Heliacal rising occurs when a star or other astral body, such as the moon, a planet or a constellation, first becomes visible above the eastern horizon in the moments immediately preceding sunrise. Each day the star will rise slightly earlier and remain visible longer before light from the sun causes the star to disappear in a cosmic setting. Not all stars have heliacal risings. Some linger just above the horizon permanently, making them always visible in the sky at dawn before becoming eclipsed by the brightness of the sun; others may never become visible at all.

Nikola Uzunovski’s photographs at the Federico Luger Gallery in Milan in January call to mind just such a cosmic phenomenon, one important to the ancients in signaling the beginning of a new year, the arch of its zenith and reunion with the earth envisioned well by artists since antiquity. Uzunovski collaborated with physicists from the Abdus Salam International Centre for Theoretical Physics and the International School for Advanced Studies (SISSA) to develop geo-positioning coordinates for a solar replica. Together with, for example, Pierdavide Coisson of ICTP the artist was able to identify 22 December as a day when a very high logarithmic value (24,000 m) could be assigned to sunrays that would reach the polar circle, after which the altitudinal value decreased. With John Miller of Oxford University, he charted the sun’s path by means of solar declination equations and measurements of light that could be reflected from the ground. During the same period, Uzunovski accumulated climatological data from Finland on wind speed, temperature and cloudiness during winter in the Lapland region. He constructed a non-flying apparatus during an artist residency at Pollinaria, an interdisciplinary research center in the Abruzzo region of Italy. In this rugged landscape he tested the model under varying atmospheric conditions. He later refined these studies through collaborations with students from the University of Lapland and the Art University of Helsinki. As a result he was able to realize a flying, helium-inflated balloon 2 meters in diameter, controlled by detachable cables capable of creating the illusion of a “second sun.”

The installation in Venice included a wealth of data, computational formu- lae, graphs and technical drawings that emphasized the precision and clarity of the project’s scientific research and alluded intriguingly to sacred geometry. Some of the diagrams reference Platonics solids and Euclidian geometry, while others recall figures drawn from optics and ocular refraction. Here the elegance of mathematic reasoning forms an artful corollary to the delicate arcs and swelling bell curves of computer graphics, with the balloon itself a suggestive 3D model of Leonardo’s proportionality, measurement and design. At first glance, the aerostat calls to mind the external panels of Bosch’s Garden of Earthly Delights in the Prado, where a transparent grisaille bubble opens onto fantastical panoramas of sin and debauchery. But Uzunovski’s celestial orbs point to microcosmic-macrocosmic correspondences that are as metaphysical, if not mystical, as they are astrological and allegorical. These perfect spheres produce rings of halied radiance from a mirror of the heavens, replicating a cosmic unity composed of synergistic hemispheres. It is a model of universal dualism that has inspired artists since antiquity.

Creation myths typically commence
with the separation of light from primeval darkness: order out of chaos. Archaic religions from Egypt to Teotihuacan worshiped the sun as the source of life and regeneration. In the West, the association of external illumination with intellectual clarity is most often identified with Plato’s Parable of the Cave. But the hermeneutic of light as a metaphor for spiritual awakening appears in virtually all religious traditions, from Tibetan Buddhism to the Book of Job, the Torah and the Koran, and from Abbot Suger to African fire-stealers and Hindu goddesses of the rising stars.

Pythagoras’s music of the spheres envisioned a celestial monochord extending from above to below to unite creation in symphonic harmony. Dante’s Divine Comedy conceived of the universe as a series of spheres of varying degrees of light from which the heavens open to reveal the empyrean in eternal peace and the purity of light. To encounter Uzunovski’s photographs anew beyond their documented history allows one to transcend time and place to reach an otherworldly space in which beings such as medieval astronomers or lunar astronauts rotate the mirror and triangulate the light, poised in absolute symmetry between the material world and otherreality. In this space, these stunning photographs convey the quiet grandeur of the cosmos and humanity’s humble, mysterious relationship to it. The photographs also remind us of the regenerative power of light and of our universal aspiration to touch infinity.

BOOKS

INTERFACE FANTASY: A LACANIAN CYBORG ONTOLOGY


Reviewed by Rob Harle, Australia. E-mail: <harle@dodo.com.au>.

This book is an extremely well-researched and detailed exploration of the psychological nature of cyberspace. If, as suggested, cyberspace is a mental space, then applying psychoanalytical theory to analyzing its social, cultural and individual influences makes a lot of sense. Nusselder has undertaken this analysis primarily from a Lacanian perspective, using a notion central to Lacan’s thought: that fantasy is an indispensable screen for interaction with the world at large. This screen has many forms, one of which is now the ubiquitous computer screen. “What we cannot have in reality, we can have via the fantasy screen (of the computer)” (p. 11).

Interface Fantasy is not for the faint-hearted, nor for the general reader. Lacan’s work is complex enough by itself; coupling this with Nusselder’s own analysis results in a highly complex, convoluted intellectual tour de force. This is in the nature of the subject, not Nusselder’s writing style. Although the writing flows nicely and is enjoyable to read, the book at times gets bogged down saying the same thing from only slightly different angles.

The book is divided into six chapters, followed by extensive notes, an excellent bibliography and an index. The chapters are: Chapter 1: The Question Concerning Technology and Desire; Chapter 2: The Technologization of Human Virtuality; Chapter 3: Fantasy and the Virtual Mind; Chapter 4: Cyborg Space; Chapter 5: Displays of the Real: Reality as an Effect; Chapter 6: Mediated Enjoyment, Enjoyed Media.

The chapters proceed from introducing Lacan’s relevant psychoanalytical theories through to examples of avatars as alter egos in various virtual spaces. Nusselder always keeps his central thesis in mind as he draws on the greats of philosophy, cybernetics and psychotherapy (Kant, Hegel, Freud, Weiner, Saussure, Shannon, Merleau-Ponty and so on) to support his thesis. “My central thesis is that the computer screen functions in cyberspace as a psychological space—as a screen of fantasy. Since the world as a database (the matrix) cannot appear to us (in cyberspace) without media that open it up (interfaces), the interface, I claim, has a similar status to that of fantasy in Lacanian theory” (p. 5).

Imagination is an important factor in psychoanalytical discourse, and Nusselder discusses it at length, from showing Descartes’s dismissal of imagination as untenable through to demonstrating its vital importance in cybernetics. Lacan spent much time thinking about cybernetics, as is evident from this quote: “At this point we come upon a precious fact revealed to us by cybernetics—there is something in the symbolic function of human discourse that cannot be eliminated, and that is the role played in it by the imaginary” (p. 69). Clearly imagination and fantasy are closely related, whether we are conducting psychoanalytical analysis from the perspective of an electronic screen or via speech from the couch. The imaginary is one of the three main factors Lacan uses to analyze human reality. The other two are the symbolic and the real.

The fairly recent phenomenon of visual avatars functioning in virtual worlds adds considerable weight to Nusselder’s thesis. He discusses avatars in detail in Chapter 4, along with the general concept of embodiment and the various notions of what constitutes space or its dissolution. Even using a common-sense interpretation, it is not hard to see how one’s personal creation of an avatar draws on factors from the unconscious and as such presents an alter ego. My own experience observing avatars in Second Life suggests that it is highly instructive to note how closely an avatar resembles its creator sitting on the other side of the fantasy screen in so-called real life! I believe there is much more room for further research in this specific area.

This book also explores why we are so attracted to and attached to the new media, “why we love our devices, why we are fascinated by the images on their screens; and how it is possible that virtual images can provide physical pleasure” (back cover). Interface Fantasy will prove to be a valuable asset to the libraries of academics working...
in quite disparate fields, and I believe it significantly extends our understanding of cyberspace, new media and the psychoanalytical importance of media technology.

**ART AND ARTISTIC RESEARCH: MUSIC, VISUAL ART, DESIGN, LITERATURE, DANCE**


Reviewed by Jan Baetens. E-mail: <jan.baetens@arts.kuleuven.ac.be>.

Research in art—also called research through art, practice-led or practice-based artistic research—is now clearly established as something very different from art tout court, on the one hand, and research on art (art history, art theory, art criticism) on the other hand. However, the practical implications of this newly institutionalized area are still under heavy debate. Promoters of this type of research insist on the right of artists to “do a Ph.D.” (although this is just the tip of the iceberg) and to benefit from funding possibilities until now strictly reserved to traditional academic disciplines. Critics underline the incompatibility between artistic experience and academic streamlining and managing of research, emphasizing the illusion of giving an added value to real art through theoretical, academic methods and procedures. The primary keyword in the whole process is “academization,” for, at least in Europe, the reform of higher education has produced (in the U.K.) or is producing (on the Continent): a radical merger of the university and non-university types of education, and this evolution is not something that can be stopped. The second keyword is “arts and sciences,” more particularly the “two cultures debate,” which has been dynamized by these changes in artistic training in universities.

As the bibliography listed at the end of this rich volume clearly demonstrates, discussion and publication on research in art have become a booming business. The advantage of this sudden flow of conferences, seminars, special issues, books and courses within the new programs is that it is no longer possible to start discussion from scratch, innocently repeating the same slogans, fears, hopes, desires and frustrations. One must now take into account a growing body of knowledge as well as a certain number of landmark texts, methodological statements, best practices, artists’ careers and even theoretical works that have moved from the margins to the very center of the discussion. Everybody is now following with great anxiety the wording of the British Research Assessment Exercise (RAE) definition of research in fine arts, just as everyone is rereading the special issue of the Dutch Journal of Music Theory (Vol. 12-1, 2007) on “Practice-Based Research in Music,” after having rediscovered classic voices such as those of Christoph Schenker or Christopher Frayling.

What strikes one most in this new volume is first of all the importance of the philosophical metadiscourse that is mobilized by the authors to make their point: Danto, Derrida, Foucault and Deleuze, for instance, are all over the place, and this overrepresentation of the postmodern art-theoretical doxa is a symptom that the field is still far from having constituted its own frame of reference. Moreover, these theoretical authorities seem to be shared by all categories of contributors: administrators, teachers, critics and theoreticians, but also the artists themselves. A second aspect that may come as a surprise is the exemplarily European dimension of the discussion. Unlike many other disciplines, where the Bologna BA-MA reform has not dismantled national preferences and traditions, the discipline of research in art seems eager to wipe out local constraints as much as possible in order to achieve from the very beginning a common ground on what training, teaching and thinking in this new kind of research is supposed to be.

In general, one can only admit that the quality of the ongoing debate is good and that the strong commitment of the participants to the achievement of a common goal—i.e. the equality between research in art and research on art—does not imply sloppy thinking and hasty, one-dimensional argumentation. The essays gathered in this volume are honest and mostly quite challenging. They are well documented, they often ask the right questions, they do not provide us with all the answers and they demonstrate that conference papers do not necessarily produce boring books (most texts in this volume are short, their tone is brisk, their content useful and their horizon clearly indicated). In short, this book is both a good introduction for those eager to catch up with a discussion whose start they missed a couple of years ago and a valuable sparring partner and echo chamber for those already involved in the field.

As always, some burning questions are not tackled. I am not referring here to financial or institutional issues. I am thinking in the very first place of the homogenizing way in which art is defined. The subtitle of the book reads: *Music, Visual Art, Design, Literature, Dance*, and what at first sight seems a strength might be seen as a huge problem as well. Musical composition, for instance, is a discipline whose methods and theories fit the more traditional research agenda seamlessly, and probably the same applies to design. But what about creative writing? A second issue that the emerging discipline is probably not yet ready to really look in the eyes is what to do with students who reject academization. There is a consensus that future staff should be a mix of people with and people without Ph.D.s, but what about the students starting their training? Will they all be forced to follow the rules? The prestige of the many theoretical references of the new programs and the continuing fascination with deskilling in contemporary art make academization a seductive solution, even for very young students who may have no real interest in doing (academic) research whatsoever.

It would be unfair, however, to use these questions and perplexities as an argument against research in art. The present volume should help at least to fine-tune and focus the creative chaos that still reigns in this field.
CYPERCULTURE AND NEW MEDIA
edited by Francisco J. Ricardo.

Reviewed by John F. Barber, Digital Technology and Culture, Washington State University, Vancouver. E-mail: <jfbarber@eaze.net>.

In his 1984 novel Neuromancer, William Gibson described cyberspace as “a consensual hallucination” (p. 67), a different, separate place where computer telecommunication technologies facilitate interactions between and with human beings, vast collections of data, artificial intelligences and quasi-spiritual mythforms. Since then, cyberspace has come to signify the exponentially growing capacity of computer, intelligence and virtual reality technologies into a global network of computer hardware and software linked through communications infrastructures that facilitate interactions between distant actors. Cyberspace is inseparable networks within networks that immerse users in interactive, visual, artificial, computer-generated environments. Once an optional extension of digital media, cyberspace has become a central site for on-line, computer-mediated language and creative, learning, recreational and political interactions—activities known as cyberculture—which in turn may affect more mainstream culture.

Cyberculture and New Media, edited by Francisco J. Ricardo, examines this changed relationship and how it shapes new forms of discourse between self and culture beyond what was once called the virtual. Originally papers delivered at the Third Global Cybertectures Conference, Prague, Czech Republic, August 2003, these essays articulate, on one hand, the empirical—a portrait of human action through digital media—and on the other, the aesthetic—a look at new media as a field of expressive practices central to human engagement.

The book’s first section, The Empirical, offers four essays. The first, “Formalisms of Digital Text” by editor Ricardo, asks what evidence supports claims that people communicate differently using digital media versus through writing or personal, face-to-face contact. A comparative analysis study of sentence usage in blogs, e-mail, printed text and speech is detailed. The results show a significant variation in the richness of language across these media and suggest implications for expressive forms and uses of digital media.

The essay “Knowledge Building and Motivations in Wikipedia: Participation as ‘Ba’,” by Shiezel Rafaeli, Tsahi Hayot and Yaron Ariel, suggests that Wikipedia, a collaborative form of creating and sharing content, experiments with co-building knowledge based on its users’ motivation to build community as well as a shared body of knowledge. “On the Way to the Cyber-Arab-Culture: International Communication, Telecommunications Policies, and Democracy,” by Mahmoud Eid, speaks to the alleged desire by more and more Arabs to use cyberspace and new media to develop and communicate Arab culture, identity and values. The last essay in this section, “The Challenge of Intercultural Electronic Learning: English as Lingua Franca,” by Rita Zaltsman, is a study of English used in cross-cultural electronic learning contexts that concludes that cyberculture can help bridge cultural differences because students feel they are connecting with one another and talking face-to-face in virtual environments.

The essays collected in the section The Aesthetic will probably have most interest for those using digital media for creative endeavors. For example, the essay “The Implicit Body,” by Nicole Ridgway and Nathaniel Stern, argues that interaction in cyberspace causes an implicit body to emerge alongside an unfinished art work; interaction begins a bodily process that is always at some point in between the sensory and the expressive. Another essay, “Cyborg Goddesses: The Mainframe Revisited,” by Leman Giresunlu, reviews current popular films that incorporate an omnipotent female figure composed of both good and evil. This approach, argues Giresunlu, incites critical examination of faith, science, technology, self and identity formation from a feminist perspective and as an alternative to more conventional codifications of power. Finally, “De-Colonizing Cyberspace: Post-Colonial Strategies in Cyberfiction,” by Maria Bäcke, uses topographical descriptions of cyberspace—striated space (the information highway) and smooth space (the web)—to explore how several female authors explore power, hierarchy and colonization in the fictional digital space their characters inhabit.

Taken together, the essays collected in Cyberculture and New Media speak to a cyberculture constantly supplanted by technological innovation and a restless adaptation, substitution and convergence of art, craft and language. The collection seeks to facilitate interdisciplinary projects and inquiry that are innovative, imaginative and creatively interactive.

BIODESIGN #3: THE PANGOLIN’S GUIDE TO BIO-DIGITAL MOVEMENT IN ARCHITECTURE

Reviewed by Rob Harle (Australia). E-mail: <harle@dodo.com.au>.

This review refers to two separate forms of Dollens’s latest contribution to the nascent art-science of biomimetic architecture. The first offering is in the form of an iPhone app; the second, with similar content, is available in hard copy as a comic-style book.

The iPhone is in my opinion a triumph of technology and engineering. The graphic/image manipulation capability is simply astonishing. Even if you are not especially into architecture, the beauty of Dollens’s digitally grown images will enhance your iPhone experience, stun your friends and help in the preservation of a small endangered animal—the pangolin.
The pangolin is a small animal with beautiful scales, a little like an armadillo in size and shape. They live in Africa and Asia, where they are under environmental stress from poachers who sell the scales on the black market. This comic book is dedicated to increasing research on and protection for pangolins. In the pangolin’s own words, “Grow Buildings! Reforest the Cities!” (p. 5)

The Pangolin’s Guide was inspired by graphic novels and manga, hence the comic-book style format. An unusual way to present serious sustainable architecture principles? Perhaps. However, as we are continually made to understand, ivory-tower academic research, locked away from the public’s scrutiny and input, is not the way forward to a sustainable global future. The lesson of a misinformed public concerning genetically altered food, which resulted in the prevention of some possible benefits of this process, should be noted. What better way to inform the general public about sustainable building than through the iPhone medium and comic books? Dollens decided to make his groundbreaking work available via these low-cost mediums so as to “share proposals, inspire and to trigger future thinking and design discussion for the future development of bioarchitectural systems.”

Dollens has been experimenting with bio-generative software, growing buildings and printing 3D architectural models for many years now. This has resulted in a number of previous books [1] most of which I have reviewed for Leonardo Reviews [2]. His main software applications are Xfrog and Rhino. These allow him to experiment with and generate new structures based on botanic samples, which result in digital hybrid biostructures. The concept behind biomimetic design is to understand how nature has solved problems, for example utilization of sunshine (photosynthesis), and then apply this to the built environment to produce truly sustainable buildings. Architectural sustainability has become far more than a band-aid approach. Future buildings must be biologically part of the environment, interacting with it (and humans) in a fundamental and positive way. The planting of deciduous trees on the heavy-sun side of a building is a good idea, but BioDesign takes this much, much further. The idea is to create buildings that are living entities that can process environmental information in a way similar to how living plants do, not just dead lumps of high-energy-input materials. The Pangolin guides explain and show many of these principles in a most enjoyable way.

Dollens is not only an inspired researcher and experimental architect but a truly gifted pedagogue. He teaches both formally at the University in Barcelona, Spain (ESARQ—Universitat Internacional de Catalunya), and widely through his books and publications. He inspires radical “out-of-the-box” thinking in the best possible way. I actually think his work should also be studied in disciplines quite remote from architecture where creative solutions to major global challenges are required. Students (and practitioners) in fields such as economics, engineering, environmental science, medicine and farming would benefit immensely from Dollens’s approach to problem solving and underlying philosophy.

The comic-book layout is highly enjoyable to read; the combination of text and beautifully colored images allows the message to “sink in” effortlessly. Embedded in the visual feast are many truly profound observations on nature, such as the section on spiraling. I’ll finish with a quote from page 6: “Natural spiralling & twirling (Genetic & Environmental) are growth strategies conceptually understood & sometimes viewed across scales—cosmological to quantum—from galaxies, ocean waves, trees, insect flight paths to shells, & molecular orbits. Spirals are the universe’s embedded locomotion.”

References

D-BA²: DIGITAL-BOTANIC ARCHITECTURE II:
E-TREES, DIGITAL NATURE, & BIOARCHITECTURE

Reviewed by Rob Harle (Australia). E-mail: <charle@dodo.com.au>.

Digital-Botanic Architecture II is a follow-up volume to D-B-A1, which I reviewed for Leonardo in June 2005 [1]. This book is similar in layout and subject matter, but it extends Dollens’s work since 2005, showing the gradual development and increasing sophistication of the digital-botanic concept. It is simply a joy to browse through the color illustrations and marvel at the complexity of the computer-generated forms and 3D models.

Again the book is only a slim volume at 72 pages but is lavishly illustrated with both black-and-white and color plates of drawings, screen shots and photographs. Some of the screen shots are of the software applications that Dollens and his students use to produce the hybrid digital-botanic-architectural forms. Xfrog, Rhino, ParaCloud, Generative Components and 3D StudioMax (for rendering) are the main applications. Each one does a specialist job, so to speak; the evolving forms are exported and imported to each appropriate application.

The illustrations are accompanied with short textual explanations and DIY footnote links typical of Dollens’s quirky graphical imagination (the DIY concept is explained in the Addendum) following Dollens’s main essay, “E-Trees, Digital Nature, & BioArchitecture” (pp. 56–60): “So why not bio-architectural research from citizen scientists? Why not re-envisioning cities and the materials of cities? Why not DIY digital botanic architecture? I’m serious” (p. 68). Dollens is nothing if not serious; he is committed to creating the future, not wondering what it might be like! Having been a psychopathological DIY
person since I was four years of age. I am really excited by this concept. "We don’t need to wait twenty years for Dupont to develop a stomata panel distributed through Home Depot—one should be DIY-started and tested now" (p. 63). Heart! Heart!

For those who have little familiarity with the digital-botanic concept, I will let Dollens explain in his own words.

This series of experiments with simulated digital trees, hybridized into architectural elements, illustrates botanic forms and their morphological and mathematical attributes applied to design systems and structures. Using this generative process demonstrates how the transferrance of some biological properties, held in algorithmic notation, such as phyllotaxy, allometry, and phototropism, may be inherited by architectural and design elements derived from plant simulations and their corresponding biological maths (p. 5).

For the most amazing building to come out of this research is the Self-Shading Tower for Los Angeles (pp. 22–28). This ongoing project was begun in 2007. It develops the Monocoque concept, which results "in a load-bearing facade supporting the building and held in compression and tension by the fifteen floor planes" (p. 23). In addition to taking on environmental performance duties, these Monocoque panels are stunningly beautiful!

As I mentioned in my review of Dollens’s BioDesign #3 iPhone app and comic book, Dollens is not only an inspired researcher and experimental architect but a truly gifted pedagogue. He teaches both formally at the University in Barcelona, Spain, and widely through his books and publications. He inspires radical “out-of-the-box” thinking in the best possible way [2].

I cannot recommend Dollens’s work highly enough. The books are suitable for most readers, highly enjoyable even if you don’t want to design buildings and especially relevant—essential reading—would suggest—for architects, students, environmental science scholars and architecture historians. You may start writing the history of the future built environment, because Dollens’s work will surely be a part of it.

References

ENACTIVE CINEMA—SIMULATORIUM EISENSTEINENSE


Reviewed by Mike Leggett, University of Technology Sydney. E-mail: <legart@ozemail.com.au>.

Early cinematographic pioneers established principles of story-telling based on the chemistry and mechanics of the day: the replacement of a single photographic image by another, following sequentially on a physical strip of nitrate film. The Russian filmmaker Sergei Eisenstein was foremost during the 1920s and 1930s in researching the theory and practice of the many ways in which this could be applied to the cinema narrative. In this exhaustive book Pia Tikka surveys in great detail the literature of Eisenstein’s era before extrapolating upon Eisenstein’s ideas and the possibilities of a motion picture system based on sequential ordering of the image but on its random production within the affordances of the digital environment.

The book, a lengthy and complete research thesis, is an extraordinary overview of writing produced by artists, philosophers, scientists and others over the last 200 years, exploring, inquiring into and investigating human consciousness and our meshing with moving images. As such it is an invaluable compendium of sources for further pursuit by researchers and scholars, as there is much that is only outlined, in spite of the depth to which the work probes; the author moves inexorably onward, making, arguing for and asserting connections between the galaxy of contributors assembled and the principal protagonist, Eisenstein.

Readers not familiar with Eisenstein’s films might wonder why, as recounted here, he pursued so much obscure research and whether or not he informed the making of his films or simply gave the recent legions of scholars studying his films and writings much to speculate upon when attempting to connect his theory and practice. Did Eisenstein pursue these various research areas because, post–pluralist-Lenin, he was channeled into making films politically acceptable to the Party? Or did he need to keep his (dangerously) active mind busy with private study projects while carefully seeking out the wider international community of questioning minds? Or did he just like people, being also, as a trusted Party member, able to travel to find them? These are the kind of questions about the social context Tikka leaves to Eisenstein’s many biographers.

Her aptly named “treatment” moves through recent scientific findings on the dynamics of mind and cultural discourse established in earlier times; contemporary Continental philosophies do not feature much here. The emphasis is on research-based practice (as proposed by Eisenstein to Soviet filmmakers in 1935), rather than the more fashionable practice-based research (practice in advance of findings and conclusions). With the domains in which the literature search will occur—consciousness, emotion theories, cognitive science and neuroscience—defined, her exhaustive searches bring together a plethora of minds from which potentially useful evidence is mined and discussed. Carefully organized into some 50 sections, the analysis is dense, but the summaries are short; such is the exhaustiveness of the quest that the trusting reader postpones questions about final outcomes.

Has the history lesson on Eisenstein’s notebooks and those of other mostly Russian thinkers at the turn of the 19th century helped us better understand where we are at the moment? Put another way, had not late-20th-century technologists emerged with the microprocessor and its manifestations, could it be that Eisenstein’s writings and those of his contemporaries would have remained simply as historical texts to be picked over by cinephiles, psychologists and philosophers, rather than, as here, being subjected to piercing analysis by a cybernaut intent on shaking up the many intellectual fixtures dominating the contemporary scene?

The later sections—only a matter of 30 pages of the total 338—describe the practice that flowed from the research and how this was useful to the author. As an homage to the master, the “Simulatorium” clearly embeds Tikka’s workspace; she refers to the work of art accompanying the book on DVD as “the practical outcome of the mental simulation process in which it was created.”

As if this considerable intellectual undertaking were not sufficient as
a Ph.D. thesis, Tikka embarks on an equally complex motion picture production. The outcome is in two formats: a 26-minute short film, Obsession, the dramatic enactment of incidents in a laundermat that conclude with a rape scene followed rapidly by a birth scene; and a 7-minute documentary showing the same material transposed as a four-screen “enactive cinema” installation at Kiasma, the major gallery of contemporary art in Helsinki, Finland. The Simulatorium system monitors heart rate, skin resistance and other data from five viewing chairs in the space; individual responses matched through prepared ontologies and rule-based algorithms are mapped to track “emotional participation.” The sequence of images and sound experienced are thus joined in the production of the Eisensteinian notion of “an emotion track” for each “psychophysiological” spectator.

In a conclusion the author postpones “ongoing technological elaborations” to a future thesis. There is no reporting on the evaluation of the extremely lengthy, complex and presumably expensive investigations thus far attained, in particular the experiences of each of the audience members who experienced the installation version of the high quality sounds and image. This seems a wasted opportunity for informed development of the precept rather than the implications that follow based on summarization of the principles elaborated earlier. This would seem to be a shortcoming of a research-based approach that leads with theory without giving sufficient cognizance to practice and empirical investigation.

Not surprisingly the references are thorough and form a valuable resource. Throughout the book, on most pages, we encounter Rorschach ink blots, shapes in abstraction identified in the early days of neuroscientific enquiry as appealing to the “dynamics of the organic mind,” reminding the reader page by page that at the core of this book is the search for a better understanding of “the embodied dynamics of the authoring process” shared between artist and audience. Other sections are marked with delightful “squiggles,” graffiti-like tags, gathered from the margins and pages of the master’s notebooks, reinforcing the connections Tikka doggedly searches for between research and art-making at either end of the 20th century.

**LEWIS’S FIFTH FLOOR: A DEPARTMENT STORY**


Reviewed by Aparna Sharma. E-mail: <a.sharma@arts.ucla.edu>.

Lewis’s Fifth Floor: A Department Story is a photo book in which photographer Stephen King revisits the abandoned fifth floor of the landmark British department store Lewis’s in Liverpool. The fifth floor of the store was reopened in public in the 1950s after the Second World War and was finally shut in the 1980s. During that time the fifth floor was a vibrant place of work, with a tightly knit working culture; and the photo book revisits those years by juxtaposing interviews of employees who worked there with photographs of the abandoned floor taken in 2009. The book is replete with sensorial evocations of memories of the fifth floor in terms of its daily rituals, routines, sounds, textures, colors and smells. King’s compositions are particularly striking in graphic qualities, complementing the art deco aesthetic of the fifth floor. Subtle camera angulation and the use of lighting emphasize the floor’s art deco color scheme. On the color of King’s photographs, Deborah Mulhern states in her essay at the start of the photo-book: “One of the most striking things about Stephen’s photographs are the colors: bold and unapologetic aquamarine and air force blue, maroon and mustard yellow, as bright and arresting as a restored Renaissance painting” (p. 12). King photographed the floor in early 2009. The effect of the winter light from that time of the year, cold and flattening, mixes with the art deco colors, resulting in a specific rendition of British urban landscape. This serves to highlight the difference between the colors associated with art deco in the U.K. and those elsewhere, for example, the West Coast of the United States, where the movement was influential. Mulhern historicizes the color scheme, adding:

The 1950s were a difficult but also hopeful time for people emerging from the restrictions and rationing of wartime, living and working surrounded by bombsites, as many people were in Liverpool. The designs of the 1950s were an attempt to banish the drab and down-at-heel and celebrate the actual and metaphorical introduction of colour into people’s lives (p. 12).

Mulhern points out that the fifth floor’s interior designs were influenced by the 1951 Festival of Britain, wherein: "Designers looked to science and technology for inspiration and the designs for furniture, furnishings and fittings were based on magnified atoms and molecules and the crystal line structures of minerals and metals" (p. 13). King’s photographs delve into this theme, bringing forth the influence of scientific imagination and its amalgamation in departmental store design. The book can be roughly classified into two sections. One contains photographs that concentrate on physical spaces of the fifth floor, such as a cafeteria, two restaurants and a hairdressing salon. The second section contains photographic portraits of former employees. Most of these photographs were taken by positioning the subjects in their workplace, often literally where they stood during the workday. Most portraits are full length, with the aim of situating the subject’s body within the spatial context of the store. The direct gaze of the subjects toward the camera is complemented by interview quotations through which the subjects introduce themselves and share memories of working at the store. It is evident that the interviews from which the quotations have been selected were conducted in a conversational manner that facilitated spontaneity and intimacy between interviewers and subjects, allowing the latter to share their personal experiences, impressions and relationships with their workplace. The employee recollections contrast sharply with the ghostlike atmosphere of the abandoned floor in the photographs. This creates a powerful effect of humanizing space—reducing the banality of the fifth floor’s present condition and inducing a human element within its narrative.
The employees who worked at Lewis’s remember there being a distinct working culture at the department store. Interestingly, numerous interviewees draw a comparison between the fifth-floor working culture and the famous BBC comedy series *Are You Being Served*, which ran from the early 1970s to the mid-1980s. Often times employees started at Lewis’s during their teens and many had more than one family member already working at the store. The working atmosphere at Lewis’s was familial and at the same time formal and cordial. The interviews point to a consumer culture that arose specifically in post-war Britain and was shaped by department stores such as Lewis’s. Mulhern situates this within a process of “democratising luxury”: The obligation to buy upon entering a store fixed, as did the assumption that working class customers would necessarily haggle (p. 12). This is crucial in historicizing British retail practices and culture that allowed for the working classes a claim in the luxury consumer goods sector. The British shopping experience was shaped to be more inclusive rather than exclusionary, and this is evident in mass-media representations of shopping in British film, which present class dynamics that are quite distinct from those manifest in shopping experiences depicted in Hollywood films. Over the years Lewis’s has lost much of its appeal, and City Council plans are underway to incorporate it into a shopping and leisure complex. English Heritage listed the Lewis’s building as Grade II in 2007 and attempts are underway to preserve the sculpture, décor and artworks in it. British consumer culture too has changed dramatically. Under the present economic crisis, stately firms such as Lewis’s are clearly becoming a 19th- and 20th-century phenomenon. Presently city centers across Britain are dotted with masses of concrete being mobilized to form inert, homogeneous and depersonalized retail complexes. Many artistic projects documenting the rapidly changing cityscapes of Britain have gained momentum over the last two years. *Lewis’s Fifth Floor: A Department Story* contributes to this emerging body of scholarship combining fine art methods with field-based practices. This blurs the boundaries between the humanities and the arts and makes a necessary contribution to the field of urban folklore.

**Darwin’s Camera: Art and Photography in the Theory of Evolution**


Reviewed by Amy Ione, The Diatrophe Institute, 2342 Shattuck Avenue, #527, Berkeley, CA 94704, U.S.A. E-mail: <ione@diatrophe.com>.

The idea that context is an important component in both the presentation and nature of empirical studies became popular at the end of the 20th century and is often considered an outgrowth of Kuhnian paradigms. With the elevation of paradigmatic perspectives, however, came the quandaries of what constitutes research “means” in practice. Precisely how does the creative mind make the leaps that take us from one way of seeing (and “being in”) the world to another? Case studies such as Phillip Prodger’s recently released *Darwin’s Camera: Art and Photography in the Theory of Evolution* offer an opportunity to come to terms with this dilemma as we consider a creative mind at work and walk in the shoes of an innovator. Indeed, the importance of context is a defining theme of Prodger’s study, in which he examines Darwin’s strategies for illustrating his books, his interest in art, his studies of book illustrations related to expression and his overall approach to the *Expression of Emotions* project, a component of the theory of evolution. As the book outlines the progression of Darwin’s thinking, the reader perceives how this scientist played with ideas, technologies and information to bootstrap the details of his presentation and, in doing so, made visual artifacts an effective part of his toolbox. More broadly, Prodger shows that when we sequence historical exemplars associated with key moments we can visually weigh how our understanding of the world changes from era to era. He also explains that images are a legitimate form of documentation in analyzing the problems thinkers have faced, evaluating the evidence of how innovators solve the technological limitations at each stage and defining the elusive process of creative accomplishment overall.

More specifically, *Darwin’s Camera* proposes that Charles Darwin revolutionized the use of photography in science with his publication of *Expression of the Emotions in Man and Animals* in 1872, building on three separate but related traditions: physiognomy treatises, passion manuals and anatomical studies. Toward this end, the book demonstrates that Darwin was looking for pictures at the threshold between what could be seen with the unassisted eye and what could only be seen photographically. While what he wanted became routine a decade later with the invention of speedy gelatin dry-plate chemistry of the kind used by Eadweard Muybridge (1830–1904) and Etienne-Jules Marey (1830–1904) (to analyze the gaits of galloping horses and motion), it was more of an aspiration in Darwin’s time. (Coincidentally, one of the photographers with whom Darwin worked closely, Oscar Rejlander [1813–1875], experimented with sequential imagery for the Darwin project, but was unable to produce sequential pictures adaptable for this purpose.)

While *Darwin’s Camera* does a splendid job in conveying how the images Darwin used offered insights on multiple levels, what sets the book apart is that when Prodger shows how Darwin used photography scientifically in presenting his theory of expression, he compels the reader to think about what we mean by evidence, illustration and objectivity in a larger sense. Taking us through Darwin’s effort to find suitable prints for the scientific study, Prodger reminds us that *Expression* was produced at the cusp of a change in attitudes toward photography. One reason the timeframe is important becomes clear at the end, when the author turns directly to questions about “evidence” and “illustration” in relation to Darwin’s work. Taking on some researchers (e.g. Marylo Marks, Carol Armstrong and Jennifer Green-Lewis) who have criticized Darwin for fabricating gestures and scientific positivism, Prodger explains that these critics argue anachronistically because they apply current views of photographic objectivity to Darwin’s work rather than understanding the mind and technology of his age.

Darwin, of course, wanted his readers to find his photographs convincing. Yet, as Prodger argues, the distinction between “evidence” and “illustration” is blurred in *Expression* because there was no precedent for the use and acceptance of photography as scientific data. There was no protocol for the use of empirical photography, precisely because photographers often found it necessary to manipulate their work not only to enhance its visual appeal but also
tool and a means to consider how both
a viable reference point in the devel-
set of problems. Each perspective offers
photography that dealt with a different
aspiration to combine motion and still
with Darwin, Prodger is analyzing an
evolution with his theory of expression.
used photographs to tie his theory of
Darwin's	Cam-
innovation, the creative imagination
with their desire to portray that which
is fleeting. The kernel of the argument
in the Darwin study is that this thinker’s
examination of how to portray humans’
only-human animals’ expression is
an important part in the story of how
photography came to be seen as “object-
ive.”

Many of the book’s details add to its
value. Comparative photographs from
the Darwin archive are used to help us
gut inside Darwin’s mind and allow us
to see what he did to emphasize par-
ticular points Prodger wants the reader
to focus on when reading the text.
Discussions throughout the book also
help us look at Darwin’s relationship
to Charles Bell, the Scottish anatomist,
surgeon, physiologist and artist. Darwin
drew several of his anatomical examples
from Bell’s work on expression and
took a class from Bell when he studied
in Scotland. I was particularly taken
with the discussions related to Darwin’s
rejection of Bell’s idea that expres-
sions were given by God, an idea quite
popular among 19th-century scientists.
Prodger also is well versed on Oscar
Rejlander, a photographer unknown
to me before I read this book. While
it is clear that Rejlander’s tendency to
embellish photographically is now seen
as controversial, it is also clear that his
work for Darwin included experimen-
tation that Darwin valued precisely
for this reason. Darwin did not see it
as deceitful, but rather as an effort to
push the technology beyond what it was
capable of achieving then, at least in a
basic sense. One notion related to the
Darwin/Rejlander relationship stood
out: Prodger’s suggestion that Muy-
bridge may have read a publication of
Rejlander’s outlining his experiments
to capture motion. If Muybridge incor-
porated ideas published by Rejlander
when developing his own motion study
techniques, then Rejlander is directly
linked to both Darwin and Muybridge.
Another notation that showed Prod-
ger’s attention to detail was a reference
to Rejlander’s self-portrait Surprised
Man, where the author points out that
the photographer’s stained fingers show
the effects of the silver nitrate used in
photographic processing.
Reflecting on the book when I
finished it, I debated whether more
information about the broader history
of photography might be necessary
for some readers. Will those who are
unacquainted with photographic his-
tory conceptualize how important Prod-
ger’s insights are? When we look at
the photograph today it is easy to overlook
the trajectory that has led us here. One
iconic image of early photography that
came to mind was Louis Daguerre’s
“Boulevard du Temple,” taken in late
1838 or early 1839. It is generally char-
acterized as the first photograph ever
taken of a person and it shows
the early problems photographers faced in
capturing movement. We are told that
this lone figure on a deserted street is
a deceiving image, because what was
usually a busy street was “lost” due to
the long exposure times of early pho-
tography. In other words, the capture
of a person in Daguerre’s image was
serendipitous because everything else
was moving too fast to register during
the 10-minute exposure time needed
to imprint the photograph. The reason
the man in the bottom left corner of
the plate registered is that he was stand-
ing still, getting his boots polished
during the entire time the photograph was
taken. This is perhaps the first example
of the “motion” problem.

In summary, Darwin’s Camera
describes how Darwin worked to
capture expressions that happen too
quickly for the eye to see and offers a
glimpse into how scientific imagery and
technological innovation developed
hand in hand. What sets this volume
apart is the discussion of why Darwin’s
attitude toward crafting images to
illustrate his scientific ideas may seem
suspect to us today—because we now
assume that the scientific method is
about conclusions fitting the data,
not about creating data to prove our
hypotheses. (Still, even today, we find
that scientists highlight areas of the
data that support their work. The
false-colored images to which we have
come accustomed are designed pre-
cisely to highlight what the scientists
want us to see.) Without debating the
pros and cons of this development, it is
fascinating to think about the introduc-
tion of photography in the 19th century
and how the efforts to capture fleeting
expressions required some degree of
contrivance.

Prodger notes that Darwin’s Expres-
sion quickly went out of favor, possibly
because the fashions of the models
made the book look antiquated.
Nonetheless, Darwin’s contribution to
scientific photography was revolution-
ary. Even if Expression did not have a
transformational impact comparable
to a book like Vesalius’s De Humani
Corporis Fabrica, which provided a foun-
dation for the modern disciplines of
human and comparative anatomy and
physiology, Expression was still a remark-
able achievement, as this pioneering study demonstrates. Both Darwin’s Camera and the recent publication of an annotated edition of Darwin’s Expression by Paul Ekman (which includes contributions by Proctor as well) attest to Expression’s current relevance. All in all, Darwin’s Camera is well written and nicely produced. Proctor ably credits Darwin’s contributions to the history of scientific illustration and highlights this scientist’s creative mind from an unusual perspective. He takes on a novel topic and ultimately says as much about creative thinking, experimental work and an imaginative mind as he does about Darwin.

Reference

WHEN THE LIGHTS WENT OUT: A HISTORY OF BLACKOUTS IN AMERICA

Reviewed by Jan Baetens. E-mail: <jan.baetens@arts.kuleuven.ac.be>.

Electrification is a crucial dimension of modern society, and its importance, industrial as well as cultural, has been underlined by many outstanding scholars, among them the author of this book, a pioneer of the field, as well Wolfgang Shivelbusch, author of Enchantment of Modern Life. In this new publication, David E. Nye studies a phenomenon that at first sight seems to be just an accident, more or less fortuitous, of the overall electrification process, but whose forms and meanings are much more diverse and above all much more relevant than was long supposed.

Nye’s basic assumption, which one can only share, is that a blackout is not only a technical failure but an event that lays bare the larger cultural context in which it appears. This hypothesis explains the two major orientations that the book follows: first, the historical approach, for the notion of blackout is context-bound, both in its form and in its significance, and this context is inevitably historically shifting; second, the taxonomical approach, for the history of the blackout is used also as a way of exploring the various types of blackouts that have appeared in history, from the very first power failures in the pre-grid era of electrification in the U.S.A., when power was still locally produced, to more recent phenomena such as the blackouts that result from a terrorist attack or the willing suspension of integral electrification in ecologically motivated greenouts, which combine selective use of power and more sustainable forms of power production. When the Lights Went Out is therefore an excellent example of what the French would call cultural history of the present (if Nye had been French, his book would certainly have been entitled The Invention of the Blackout) as well as a superb example of interdisciplinary research. The author combines in an exemplary way insights from technology history, green studies, cultural studies, history and philosophy.

One does indeed learn a lot of things in this book, which could be used as an original alternative to any handbook or course text in American history. The transformation of the blackout accompanies the evolution of society in general. This accompaniment is of course a two-way relationship. Blackouts both reflect and generate transformation, as can be seen very well in the comparison of two apparently comparable blackouts: on the one hand the great Northeast blackout of 1965 (an “accident” in Nye’s terminology), on the other the great New York blackout of 1977 (which he rightfully calls a “crisis”). In both cases, the technical causes may have been more or less similar, yet the social and human results were completely different. In the first case, the blackout was a magical moment that provoked astonishing forms of solidarity and communitarization—and, as the urban legends wanted it, even of lovelmaking.

In the second case, the same cause provoked a grim reaction of rioting and plundering in a general climate close to that of civil war. And although it is certainly possible to interpret each of these events as the manifestation of something that was only awaiting the best opportunity to reveal itself, Nye shows quite convincingly that blackouts also lay bare and probably also create unforeseen and perhaps unforeseeable reactions.

Nye’s insistence on the importance of social issues, of human relationships and community life, his emphasis on the limits of private initiative and corporate culture, his focus on ecological themes and finally his claim for a radical shift in U.S. electrification politics, give this book a strong ethical twist. Given the author’s well-balanced approach on electrification and technology in general, his final remarks in favor of a green power policy are very convincing. Moreover, Nye is not only a great scholar, he is also a great storyteller, and When the Lights Went Out is really great reading. The author is capable of summarizing very complex technological issues while demonstrating with great clarity their social and cultural stakes. A minor aspect of the book, however, is that its different chapters seem to be elaborated too strongly as almost independent units. This means that the author tends to repeat too often the same kind of information, questions and answers in the introductory parts and the conclusions of each individual chapter. But this minor problem does not jeopardize the overall interest of this publication and the pleasure and excitement it gives to its readers.

A BODY WORTH DEFENDING: IMMUNITY, BIOPOLITICS, AND THE APOTHEOSIS OF THE MODERN BODY

Reviewed by C.F. Black, Griffith University Law School, Australia. E-mail: <c.black@griffith.edu.au>.

Ed Cohen offers a provocative and demanding account of what he calls the “back story” of the apotheosis of
the modern body through the thought-provoking trajectory of immunity as an unquestioned metaphor that unreflectively incorporates juridico-political assumptions. This lack of questioning, he argues, has led to a disconnect between the body and its environment and the delegitimizing of other ways of seeing humanness and models of care and treatment.

This argument is tantalizing for those who may wonder why the “individual” has become inordinately central to the thinking of the West—as though the individual were a bundle of rights floating “discretely” above the planet, neither connected to nor responsible for that which pours forth from such thinking. Furthermore, it empowers advocates in poverty-stricken domains with a substantive argument as to why the “drugs into the body” type campaigns appear to suffer from the blindness of the poverty and conditions which bring about the disease in the first place.

Cohen’s book therefore can be recommended beyond the Anglo/First World borders of the predominant neoliberal order to that of those who depend on aid from wealthy nations. However, it is obvious that the author’s scholarship is directed at the academy and therefore not so accessible in its diction to the non-academic.

Cohen provides four substantive chapters to support his hypothesis. However, both the introduction and conclusion justify a close reading in themselves.

The introduction provides a comprehensive overview of the book and a frightening revelation that the Darwinian phenomenon, that is, the dabbling and assumption of one scientist, can become the scale by which the humanity of billions can be determined. The reductionism and individualism of the biomedical approach to health is writ large in this expose.

Chapter 1: Living Before and Beyond the Law, or A Reasonable Organism Defends Itself. This chapter opens with a quote from the famous sci-fi film War of the Worlds and then goes on to demonstrate how the influence of such popular media shapes our understanding of germs and immunity. However, who can be blamed for thinking germs and immunity come down to some kind of bacterial shootout at the O.K. Corral taking place in our bodies on a daily basis?

The evidence for this argument begins in this chapter, and Cohen gives a rather surprising account of the co-optation of the words immunity and defense from their 2,000-year legal and political home into a new form of natural law that shaped modern politics and modern science.

Chapter 2: A Body Worth Having, or A System of Natural Governance. This chapter provides an insightful account for those who suffer under the public health system driven by neoliberal values. The linkage between poverty and population highlights politico-economic arguments intimating that it is the poor who are to blame for declining health standards—and even more sinisterly, that the poor are a threat to national politics and economic stability. The notion of medical police is provocative, and the state increasingly legitimates the authority of physicians as experts on a population’s general well being or “happiness” as living organisms. Furthermore, Cohen takes the reader through historical debates that eventually lead to: “As a result, medicine experience begins to assume some of religion’s salvific responsibility” (p. 98).

Chapter 3: A Policy Called Milieu, or The Human Organism’s Vital Space. This chapter lowers the reader into the murky policy prisons of public hygiene and the funding of the holy sanctuary of the laboratory. That which issues forth from this holy of holies has the God-given status of the truth about our bodies. I would add that it is riveting reading to learn the source of the reductionist mentality that sees the human being as a health statistic and the cure for ailments reduced to a script on a piece of paper. Or is it the script from another sci-fi film—Star Wars—which we find in the next chapter?

Chapter 4: Incorporating Immunity or The Defensive Poetics of Modern Medicine. This final chapter reads like a scene from Star Wars, in which Cohen presents a biopolitical conjunction of immunity as defense giving rise to the apotheosis of the modern body. Just like Anakin rising from the molten remains of the Death Star and his body is apothecized as Darth Vader, so too does this chapter give us a much-needed intimation of how “our bodies in the West” have been refashioned like a Darth Vader of defenses against invading bacteria. The notion of immunity atomizes our bodies into the realm of defense—a body worth defending. Thus, our humanness no longer exists as part of a larger environment, but something we must turn into a fortress in itself—the weapons of defense being those designed by the biomedical fraternity. As Cohen explains, this is not an intentional shift but rather a matter of history.

In conclusion, A Body Worth Defending has much to offer the diligent reader interested in tracing modernity’s genealogy and its shifting understanding of the nature of the human, including its present manifestation as a biological phenomenon separated and distinct from the environment. This separation has come to dictate not only how we care for the ill and our system of healing but more insidiously our entire political and economic relations (p. 281).

Earthrise: How Man First Saw the Earth


Reviewed by Stephen Petersen. E-mail: <petersen@udel.edu>.

Earthrise has a simple thesis with profound consequences: What the Apollo astronauts discovered when they got to the Moon was, in fact, the planet Earth as they saw it from afar. Their photographs of the Earth in space transformed humanity’s idea of itself and of its home planet. No longer was the whole Earth a projection or an
abstraction; human eyes had seen it, a sight epitomized in a handful of widely reproduced images that are here put into cultural context.

The author is a historian of early modern England who by his own admission is stepping "outside" his "accustomed fields." The result is a refreshingly wide-ranging history with a perhaps unlikely focus, namely the link between the Apollo space project and the back-to-nature counterculture that blossomed in the very same years. Calling itself "an alternative history of the space age," this book resists the typically triumphalist narrative of spatial conquest (as well as the dismissive view, often from the left, of space exploration as an expensive technocratic folly) in favor of a nuanced exploration of the rhetoric and imagery that accompanied the Apollo project. Focusing on the brief era of extra-orbital manned flight from 1968 to 1972, Poole maintains it is no coincidence that these years saw the emergence of the modern environmental movement. The defining moment of the book (and, the author argues, of the U.S. space program and indeed of the entire 20th century) is not Neil Armstrong’s first step on the Moon during the Apollo 11 mission but rather the vision from the Apollo 8 Lunar Orbiter, some months before, of the Earth appearing from behind the lunar horizon. Shrouded in a religious aura (it happened on Christmas Eve 1968), the image of "Earthrise" was, ironically, a nod to pre-Copernican thought. Earth was, once again, the center of the universe.

Recounting the conflicting views of astrofuturists, who believed the destiny of humanity was in space, and environmentalists, who saw outer space as a flight from earthly concerns, Poole steps back to show the connection between the two. In its sequence of photographs of the whole Earth, Apollo (along with other NASA projects) effectively provided an imagery for the environmental movement. Moreover, an impetus for the first photographs of Earth from space seems to have come from countercultural figure Stuart Brand, who in 1967 demanded to know, in a public relations effort, "Why haven’t we seen a photograph of the whole Earth yet?" (a notion he had while tripping on LSD and perceiving the Earth’s subtly bulging horizon from a San Francisco rooftop). In turn, the first color whole-Earth image, taken by satellite ATS-III in 1968, would adorn the cover of Brand’s inaugural Whole Earth Catalogue, known to some as the bible of the counterculture.

Brand was a follower of Buckminster Fuller, whose notion of "Spaceship Earth" as a self-contained system informed ecological awareness (the first Earth Day flag bore an image of Earth from space). In the wake of the Earthrise photograph, however, the technological metaphor of Spaceship Earth was superceded by James Lovelock’s "Gaia"—Earth as a living organism—which would find its ideal representation in the Apollo 17 “Blue Marble” photograph of 1972. This widely reproduced image from the last Apollo mission was, writes Poole, “an abstract composition in blue and white . . . more like an impressionist painting, with . . . the deeper mysteries of nature displayed in a hypnotic blob of color” (p. 95). An image of a living Earth leads directly to the global warming science and politics of today.

As a historian dealing principally with images, Poole perhaps wisely steers clear of contemporary photographic theory. But he clearly describes the different photographic techniques and attends to the photographs’ multiple channels of transmission. The book gives a vivid sense of how the particular images were made, how they were disseminated and how they were received. It re-creates the circumstances of the taking of specific photographs, connecting them to their “authors” in interesting ways. An unsung hero in the largely unknown photographic history recounted by Poole is Richard Underwood, Apollo director of photography. Underwood encouraged and provided detailed logistical support for the particular views that were ultimately produced. Even though the Apollo astronauts were not always encouraged to (or scheduled to) look at the Earth or photograph it, they managed to do so anyway. On their return, they spoke most passionately of the effect not of space or the lunar landscape, but of the view back to Earth. Especially affected was Apollo 9 astronaut Rusty Schweickart, who would become involved with the emerging New Age spirituality and planetary consciousness movements of the 1970s, providing perhaps the most direct link between NASA and the counterculture.

If, as Poole suggests, the astrofuturists now appear to have jumped the gun, given the finite span of the Apollo project and the uncertain prospects for out-of-orbit space travel in the near future, the unique challenge of maintaining our Earth’s biosphere looms ever larger. The very notion of an Earth at risk derives from—and adds a poignant coda to—the whole Earth awareness of the Apollo era.
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To view a list of papers published in Leonardo and Leonardo Music Journal on topics related to textile arts, please see: <leonardo.info/isast/journal/calls/smartextiles_call.html>.

This project is supported by the Marjorie Duckworth Malina Fund, which honors the memory of a key longtime supporter of Leonardo/ISAST. The project recognizes Marjorie’s dedication to the ideals of international cooperation by emphasizing the participation of artists throughout the world. For information on making a donation to Leonardo/ISAST in memory of Marjorie Duckworth Malina, please visit <http://leonardo.info/isast/donations.html>.

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|                             | David Carrier                     |
|                             | Eva Craig                         |
|                             | Holly Crawford                    |
|                             | Eugene Epstein                    |
|                             | Lawrence Fane                     |
|                             | Herbert Franke                    |
|                             | Doreen Gatland                    |
|                             | Pamela Grans-Ryan                 |
|                             | Oliver Grau                       |
|                             | Linda Dalrymple Henderson         |
|                             | Robert Hill                      |
|                             | Curtis Karrow                     |
|                             | Melinda Klayman                   |
|                             | Kathleen Laniiza                  |
|                             | Thomas Mercer                     |
|                             | Gianluca Mura                     |
|                             | Friederike Nake                   |
|                             | Barbara Nessim                    |
|                             | Jack Ox                           |
|                             | Ed Payne and Lisa Fain            |
|                             | Nancy Perloff                    |
|                             | Frank Popper                      |
|                             | Harry Rand                        |
|                             | Beverly Reiner                    |
|                             | Mark Resch                       |
|                             | Eric Roll                        |
|                             | Edward Shanksken                  |
|                             | Leonard Shlain                    |
|                             | Jesse Tischler                    |
|                             | Joan Truckenbrod                  |
|                             | Kelvin Tsao                       |
|                             | Jonathan Willard                  |
|                             | Barbara Lee Williams              |

| Richard A. Wilson           | Stephen Wilson                    |
| Gary Zellerbach             |                                   |

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