's deft balancing of perspectives in this biography is at its strongest when he examines Alberti's talent with words and the degree to which this facility was tied to his later success. By 1432 Alberti's literary accomplishments led him to become a secretary in the Papal Chancery. His ongoing employment in the service of the Church insured him the income he needed to pursue his many interests. Grafton's review of these pursuits, including his balanced approach to the theoretical and applied components of Alberti's work, is also well done. Equally noteworthy is Grafton's excellent summary of where his analysis of Alberti fits in relation to earlier scholarship. The author reminds the reader that contemporary discussions continue to see Alberti through the lens of Jacob Burckhardt's *The Civilization of the Renaissance in Italy* (1860). Burckhardt established Alberti's reputation as the quintessential Renaissance Man, claiming that no less a figure than Leonardo da Vinci was merely a second to Alberti when he wrote: "Leonardo da Vinci was to Alberti as the finisher to the beginner, as the master to the dilettante"

(p. 107). Grafton, to his credit, grounds Burckhardt's exuberance without diminishing Burckhardt's (or Alberti's) achievements. Exposing more of Alberti's human struggles, while still recognizing his far-reaching influence, is perhaps Grafton's most significant contribution.

A close second is Grafton's discussion of emendation. Before reading this study I did not realize the importance of this practice to Alberti's work. Briefly, emendation, a process of circulating texts among other scholars for correction, was a common practice in Alberti's time. While occasionally described by classical Latin writers, it was the humanist writers that worked with Alberti who turned this approach into an art form. Alberti, in particular, was among those who saw emendation as a stage in composing a work as well as a specialized service the learned could offer to others. The author conveys the degree to which Alberti valued the collaborative nature of this practice and how he used emendation in conjunction with his work in rhetoric. More fascinating is seeing how he adapted the technique when moving from rhetoric to art, architecture and engineering. Even his theory of perspective was open to emendation, as becomes clear in Grafton's excellent description of the two versions of *On Painting* that Alberti published. The Italian version was dedicated to Filippo Brunelleschi with a request for emendation and, as Grafton explains, Alberti offered the book to Brunelleschi because he saw him as the most learned of his time. We learn, too, that Alberti made this offer with a flair that served to elevate his own position.

In summary, all who want to enlarge their understanding of Leon Battista Alberti will welcome this easy to read, thoughtful and comprehensive book. Grafton writes with grace and his survey of Alberti's work as a humanist, inventor and engineer reads like a novel. I particularly appreciated Grafton's sensitivity to the difference between theory and practice in general and how he applied this appreciation to Alberti's work.

THE METAPHYSICS OF BEAUTY

by Nick Zangwill. Cornell Univ. Press, Ithaca, NY, U.S.A., and London, U.K., 2001. 217 pp. ISBN 0-8014-3820-9-1.

Reviewed by Robert Pepperell, POLAR (Posthuman Laboratory for Arts Research). E-mail: <pepperell@ntlworld.com>.

The Metaphysics of Beauty is a collection of papers and essays first published in various journals of philosophy and aesthetics—and it shows. Right from the start one is confronted with fine-grained academic debates about what can or cannot be said about beauty, in a manner that makes little or no concession to the non-specialist.

The book has three sections, each made up of a group of essays themed around a proposition. The first section proposes that beauty has a pre-eminent place amongst aesthetic properties. It is odd that we should need to consult an expert in the field to learn this, but it is apparently a matter of some dispute as to whether beauty can be usefully considered an aesthetic category at all. Argument then proceeds at some length about the relation between two modes of aesthetic discrimination: "verdictive" and "substantive." Verdictive judgments are those referring to beauty or ugliness, while substantive judgments refer to qualities such as "daintiness" or "dumpiness." For the record, Zangwill argues verdictive judgments supervene, or depend on, substantive ones. I found it difficult to appreciate the practical difference, especially since we are offered few concrete examples and no illustrations. After lengthy discussion Zangwill arrives at the position that "substantive and verdictive judgements are inextricably locked together"—a position that causes one to question the value of the distinction in the first place. For all its scholarly rigor, the text seems to throw up an alarming number of seemingly obvious or banal statements, such as "we should not eliminate beauty from aesthetics" (p. 12), "it is necessary that the judgement that something is graceful or delicate is based on the experience of it" (p. 28), or "to ascribe to a picture the representational property of being a tree we must see it as a tree" (p. 31).

In section two, Zangwill defends his keystone concept, what he calls "moderate formalism." There is a debate between aestheticians as to whether or not the formal properties of an object (shape, color, texture, etc.) can be counted amongst its aesthetic properties. "Extreme formalists" such as Roger Fry and Clive Bell in the early twentieth century argued that the historical, social and cultural factors surrounding a work were irrelevant when judging its beauty. To them it was purely the arrangement of line, tone and palette that constituted aesthetic quality. More

recently the “anti-formalists,” such as Kendall Walton and Jerrold Levinson, have held the upper hand. Briefly put, they hold that only the social, historical and cultural aspects of a work constitute its aesthetic value. That is, we cannot make judgments about a work based solely on its formal qualities but must necessarily consider the wider context in which we apprehend it. Zangwill’s moderate formalism is a sort of halfway house between the two extremes. He argues that many works of art (and natural objects) have aesthetic properties that are dependent, at least in part, on their sensory qualities. To most of us thinking about the appreciation of a particular painting or opera, this would seem a sensible (and somewhat self-evident) position. Yet it takes the author almost 100 pages of tightly fought, largely abstract academic maneuvering to make the case and defend it from several counter-views. And all this to support the rather anemic claim that: “moderate formalism is the view that while some aesthetic properties of a work are formal, others are not” (p. 58).

More irritating, however, is the extent to which during this exercise the debate relies on a bewildering (certainly to me) amount of terminological distinctions and categories. As well as “formal” and “nonformal,” we have “anti-formal,” “dependent” and “free” beauty (from Kant who had a well-known disposition towards classifying); “aesthetic” and “nonaesthetic,” “realist,” “projectivist” and “response-dependent” theories; “absolute and nonabsolute” music; “qua” and “qua-less” beauty, and I could go on. It gets to the pitch where Clement Greenberg, the esteemed art critic, is described as a “historically restricted substantive formalist” (p. 66n), with no sense that the author has his tongue anywhere near his cheek. Despite this, Zangwill declares early in the book when speaking of the act of classification: “The task is not the dull neo-Wittgensteinian one of analysing our concept of the aesthetic, but the more interesting and possibly the more truly Wittgensteinian task of uncovering the point of the classification” (p. 25). For an analytic philosopher who seeks consistency in intellectual arguments, Zangwill is surprisingly inconsistent about this declared approach. The liberal use of so many dubious distinctions has a cabalistic effect that, to my mind, genuinely impedes our understanding of aesthetic experience. The problem

may, in fact, be much simpler—i.e. that aesthetic response is essentially non-verbal, and indeed Zangwill says as much in chapter 10 (“I think the world has properties that are literally indescribable” [p. 174]). But in order to talk (or philosophize), we have to name, or use adjectives, to convey our sensations. The problem then arises that what we argue about (or at least what the philosophers in this book argue about) is less the experiences themselves than the linguistic conventions by which we denote them. The high degree of subjectivity involved in any case will always leave room for varying interpretation. But then Zangwill curtly dismisses any talk of relativism—the notion that specific objects may be open to widely differing readings—with a recklessly simplistic swipe at Roland Barthes, Jacques Derrida, “and his ilk” (p. 31n). Not that I am a great defender of post-structuralism or deconstructionism, but when it is crucial to his case that an aberrant reading of a particular work is “inferior” to a “correct” one (i.e., the reading the artist “intended”), then the fragility of Zangwill’s position is exposed.

Just as worrying as his tendency towards “taxonomic-dependency” is the often naïve (or, to be more generous, extremely limited) way Zangwill discusses certain art movements and artifacts. One of his substantial formalist claims is made on the basis that Mondrian’s later paintings are entirely non-representational (p. 89). Yet a more sophisticated reading of the works might suggest the arrangement of lines and color represent the spiritual harmony of the cosmos. Mondrian was a devout, almost obsessive Theosophist, and his art, not to say his whole aesthetic life, was devoted to expressing this.

The third and final section is largely a distilled discussion of various shades of “aesthetic realism”—the debate about the extent to which aesthetic properties are “mind-independent.” In other words, are some things beautiful whether or not we think they are? After rehearsing some of the arguments, Zangwill arrives at a position that regards aesthetic properties as a certain kind of mind-dependent property. Such problems only arise, of course, if one still holds to the idea that the mind and the things it apprehends are actually separate—which I do not.

Finally then, what *The Metaphysics of Beauty* offers are arguments about arguments, floating free from the con-

straints of evidence or empirical data. Even most of the few examples given as illustrations are so general as to be at best suggestive (“some cubist paintings,” “some abstract works”). The topic of aesthetics is fascinating, serious and important, and the opinions I have expressed here should in no way be taken as a denigration of the study of beauty (or ugliness) itself. But in the hands of philosophers such as these it becomes a dry, taxonomic affair with little to say beyond its own cloisters. To anyone else this book might best serve to diagnose the state of current thinking about aesthetics amongst a certain philosophical tendency. To this extent its form and function are aptly matched.

CONFERENCE

ARS ELECTRONICA 2002: UNPLUGGED—ART AS THE SCENE OF GLOBAL CONFLICT

Reviewed by Aparna Sharma, New Delhi, India. E-mail: <Aparna31S@netscape.net>.

For 17th-century astronomer Johannes Kepler, harmony of the world was a certainty. Inspired by Kepler’s epochal *Harmonices Mundi*, artists Hans Hoffer and Christian Muthspiel ventured to place destruction in the celestial cycle. Their hour-long show, “Harmony of the World,” was a dramatic mix of fire, live music and a video-track of the collapsing twin towers of the World Trade Center that got Ars Electronica 2002 off to an epochal start.

On the first night itself, the show, also known as the “Linz Cloud of Sound,” relieved eyes that have been fed a diet of conflict and terrorism, dotted with communal clashes, including the excruciating perennial sore—Kashmir. Maybe this relief was indicative of the “utopian quality of art,” which director Gerfried Stocker had earnestly set the festival to encourage. But in my positive response to the stunning audio-visual event, I found myself rather isolated.

Hoffer, who conceived the visualization of the show, repeatedly juxtaposed three images of the collapsing towers in a montage comprising diverse imagery and graphics. He exploited the image as a concentric complex, composed of multiple layers of meaning with the

immediate or visible at the center. Through its meticulous and timely placement of images, the montage established exactly that link between the invisible or implied, and the immediate or the whole. Each repetition steadily opened up 9/11 imagery, detaching it from the obvious emotional significance that has enveloped it from the moment of its existence.

At another level, the repeated use of this imagery took issue with the mass media, which thrives on footage of death, destruction and disaster. In a subtle move towards the end, the two large screens on which the video-track was projected floated away in the Danube, emphasizing the impermanence of the mass media image and replicating the continual disappearance from sight in the face of the visual clutter bombarding viewers regularly. Consequently, in this work, not only the representation but the very meaning of the event was re-visioned, having merged into the celestial reality that encompasses the immediate. Unfortunately, many in the audience took exception to the repeated use of 9/11 imagery. Irresistibly confined within the immediate connotations of the visuals, they rejected the show as being “ironic,” “pornographic” and outright dystopic. I remain intrigued by the reactions of the majority of the audience and, without meaning to underestimate or trivialize them, I am inclined to hold that the response stemmed not simply from a personal anguish or collective angst caused by 9/11, the most spectacular avatar yet of terrorist violence in communities unused to it.

As the clouds of dust that swelled in the space of seconds, settled months later, a self-contained, neatly tagged perception found itself ruffled by a diametrically opposed reality that was until then beyond perception. This shock to the system accounts, in my view, for much of the hostility expressed towards the show by the primarily Western audience. In this, they displayed the insularity that simultaneously multiplies and sharpens existing fault lines of difference, constricting notions of identity. This unwilling engagement, it seems, was symptomatic of the very malaise that Ars Electronica 2002 was out to spotlight.

The fault lines of difference stand out most noticeably in encounters between civilizations from the “advantaged” and “not-so-advantaged” regions of the globe. Oscillating between two

extremes—one, impoverished, unstable and calamity ridden; the other, “exotic” and mesmerizing—popular Western impressions about the “East” (west Asia onward) and Africa have rarely transcended the precincts of the Euro-American fortress, despite the prolonged colonial intersection and the contemporary “global” one. The lure of these lands, traced well back into yore, make for no more than either mild flirtations with their “colors,” “flavors,” and “mysteries,” or (worse) eccentric and unempathetic attempts at solving their problems.

Between its insurgent sentiments, eloquently conveyed by Stocker, and the larger sphere of Ars Electronica’s own situation, the latter got the better of this year’s festival. Even though the galleries at the Brucknerhaus, the festival’s main venue, may have flaunted works from previously underrepresented parts of the world, the domination by the North American-European-Japanese triad was apparent from the very outset. With most of the African artworks serving as no more than a contrite acknowledgment on behalf of the organizers, they perpetuated if not legitimated existing stereotypes. (Ironically enough, at the inauguration a music video had to replace a live performance by an African music group who were stranded in Paris by an Air France pilots’ strike.)

It seems to be in a similar strain, but with more appeal, that Indian artist Ranjit Makkuni’s *The Crossroads Project* got transported to compete at the Prix Ars Electronica, held prior to the festival. An elaborate interactive art installation, of which only a small portion was displayed at the OK Centrum, the project examines Banaras—an ancient city by the Ganges famous for its prominence in Hindu mythology—using an elaborate multimedia set-up that enables the user to travel through the lanes, by-lanes, ghats, mythologies and legends of Banaras. Demonstrating futuristic forms of access, Makkuni improvised information delivery devices to incorporate expressions of traditional Indian arts and crafts—a feature that impressed the jurors and fetched him an award of distinction in the interactive art category. He had intended to translate the very cross-over Banaras is known for—from life to death, from knowledge to immortality, from the relative to the absolute—into a man-and-machine interface. However, the sense of touch, central to this installation, and reliance on archetypal con-

tent were insufficient and outdated, infusing the work with all the ingredients that make for a familiar cliché.

The project could have explicated the ostensible paradoxes Banaras is made of—chaotic, crowded and noisy, yet calming, silencing and therapeutic for those with spiritual yearnings—as well as its legendary experiences. Instead, the buzz surrounding Makkuni’s new-fangled toys reflected only a fanatic fixation for technology, triggering its reification. Unable to transcend into a realm where form and content meld inseparably, and with an explicit lack of context, the work’s very objective stood severely diminished. Besides, the preoccupation with “new” forms of access seemed too elementary at a time when the world of contemporary media art is passionately grappling with the mysteries of artificial intelligence and the intercourse between technology and consciousness.

If the festival’s intention was to reveal the penetration and impact of new technologies on societies beyond the West, the attempt was incomplete, if not inappropriate. The export of technology to the developing world may have been meager, but its experience is not devoid of instances and indigenous/self-developed models of adoption that have melded pressing developmental needs and social, economic and political conditions with technology. The festival’s deliberations, too—mostly at the symposia—drifted towards commonplace development debates, which started by ostentatiously setting up a premise and committing to finding solutions, but collapsed almost immediately, unable to surpass fixated notions, nurtured within the citadels of fluff. As a consequence participants lacked an aptitude to comprehend the intricacies and complex medley of oppositional forces at play in some (not-so-advantaged) developing societies.

Amidst the hackneyed and gloomy recollections of development and digital divides, systemic bottlenecks delaying development (in this case connectivity), and media wars at times of terror, Ars Electronica unearthed some treasures that might otherwise have remained buried. Urban Africa Club, featuring emergent styles like Zouglou, Kwaito and Senerap, demonstrated how music in urban African milieus has materialized as a playing field where politics and problems confronting everyday life are negotiated. Rapidly catching up in capitals across

the continent (though fairly unknown beyond it), African hip-hop and rap sounds much like its counterpart in the Americas and Europe, but it results from, and reflects the tension between, traditional and modernizing/urbanizing influences as the continent, like developing societies elsewhere, finds itself at the crossroads where centripetal and centrifugal forces collide. Charged with strong political emotions and smatterings of a religious spillover, music seems to be the new extension arm for a generation motivated to end the combat for scarce resources.

Another intervention was to be found in the presentation by Saskia Sassen, professor of sociology at the University of Chicago. She addressed the nature and possibilities of the contemporary global encounter by identifying what she terms the "global city": a zone that may span the globe but results from the intersection and juxtaposition of older temporalities and spatialities with newer ones, namely the economic dynamics and opportunities of globalization. She succinctly charted the emergence of the global city, defining it as a political opening "that contains unifying capacities across national boundaries and sharpening conflicts within such boundaries. Global capital and the new immigrant workforce are two major instances of transnationalized categories that have unifying properties internally and find themselves in contestation with each other inside global cities." Thus she contextualized, cut into, and provided the much-wanted precursor to discussions on possibilities of ICTs at a time when territorial boundaries are being redrawn, not simply in technological and economic terms, but also in political terms. However, her predictions about the possibilities of local cultures and communities in a networked environment were somewhat optimistic, lacking necessary caution, given the virulent forms of fundamentalism emanating from cultural restoration initiatives sweeping civilizations across the world.

Reservations and wrong turnings aside, some things have to be said. Immediately following yet another inconclusive World Summit on Sustainable Development, one can only thank Ars Electronica for setting an agenda for spotting and attempting to reconcile two polarities that characterize the globe of today, clashing and splitting on the one hand, yet converging on the other. Without meaning to repeat the causes and manifestations of network-

ing gaps, the festival, overwhelmed by the enormity of its own assertion, gave in to the seductions of a largely inductive approach. The consequence was that its discourse arched along an axis that betrayed its ambitions, inevitably rendering it impossible not to stray into the futile territory where its sustainable-development counterparts consistently land. The festival's agenda would have benefited from more definition, stirring rigorous introspection among those held to be "plugged in," without necessarily trying to "catch up" with new technology penetration (or the lack of it) and developments in Asia and Africa, two continents that in any case do not enjoy much of a common denominator, either technologically or artistically, with their Western counterparts, given the varying dynamics surrounding both.

But with its well-deserved reputation for a nurturing spirit constituting counterculture, Ars Electronica did articulate and rephrase questions emanating from the contemporary global encounter—one that has been partial, so far—questions that are crucial not only for those across the "divide," but for the global entity in its entirety. Maybe it is time for the gurus of the world bureaucracy to set aside their preoccupation with figures, strategies and plans and turn the development debate around, taking a cue from Ars Electronica 2002. It did indeed throw down a gauntlet to anyone in the arts whose contemplation of the unplugged was considered rather than chic. At times, one felt it could have been taken up more firmly by the participants.

MATERIALS RECEIVED

Audio Compact Discs

Available Instruments

William Kleinsasser. Cycling '74, San Francisco, CA, U.S.A., 2002.

Dangerous Bend

Amnon Wolman. Cycling '74, San Francisco, CA, U.S.A., 2001.

Dust Theories

Kim Cascone. Cycling '74, San Francisco, CA, U.S.A., 2001.

Fix It in Post

The Freight Elevator Quartet. Cycling '74, San Francisco, CA, U.S.A., 2001.

Inferno from Dante Alighieri's La Divina Commedia

Tangerine Dream. TDI Music, Berlin, Germany, 2002.

Insect Groove

Sarah Peebles. Cycling '74, San Francisco, CA, U.S.A., 2002.

pict.soul

Tetsu Inoue and Carl Stone. Cycling '74, San Francisco, CA, U.S.A., 2001.

./swank

Interface. Cycling '74, San Francisco, CA, U.S.A., 2001.

Books

Architectural Body

Madeline Gins and Arakawa. Univ. of Alabama Press, Tuscaloosa, AL, U.S.A., 2002. 102 pp. Paper. ISBN: 0-8173-1169-6.

Against the Modern

Gabriel P. Weisberg. Dahesh Museum of Art, New York, NY, U.S.A., 2002. 178 pp., illus. Paper. ISBN: 0-8135-3156-X.

Computer Graphics Companion

Jeffrey J. McConnell, et al., eds. NPG Nature Publishing Group, London, U.K., 2002. 373 pp., illus. Trade. ISBN: 0-333-99785-9.

David Ehrlich: Citoyen du Monde • Citizen of the World

Olivier Cotte. Dreamland, Paris, France, 2002. 143 pp., illus. Paper. ISBN: 2-910027-80-5.

Electronic Mediations Series, Vol. 8: Cognitive Fictions

Joseph Tabbi. University of Minnesota Press, Minneapolis, MN, U.S.A., 2002. 166 pp. Paper. ISBN: 0-8166-3556-0.

Ezra Pound's Radio Operas: The BBC Experiments, 1931-1933

Margaret Fisher. MIT Press, Cambridge, MA, U.S.A., 2002. 319 pp., illus. Trade. ISBN: 0-262-06226-7.

Frankenstein: Penetrating the Secrets of Nature

Susan E. Lederer. Rutgers Univ. Press, New Brunswick, NJ, U.S.A., 2002. 78 pp., illus. Paper. ISBN: 0-8135-3200-0.

From Animals to Animats 7: Proceedings of the Seventh International Conference on Simulation of Adaptive Behavior

Bridget Hallam, et al., eds. MIT Press, Cambridge, MA, U.S.A., 2002. 420 pp. Paper. ISBN: 1089-4365.