

L|R|Q

Leonardo Reviews Quarterly 2.01 | 2012

Executive Editor: Roger Malina

Editor-in-Chief: Michael Punt

Associate Editor: Claudy Op den Kamp

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LEONARDO

THE INTERNATIONAL SOCIETY FOR THE
ARTS, SCIENCES AND TECHNOLOGY

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The Sublime in Art and Science Today

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Leonardo Reviews

Leonardo Reviews is the work of an international panel of scholars and professionals invited from a wide range of disciplines to review books, exhibitions, DVDs, CDs, websites, and conferences. Collectively they represent an intellectual commitment to engaging with the emergent debates and manifestations that are the consequences of the convergence of the arts, science and technology.

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Science, History and the Sublime

Andrew Shryock and Daniel Lord Smail, in their recent collaboration on Deep History make the rather startling observation that whilst the depth of history has extended in response to *On the Origin of the Species* (1859) and geological time charts developed in the 19th century, and current cosmological conceptions of deep time extending back some 13.4 billion years, the discipline of history has become increasingly restricted to the recent past. Indeed as they point out judging by university course offerings, professorial titles and publications, the extent of history today is gradually retracting into the near present. More or less coinciding with the date of its own foundation as a discrete university subject it appears as if history has become bounded by its own disciplinary origins. One cause of this, they point out, is that the new discipline of history founded less than two centuries ago insisted that historical truth can only be confirmed by documentary evidence, and this has of course provided a methodological boundary to its domain. One of the many consequences of this (which may or may not be intentional) is that History can conceal its own novelty as a way of knowing the world, and "New Historians" such as Gallaher and Greenblatt challenged this myopia with the understanding that any story of the past is partial, provisional and a tale told from the present. The transformational resonance of "New History" is beginning to be felt on other disciplines, so that, for example it no longer appears as if the hard sciences have been with us for 'ever', and that the history of science - even when it is not articulated by scientists - impacts on their practice. However, undergraduate scientists are encouraged to review the scientific literature of the past but are not routinely taught the history of science, or that the history of science - how science was practised, how its claims were received and how (and why) dominant assumptions have been overturned - is important. In many ways a science, inextricably linked to the technological promise of unrestrained progress is none the worse for its healthy neglect of partial and provisional accounts of its past. The myth of technological autonomy that prevailed in the 19th and 20th centuries has given way to a more pragmatic, semiotic and socially determined view of technology as an imaginary dimension located in human desire and aspiration. This imaginary is frequently manifest in technological artefacts and systems and in this way the history of sci-

ence connects with Deep History in that it is imbricated in a story of the progressive depth of human consciousness.

The archaeology of modern science reveals it to be certainly much younger than many of the arts that were used to understand the world; music, painting, literature, theatre etc, and it is well documented that in the 17th and 18th centuries (what we now call) scientists had to struggle against resistance and scepticism to achieve their current standing. Such struggles were not convincingly won even throughout the 19th century until, according to Richard Luckhurst's account of the separation of science from psychical research, the human origin of science was detached as a legitimate area of concern and with it was swept away the enterprise of history. It is here that Deep History with its concern with the concept of origins may rescue science from its progressively alien appearance (which, in my view, no amount of dating the arts will ever recover).

In the previous century science was not always so detached from the philosophical conundrums of conscience. There was a time, not so long ago when it was thought by rational and informed scholars that the universe 'started' between 4,000 and 6,000 yrs BC. This belief became increasingly difficult to sustain if the scientific evidence of geology was taken as face value. (Edmund Goss and others, of course devised brilliantly inventive explanations to counter the geological record and maintain the short history of the world). Elsewhere, however, the geological evidence revealed an infinitely deep history of activity and organisms; not least 'pre-Edenic' man. These scientific claims of a deep time before Adam, and the wider acceptance of geological time - and its integration with the human imaginary of kinship for example - poses a key question that form the cornerstone of Smail's project: when does history start? Is it exclusively a study of humans and if so when do we start the story in time and where do we start it in space? If we take the view that history starts with Hominines who have agency over contingency then we need also to consider where that agency lies and if it is historical then what is the history of consciousness? These are not purely historiographical questions. Speaking of the practice of history and its implications for its practitioners Shryock and Smail point out:

"The small community of inquiry created in the Spring of 1859 was composed of materials, things, and flesh and blood people. It made novel connections between places as varied as

muddy gravel pits and the metropolitan meeting rooms of learned societies. The biface [axe], and the networks of relationships emanated from it, certainly affected the lives of its discoverers and all those who have subsequently come into contact with it. [...] Hominines have always been constituted by the agency of persons and things. Our history is a material history, not just a succession of thoughts and speech acts. If deep time is to figure in our histories, then we need narratives that can triangulate between agents and materials. This shift in focus brings into play a model of cognition that differs from the one that underpinned the deep-time revolution of 1859, [On the origin of Species] which stressed a rational appreciation of the evidence rather than a relational understanding. A mind distributed in social relationships and physical materials takes cognition outside of the head, beyond the skin, and into the world. Such externalism means that materials and artefacts are always implicated in our cognitive architecture rather than being simply outputs of our internal cognitive processes. Thinking through objects rather than thinking about objects becomes the description of the cognitive processes" (Shryock and Smail, 2012, pp. 30-31).

In short, Deep History suggests that in any cognitive enterprise in which we are thinking through objects, we are intimately connected with ourselves as an intimate determinant of that object - irrespective of its place in time. This 'bootstrapping' version of reality, which recognises the human imaginary as mobile, provisional and contingent, presents something of a paradigm conflict with those rationalist enquiries that are driven by a positivist world-view and insist on maintaining a verifiable distance between the observer and the observed (subject and object). This tension lies at the heart of the definition of science that Sundar Sarukkai so ably unravels in his recent book *What is Science?* To track the detachment of the term science from natural philosophy is also to track the detachment of what it means to do science from what it means to believe. As he reminds us:

"Given that the title of science has value in the present times, it is only reasonable to expect spurious claims to science hood. Centuries ago, in the beginning of modern science, it was religion or philosophy that had this value and physicists and mathematicians often invoked the idea of God or of Religion to validate their work. ... Now the roles are reversed and religion often, tries to legitimize itself by saying its claims are scientific

or that what religion talks about has some correlation with modern science" (Sarukkai, 2012, pp. 11-12).

In this progressive reversal there is also a detachment from one of the key drivers of human intervention, at least as evidenced in the arts, which is a fascination with the infinite unknown, which finds its highest expression in the idea of beauty - the sublime. At the mid-point in the timeline between European Enlightenment and the present-day, the greatest and most fundamental and formative insights of physics emerged from a hybrid of validation between the rational and belief. Key figures in the chronology of science such as Davy and Faraday, were committed scientists who also had strong spiritual convictions that have, by and large, been erased as inconvenient distractions. But as Richard Luckhurst's painstaking research has made clear, the distinction between scientific and psychical research - at least in Britain - was not especially marked until the latter part of the 19th century. The mutual interaction of the material (and rational) and the unknown and sublime was crucial to the scientific imaginary and, despite the interdictions of the establishment, persisted through figures such as William Crookes and Oliver Lodge. I have argued elsewhere, this occult dimension of enquiry precipitated a technological strand that deployed science in the possibility of infinite connection in time and space (largely through audio visual media). The preoccupation of mainstream scientists and technologists with the arts and media might be viewed, in this context, more as a latent desire to engage with that which it lost (the sublime imaginary) rather than a patronising attempt at public education.

There is some indication that from within scientific practice there is a widening consideration of the agenda that has, for the most part, been consigned to visionaries such as Feynman and media niches such as *Leonardo*. Hoffmann and Boyd Whyte have recently put the sublime into the frame again as a reinstatement of belief, and done it in such a way so as to avoid the polemic that sprang from Darwin's *On the Origin of Species*. Introducing their collection of essays they argue for a symptomatic approach to the question of belief and science. The breadth and indeterminacy of the term [sublime] are central to this project. Rather than address the sublime head on as a category seeking definition, this volume uses it as a catalyst to provoke responses from a group of distinguished scientists and cultural historians. ... In this context, the sublime is not

offered either as a veiled religiosity or as a mandate for nihilism. Rather, it is seen as a means of defying conceptual rules and, in the process relating insights that were formerly unknown to each other (Hoffmann & Whyte, 2011, p. viii).

Their approach is transdisciplinary in its broad aims and to be welcomed, but its flaws are in its (possibly well intentioned) multidisciplinary method. Science and belief are aspects of human endeavour that are too important to be left to the dictatorial rehearsals of binary oppositions or a liberal consensus based on a democracy of opinion and views. And whilst it is important to contextualise any practice in a cultural history, as Shryock and Smail propose, it is through historiography (not history) that the sublime can emerge as a human symptom. As many of us have argued before, it is important that scientists engage with the history of science as an essential part of their training in order to situate their practice as also partial, provisional and a story told from the present. To understand that good science (and good scientists) should recognise the interdependence of the inextricable connection with ourselves as an intimate determinant of the object of knowledge. With the advantage of Shryock and Smail's brilliantly accessible work, the consideration of deep time and Deep History makes it clear that to do science and to do history is to think through objects rather than about objects. To factor this into the practice of science will lead to the recognition that the 'self' that undertakes scientific research cannot be fully defined in scientific ways. Such a modest world view opens up a meaningful transdisciplinary framework for the arts, humanities, science and technology to liberate shared human dimensions - such as the sublime - and return a real dividend on the intellectual generosity required for such collaboration.

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Science and the Sublime

Sublime is different from, and more than, the beautiful. Sublime best captures the sense of being overwhelmed, whether 'positively' or 'negatively'. This leads to a feeling that there is something more to an experience than what is expressed or grasped at that point. There is a simple idea, following Kant, that captures this essence of the sublime, namely, the inability to grasp a concept in all its fullness. The idea of the sublime captures the gap between conceptualizing something and grasping that concept fully, that is, the unrepresentability of that idea. Ideas of the unrepresentable include those of absolute measures, of absolute totality or even absolute freedom - these ideas create in us a particular experience which we are not able to represent in their whole.

But are these just some idle musing of philosophers? What about the scientists? Is there anything that they think is - in principle - unrepresentable? Something inherently incomplete? Does Cantor's description of transfinite cardinals grasp the idea of the infinite in its fullness?

One might think that the problem in this discussion of the sublime lies perhaps in language; it is often said that language lacks the capacity to express ideas. We invoke this sentiment when we say we are not able to say what we *exactly* mean, or that words don't capture what one feels and so on. But the sublime is not like that - it is not a reflection of an incapacity to articulate a feeling nor is it a problem of linguistic competence. There is something fundamental about the impossibility of expressing the sublime independent of language competence.

There is a useful analogy with science here. One of the interesting tensions within science lies in a set of concepts inherent to it but which challenge the ideal notions of science. Three examples of these concepts are indeterminacy, uncertainty and incompleteness. Given a committed belief in the determinism of science, it was indeed a difficult task to make sense of indeterminacies of various kinds, including probability in natural phenomena. Einstein's unease with the essential probabilistic nature of the quantum world is well-known. The claim that nature is essentially indeterministic is a radical shift in the scientific understanding of nature. Attempts to argue that the indeterminacy and uncertainty of quantum systems arise due to less information or lack of

theoretical sophistication have now largely given way to the belief that it is impossible to get rid of this inherent property of the quantum world.

The idea of sublime is somewhat like this: its presence reflects neither an incapacity for expression nor a lack of proper concepts but only something intrinsic to the nature of that experience. So, in this sense the idea of the sublime is indeed close to those fundamental concepts that underlie modern science.

It is also useful to look at this formulation of the sublime in the context of science because there is an underlying relation between sublime and morality. This is an important insight that arises in philosophical discussions on the sublime. I believe that this route to the ethical via the sublime makes it easier to introduce questions of ethics at the foundation of scientific thinking itself. While scientists tend to react to what they perceive as constraints imposed by ethics, they seem to more easily accept the aesthetic and sublime dimension of science [1].

But what is the unrepresentable for science and how does science understand this unrepresentability? Can the Cantorian paradise of transfinite cardinals lead to a sublime experience? Does it arouse experiences of pleasure or horror? To answer this, we first have to ask what scientists do when they are not able to express the ungraspable. Do they let go of the capacity to describe it or do they drastically modify their presuppositions in order to accommodate that imagination? There is an interesting paradox here: the way scientists and students of science respond to these seemingly sublime ideas negates the very definition of the sublime as unrepresentable. The mathematics of infinity is prosaic and is reduced to everydayness through mathematical practice. One invokes extremely obscure mathematics to describe string theory as an attempt to present the unrepresentable and not as an illustration of that which is not expressible.

So the fundamental question is about this unrepresentability, this sense of being overwhelmed. Scientists don't seem to be overwhelmed about anything at all - they are ready to take on any problem! The real difficulty, the insurmountable task, is not in the challenge of conceiving or tackling the problem but the difficulties in solving it, either through appropriate modelling, solving mathematical equations or doing simulations. There is great difficulty in experimental work too but none of these difficulties match anything close to unrepresentability.

One argument we can make is that this sense of the sublime does not play a role in science for the simple reason that idealizations and approximations lie at the heart of all scientific activity. Every scientist should presumably know that the idealizations that are used in models - such as point mass objects, ideal frictionless gases - are not the 'real' but yet the strength of science lies in continuing to deal with these ideal objects 'as-if' they were real. That is, in science, nobody is really concerned about the strict match between the object and its representation or between the concept and its presentability! On the contrary, the scientific imagination begins with the first axiom that you only present the real through these ideal modes. The question of the real is displaced to that of the *approximate* - namely, how close the ideal is to the real - and not a grasp of the real per se.

One can thus hopefully see why the sublime in principle is problematical for science since there is firstly no immediate attempt to grasp the sublimely real but only an ideal of it. And once this is done, to proceed 'as-if' it is the real that has been grasped. The fact that there is a gap between the presentable and the concept is not a cause of any kind of special experience. The ideal, the model, the approximate, the 'as-if', all of them succeed in allowing the sublime to manifest itself as such.

In invoking the sublime in science, some authors have pointed to the mystery of the scientific imagination present in physics, chemistry and other sciences. For example, string theory seems to point to the lurking transcendent (the indescribable transcendent) since physicists seem to be able to describe it in all complexity but yet fail to grasp it (see *Beyond the Finite*). But all this is to confuse the issue since the sublime seems to then rest in mathematics and mathematical discourse.

Mathematics in itself may be seen to be a sublime art. I have often found mathematicians in the midst of their calculations so lost in what they are doing that they seem to be perceiving and reacting to a world different from ours. Mathematicians are more susceptible to the experience of the sublime - reacting with pleasure, horror or even the kind of intense absorption that the sublime can catalyse. I have seen this even with school students working on a problem or when learning a new mathematical expression.

To claim that the sublime rests in the world opened up by these mathematical models and

symbols - as in string theory - is to hypostasize mathematical entities. To claim that it is the sublime is to pretend as if the story they say about the universe is really true and it is that truth which is not graspable by us. If we read string theory, like other scientific theories, as narratives first and foremost, then we will see why the notion of the sublime in such theories gets potentially negated.

The sublime for science is not really to be found in its objects - whether natural or theoretical. It has to be found in concepts which are found in ordinary science; we don't need exotic science to discover the sublime. It lies in concepts such as incompleteness, uncertainty, unpredictability, complementarity and so on. It arises as horror when science confronts the wall of inherent probability and uncertainty, when at its foundations it finds incompleteness and when it confronts indeterminacy.

However, there is one specific concept that for me specifically seems to encapsulate the sublime in science. A concept that even in its representation resists the epistemological head-in-the-sand attitude of modelling. This is the concept of the imaginary number. '*i*' cannot stand for the imaginary domain, for the domain of the imaginary cannot - by any imagination - be presentable and reduced to this number. The imaginary world of mathematics always escapes the reduction to *i* but - really but - this representation is so powerful that one can only gaze at it with great wonder!

Perhaps the imaginary number brings together the two aspects of the Kantian sublime - the mathematical and the dynamical. The 'number' *i* is not a mathematical measure, a number which quantifies. It is not a real number, a real measure. It cannot be the mathematical sublime. It is also not the dynamical sublime - there is nothing real about it, such as the reality of a powerful force of the dynamical sublime. It acts like a number and yet is not one. But when we try to describe it not in terms of number, it acts 'as-if' it is a number. And most importantly, without *i* physics and science as we know it today, with their descriptions of the real world, might not exist!

i is literally the unreal but for scientific discourse it is the path through which a realist discourse is possible - from the literal unreal it becomes the metaphorical real. It is also our response to this magical, imaginary number (as if other numbers are 'real') that truly raises the sublime experience for there is both pleasure and horror when we reflect on it. Pleasure at its magic - the pleasure when we realized that $\exp(ix)$ can be a

real number for some x and more pleasure when it magically unifies messy equations into 'beautiful' ones. Delight at its literal unreality when we learnt that the first lessons in quantum mechanics are claims that the wavefunction cannot be measured because it is not real. Why is it not real? Because it is a pure imaginary function, the lurking i making it so. Horror that this little number can be the ultimate judge on whether the electron wavefunction is real or not!

There is also horror at the same time when we realize that we do not know why this number should matter at all, or even whether it is a number at all. Or a deeper horror that settles on us when we ask whether we are missing something fundamental in our understanding of the nature of i , missing the really important reason as to why this imaginary number should matter to a discourse on reality and by missing this, are we perhaps on the 'wrong' track? That vision is one which can be nightmarish - and sublime - not just for science but for all of modern societies which have invested so much in it.

References

[1] For examples see the book discussed by Punt in this issue - *Beyond the Finite: The Sublime in Art and Science* by Hoffmann and Whyte, and *The Elusive Synthesis: Aesthetics and Science*, Ed. A. I. Tauber, Springer, 1997.

A Role for the Sublime in ArtScience?

Is the Sublime Important in Science Today?

Sundar Sarukkai [1] in his accompanying LRQ Editorial states: "One can thus hopefully see why the sublime in principle is problematical for science since there is firstly no immediate attempt to grasp the sublimely real but only an ideal of it." He refers to Kant's notion of the Sublime as: "There is a simple idea, following Kant that captures this essence of the sublime, namely, the inability to grasp a concept in all its fullness." Sarukkai goes on to unpack how Science has dealt with parts of the world that are "un-presentable" through the use of mathematics; these approaches have allowed Science to deal with various types of challenges to positivistic modeling of the world such as notions of indeterminacy, unpredictability, complementarity, uncertainty and incompleteness. He notes: "The mathematics of infinity is prosaic and is reduced to everydayness through mathematical practice?"

Michael Punt [2] in his introductory editorial, on the other hand, argues for the importance of the Sublime in Science: "The mutual interaction of the material (and rational) and the unknown and sublime was crucial to the scientific imaginary and, despite the interdictions of the establishment..."; he points out that in the 19th century for instance, there was a close coupling of science and the occult. Elsewhere I have written how Linda Henderson has charted the concepts of the ether and higher dimensional reality as powerful cultural imaginaries that have crisscrossed sciences and the arts. These concepts are reappearing in recent decades in string theory, dark energy and other appeals to deep unifying factors in the structure and evolution of space, but also in the science fiction literature that has created the concepts of cyberspace, as we know them. The context is however different than it was in the nineteenth century, and today there are few links between contemporary science and the occult (though many scientists are religious). What is certain is that some 'travelling concepts' circulate between the fields of arts and sciences for centuries.

It seems to be that if we expand Sarukkai's argument on the "un-presentable" to the un-observables and the un-knowables there is a role for the Sublime in today's science. And within this is the

ecstatic nature of the sublime confronted with a reality that cannot be grasped in its fullness that gives the thrill of discovery an emotional equivalent of the concept of the Sublime as it has fed the arts and the sciences; the Sublime can be a deeply human way of confronting the question of the comprehensibility of the world.

The Thrill of Discovery: Making the Un-Observable Observable

During my scientific career I have been lucky to work on projects that have made scientific discoveries. This may seem usual for a scientist, but in fact most scientific work does not result in scientific discoveries of significance, and the emotional connection between personal investment and scientific discovery is often remote. Today's hunt at CERN for the Higg's Boson is the work of thousands of individuals over decades, many of whom will be dead before the discoveries are confirmed. The thrill will be vicarious at best and often posthumous.

The project that I worked on that I want to single out is the Extreme Ultraviolet Explorer Satellite project [3]. Conceived by my thesis advisor Stuart Bowyer, the purpose of the project was to make the first astronomical map of the sky in the extreme-ultraviolet band of the spectrum of light. This light, between x-rays and the ultraviolet is a daunting area of astronomy, technologically challenging and theoretically forbidding. Indeed in some astronomy textbooks of the time this band was called the "un-observable ultraviolet" because the most common elements in the universe, hydrogen and helium, absorb this kind of light almost completely. Our colleagues, one of whom eventually won a Nobel Prize, argued that the project should be cancelled because it was a waste of taxpayer's money; there would be nothing to see. The project was maintained by NASA, and the instruments and satellite mission operations were carried out by a team at the University of California, Berkeley where I led the instrument development and observatory operation teams. The project involved hundreds of people over 15 years. We attended the rocket launch at Cape Kennedy, returning to our laboratory to start receiving the images once the satellite was in orbit.

I well remember the day that we were to give the first commands to turn on the cameras on the telescopes.

The team in Berkeley, perhaps 50 scientists, engineers, administrative staff and students gath-

ered in the conference room to watch the turning on of the telescopes. We sat on the floor waiting for the first images; perhaps the technology would fail; perhaps the unobservable ultraviolet was indeed un-observable. As the data began to stream onto the screen we were momentarily silent, and then, as the first star appeared in the image there was a collective euphoria and for a moment I experienced a scientific sublime. The world was potentially knowable and through our technology the un-observable had become observable.

Michael Punt in his Editorial points out in his discussion of deep history that "such externalism means that materials and artifacts are always implicated in our cognitive architecture rather than being simply outputs of our internal cognitive processes. Thinking through objects rather than thinking about objects becomes the description of the cognitive processes." As a scientist we indeed think the world through objects; through our scientific instruments the un-observable becomes observable. Sarukkai discusses the use of mathematics in science, and the concept of imaginary numbers as one form of the sublime un-presentable in Science. Indeed Eugene Wigner [4] is often quoted for his remark on the "un-reasonable effectiveness of mathematics". It seems to me there is a double mystery. Accompanying the effectiveness of mathematics is the un-reasonable effectiveness of instruments. As I have argued elsewhere, the human body is very badly designed to understand the universe it lives in. Human cognition and human senses have evolved as part of evolutionary selection, and these requirements are very different than those needed to understand the key processes in the world around us. Yet in spite of this, through the use of mathematics and instruments, contemporary science has developed a 'robust' system of explanations with prediction power that models many of aspects of the world.

As Sarukkai points out science does not seek to capture the real but rather to mimic the real: "Every scientist should presumably know that the idealizations that are used in models - such as point mass objects, ideal frictionless gases - are not the 'real' but yet the strength of science lies in continuing to deal with these ideal objects 'as-if' they were real. That is, in science, nobody is really concerned about the strict match between the object and its representation or between the concept and its presentability!" I cannot but agree, particularly as an instrumentalist scientist rather than a theorist that we can declare success when

the universe becomes 'presentable'; but surely in that gap between the presentable and the world itself there remains a source for the Sublime.

Un-Presentables; Un-Knowables

Sarukkai defines the Sublime as "different from, and more than, the beautiful. Sublime best captures the sense of being overwhelmed, whether 'positively' or 'negatively'. This leads to a feeling that there is something more to an experience than what is expressed or grasped at that point."

Above I have argued that indeed the process of making the un-observable observable is one scientific strategy for the Sublime. I would like to add two other concepts to the presentable (or 'modelisable'). First is the idea of the 'un-knowable' where un-observables are in principle not observable. One area of the un-knowable appears in quantum mechanics and as Sarukkai points out modern science has accommodated itself to non-deterministic mechanics not only in quantum mechanics but also in the science of complexity. Scientific notions of causality have been expanded with the fact of quantum entanglement, but also of the way that initial conditions play crucial roles in chaotic systems.

Scientists today have little problem dealing with the un-knowables of quantum mechanics. Certain separable ontological categories in our daily life, such as position and velocity, become ontologically overlapping through the Heisenberg Principle. It is just not possible to know to arbitrary accuracy the simultaneous values of two quantum-coupled quantities. Some un-knowables still pose problems still. Arthur Miller for instance points out that: "Actually, quantum mechanics does have trouble with un-observables. Feynman had a point when he wrote that we still don't understand something as 'simple' as the double-slit diffraction experiment using light or electrons." (Arthur Miller, Private Communication, 28 May 2012)

The discovery of the finite speed of light also creates fundamental un-knowables. The 'light cone' defines the space-time envelope of causally related events. Even though we are in an infinite universe, the finite speed of light means that what is happening in parts of the universe that are further away than the light travel age of the universe, these events are unknowable. Similarly, events that are occurring inside the horizon of a black hole, these events are not only un-observable to outside observers but un-knowable to them.

It seems to me that these un-knowables in science become another reservoir for the scientific Sublime that can also be explored by artists.

Un-Presentables; Un-Translateables

Finally, it seems to me that a key issue in the un-presentables discussed by Sarukkai is the underlying epistemological reliance on human languages, written and visual and aural. I think that this goes beyond the inability to describe certain ideas. Human cognitive systems develop within maturing individuals in interaction with their environment and with other humans. These languages thus are derived to be able to describe objects and events that humans encounter as they mature and live. Human language co-evolved with the human brain as it is confronted with experiences, dangerous or wonderful; human language is finely tuned to certain parts of the world.

Science is dealing with a different world. Most data we acquire on the world as scientists is not acquired directly through the human senses, but mediated via vast panoplies of scientific instruments. To know about the infinitely large, the infinitely small, the intrinsically complex, the human senses are badly adapted and therefore so is human language, and scientific language takes decades to stabilise.

In quantum mechanics we invent language, such as 'charm', to describe observable properties of nature. In astrophysics we call matter that we detect, but cannot see with light, 'dark matter' even though it is of an unknown nature. We observe that the expansion of the universe is accelerating, so we attribute this to a 'dark energy', also of an unknown nature. It seems to me that an underlying problem of un-presentability is the un-translateability of a world observed with instruments into a language derived from human sensory experience. It is in this gap between the world of science and the world of art that it seems to me the tools of the artist and writer may be able to create awareness of a larger connection. In those moments "[t]his leads to a feeling that there is something more to an experience than what is expressed or grasped at that point". These thrills of connection to a larger reality, together with the thrill of discovery, could be wellsprings of the Sublime in ArtScience today.

Some Examples

In closing I would like to mention three works that seem to tackle the problem of un-presentability and un-translatability. In both of these works I

experienced both awe and fear, not as a technological sublime, but an acute awareness of phenomena beyond my senses.

i) Multimodal Representation of a Hydrogen Atom

At the Allosphere at the University of California Santa Barbara, a team with physicist Luca Peliti, artists JoAnn Kuchera-Morin and Lance Putnam have created a visualization and sonification as a Multimodal Representation of the Quantum Mechanics of the Hydrogen Atom:

This work interactively visualizes and sonifies the wave function of an electron of a single hydrogen atom. The atomic orbitals are modeled as solutions to the time-dependent Schrödinger equation with a spherically symmetric potential given by Coulomb's law of electrostatic force. Different orbitals of the electron can be combined in superposition to observe dynamic behaviors such as photon emission and absorption. The interactive component of the simulation allows one to fly through the atom with a probe that emits "stream particles" that follow along the largest changes in the probability current and gradient of the electron. The electron probability amplitude is sonified by scanning through groups of stream particles in the space. The pitch can be adjusted by the rate at which a particular set of stream particles is scanned across [5].

This work is outside of the regime of scientific illustration but clearly seeks to create an immersive experience that one can 'fly' through, that has sensual and emotional power.

ii) Softday: Marbh Chrios

'Marbh Chrios' means Dead Zones. In 2008 Robert Diaz showed that the number of 'dead zones'-areas of seafloor with too little oxygen for most marine life had increased by a third between 1995 and 2007. It is currently estimated that there are 20 such 'dead zones' in Ireland and two were identified in the study at both Killybeg's Harbour and Donegal Bay. Geologic evidence shows that dead zones are not a naturally recurring event in marine ecosystems; dead zones were once rare, now they are commonplace and increasing, which poses a serious threat to indigenous marine habitats and the human food chain.

The artists collective Softday [6], as part of the Leonardo Lovely Weather Project [7], examined the available data from the Irish dead zones and work collaboratively with three distinct partners, local traditional musicians from An Charraig/

Amhainn a'Ghlinne (Cairdeas na bhFidiléirí) in Donegal, Met Éireann (the Irish Meteorological Service) and The Marine Institute of Ireland, to address the relationship of climate and culture to sound. Softday translated scientific/environmental data into abstract 'live' sonifications and vocalisations. The computer generated music composition that the Donegal Youth Orchestra and the Softday Céili Band performed, was based on eight years of related marine and meteorological data.

iii) Scientific and Sonic Perceptions of the African Sahel

Scientist Paul Adderley and Musician Michael Young have created sonifications of soil materials that were sampled from the West African Sahel at a village called Tiwa located in the lacustrine plain of Lake Chad in Northern Nigeria:

This region has experienced extremes of flooding and drought throughout history that may have displaced the human population. The village has dwellings constructed from mud-brick and thatch, surrounded by fields. Samples were taken from a pit dug close to the village. This area is subject to intense land management and receives cultural debris washed-in by seasonal rains. The materials were sampled intact with the spatial organisation of the soil maintained through processing and examination in the laboratory. The soils were found to span a 10,000 year period that includes the onset of human settlement in the Lake Chad plain c. 4000 years ago.

By considering a landscape that is both extreme and has long-standing cultural activity, a narrative is developed. To borrow Barthes's terminology, the data from scientific analysis provide functions to the narrative; they are indices to the landscape and to human conditions. These data also connote actions that may be anthropogenic or environmental (such as changes in land management, house building, flooding and desertification). A narrative emerges from the exploration of these data, in which a sequence of actions is deduced from functional descriptions of physical objects, which are in turn offered for evaluation and exploration in sonic and visual forms [8].

The resulting work aggregates scientific data into perceptually holistic musical scapes that give the viewer a sense of human activity over a 10,000 year period, a piece of deep history that relies not on documents or even human artifacts but rather the inter-connection of human communities

and the ecologies and climate variability they are embedded in and the traces they leave in soil.

The Two Kingdoms

To pursue my translation analogy I would like to close with a quote from Kierkegaard, which it seems to me, gives an inkling of the problem of translation not between the world and scientific models, but also between the world known by the scientist and the world of the artist. Kierkegaard sets up that moment of "disclosure" that would be perhaps be a modest beginning for the Sublime in ArtScience today:

"If I imagined two kingdoms bordering each other, one of which I know rather well and the other not at all, and if however much I desired it I was not allowed to enter the unknown kingdom, I would still be able to form some idea of it.

I would go to the border of the kingdom known to me and follow it all the way, and in doing so I would by my movements describe the outline of that unknown land and thus have a general idea of it, although I had never set foot in it.

And if this was a labor that occupied me very much, if I was unflinchingly scrupulous, it presumably would sometimes happen that if I stood with sadness at the border of my kingdom and gazed longingly into that unknown country that was so near and yet so far, I would be granted an occasional disclosure" [9].

It seems to me that the astronomer confronted with the mysteries of dark matter and dark energy and the artist trying to make sensible the very real but incommensurable phenomena of quantum mechanics find themselves in a connected search for a Sublime, for those moments of an inkling of a perhaps awful larger context that we only glimpse partially. For the scientist the potential horror in the Sublime would be the incomprehensibility, unrepresentability, of the world; perhaps for the artist the reverse?

My colleague Wolf Rainer points out [10]: "Wittgenstein in his *Tractatus* seems to echo Kierkegaard's parable of the 2 kingdoms when he said that "to think the border or limit of something already implies a kind of knowledge of it, at least in your thoughts about it. For language expressions implies the drawing of borders. He also held that most of such philosophical questions are not false, but merely nonsensical from a language philosopher's view. It's our incomprehension of the logic of language which produces nonsensical answers".

The Sublime is perhaps a deeply human way of dealing with the possible incomprehensibility of the world, of being in the world; and as Sarukkai states, there is an underlying relation between the Sublime and Morality. Here perhaps ArtScience practice (see for instance the “Trust me, I’m an artist: towards an ethics of art/science collaboration performances” [11]) provides one translation tool to introduce questions of ethics at the foundation of scientific thinking itself.

Acknowledgements

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- [4] Eugene Wigner, <http://www.dartmouth.edu/~matc/MathDrama/reading/Wigner.html>
- [5] <http://www.allosphere.ucsb.edu/research.php>
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- [10] Wolf Rainer, private communication, 29 May 2012: “Wittgenstein in his *Tractatus* seems to echo Kierkegaard’s parable of the 2 kingdoms when he said that “to think the border or limit of something already implies a kind of knowledge of it, at least in your thoughts about it. For language expressions implies the drawing of borders. He also held that most of such philosophical questions are not false, but merely nonsensical from a language philosopher’s view. It’s our incomprehension of the logic of language which produces nonsensical answers. Thus, once the scientist puts his operational thinking cap on and works through the methodological steps that can produce answers, he is on his way. If he can avoid being unduly fettered by the shackles which limit his cognition, language and overproductive imagination (Kant’s ‘produktive Einbildungskraft’), his search may actually give him a feeling of the ‘sublime’, and that word today may just be the sleeper of the once vigorous aesthetic discourse of the 18th century trying to distinguish between things in nature which produce feelings for which separate categories were deemed necessary.”
- [11] Anna Dumitriu and Bobbie Farsides: “Trust me, I’m an artist: towards an ethics of art/science collaboration”: <http://www.artscienceethics.com/>

Artifacts, Entanglements & Deep History: A Reflection on the Sublime in Art and Science

The emergence of deep history is shaping a contemporary concern with the origins of the human and its artifacts, beyond a reliance upon the written word of the (more shallow) past, which has formed a somewhat materialist history constituted by persons and things. Instead of a reliance upon documentary written evidence, a deep history attempts to re-instate the 'pre-history' of the written word – a genealogical and archeological history – through the *traces* of human consciousness left within human made artifacts, which themselves become containers for meanings and social relations (Shryock and Smail, 2011). Shryock and Smail insist that materials, just as the written word, contain *traces* of human kinship relations and exchanges. Seen within fossils, tools, pictures, household items, ecological change and genetic variation, these traces thus 'document' a deep history of the human mind, that extends into the material world. Such a reading of a deep history of the human through artifacts, may give evidence for an imaginary dimension of human desire (Punt, 2000), and by extension human perception, which opens up a deep history of the human beyond that of an axiomatic materialism.

Such a deep history would comprise a symbiotic treatment of material and immaterial – (im)material – dimensions of human experience, engaging within a world that itself is comprised of materials, forces and energies. Manuel DeLanda's non-linear geological history provides a useful guide, documenting the deep geological time and energy flows, which change speeds and momentarily harden to form the very crusts and landmarks of the environment (2000). Makers, such as designers and painters, have been sensitive to such an (im)material symbiosis through their practices. The painter Paul Klee's elementary theory of creativity recognised that form is always "set by the processes of giving form" (1964, p. 269), that energies and forces which are external to the practitioner, the properties of the materials used, beget movement and allow forms, such as painted lines and strokes, to emerge or grow. Such *form-giving* processes of growth involve not merely a single 'human' agent's intentions, but as contemporary studies in material culture have recognised, the very material properties, tensions, and resistances of matter itself (Ingold, 2010).

These (im)material *form-giving* processes of material engagement comprise, as the time geographer Torsten Hagerstrand termed, the texture of the world, a "Tapestry of Nature which history is weaving" (1976, p. 332), in which every constituent of the environment – human, animal, plant, stone, building – has (and is) a continuous trajectory (or thread) of becoming in counter-point to the rest of the tapestry. As the constituents move through time they encounter one another, and the trajectories of these diverse constituents are bundled together in diverse combinations of entanglements or knots. The Human, for Hagerstrand, as well as the human artifact, is always a counterpoint to trajectories constantly becoming, and as such is constituted by these trajectories just as much as their own threads of life. The origins that a deep history alert us to are, thus, not be found through an analysis of the traces left captured within the object themselves, but through the tracing of the *form-giving* process and trajectories that leave the traces.

Such thinkers concerned with this 'materiality' of form-giving maintain that the *origins* of human made tools, pictures or artifacts, are not to be traced backwards – from the outcome through a sequence of antecedent conditions, to an idea in the mind of an agent, but forwards – in recognising that the maker's role is to bring forth form through joining and following the forces and flows of materials themselves (Ingold, 2010). The 'creative origin' of an artefact lies, not in the tracing backwards to a single idea down a network of relations, but in the tracing of the forward movement, of the entanglements, following the flows of materials that give rise to things – the trajectories of diverse constituents, a tapestry or a meshwork.

An artifact is not, in this sense, an object (in distinction from a subject), or a 'thing' (as distinct from, but impacting upon humans), but is brought forth – is an *entanglement* of the joining and following of forces and flows of materials (Ingold, 2010). The origin of form is then not a single point of origin, but an *entanglement* of lines of movement in counter-point, the *form-giving* process itself. To trace a deep history of the distributed human through artifacts, then, is a question of tracing not an origin, but the form-giving processes – the trajectories of which the artifact is a counterpoint – the meshwork behind materials such as tools and pictures. Such a move could reveal a model of the human in which the (im)material nature of the meshwork, with the properties and energy flows of the material world, acts as

an extension of human agency. Human desire, as much as a desire of the materials themselves, play out through degrees of resistance, dependency and engagement.

This (im)material meshwork of *entanglements* could constitute the very sublime experiences revealed by the preceding editorials, the “thrills of connection to a larger reality” (Malina) which come with the thrill of discovery, leading to a “feeling that there is something more to an experience than what is expressed or grasped at that point” (Sarukkai), a “fascination with the infinite unknown” (Punt). Such a feeling, however, could describe not an internal bodily affect, but could comprise a momentary reveal of the distributed entanglement of the human within a wider meshwork, which comprises the very fabric of the larger reality. Situated within this meshwork we could suggest that Science doesn’t necessarily deal with the altogether different world of instrumentation to that of the human senses that may be believed. Nor to that of the artist. Rather, Scientific instruments- just like fossils, tools and household items- could be seen themselves as a material trace of *kinshipping*, of desire, cognition and imagination (Drayson, 2011), entangled within the meshwork of the world. As the presence of the sublime within the disciplines of science and art could reveal the very connecting fabric of their interwoven nature, the sublime itself could be a key (or a thread pick) to unraveling this deep inter-woven tapestry of reality. A historiography of the human, and by counterpoint - of disciplines themselves, could be achieved through the very deep history of the artifacts, knots, entanglements and meshworks that give them form.

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And Tell Tulip the Summer

by Allan Graubard

Quattro Books, 2011, 106 pp.

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"No man understands a deep book until he has seen and lived at least part of its contents."

-Ezra Pound

Allan Graubard can be categorized as an anti-memorialistic poet with a retro existential narrative. *And Tell Tulip the Summer* begins dramatically in 2001 in Sarajevo, where Graubard returned after an initial visit two years earlier. "There is a fountain," he writes and repeats throughout the poem, followed by lines such as "masked by the moon," "scorched by the sun," "raced by the wind," "trained by the stars," "that whittles his hands," etc. Of course, "All those who drink from this fountain will return!" (pg. 11)

Graubard forges a personal voice while constructing surreal metaphors and word combinations such as: "slumbering cities," "cross eyed of dawn," "shadowy engines," "forgotten dreams," "tortured fingers," "rotting handshakes," "tumbling infants," "teething hairs," "jagged mirror stain," "human ignition," "singing bloated corps"—all this from the poem "Modette." (pg. 31) His technique stimulates our sound-sense; "Because I Did Not Live," (pg. 53) for example, requires reading aloud and then creating "exquisite corpses" by proposing other ironic permutations of the words "life" and "live." "Bob Kaufmann," (pg.75) another one of the best in the collection, declaims, "Kaufman startled by a simple kindness/ in

an elfin hole of empire despair"; one can sing it as a blues. And "Butch Morris" (pg. 69) is a poetical-musical composition "And from the other side of silence ..."

Graubard is an inspired observer who uses a reflective tone, organically grown from a mix of American and European surrealist literature. His literary diagnosis is compulsive, obsessive, and metaphorically disordered, as in "our dreams dream us dreaming them/And we dance in a dreamless dream of dreaming." (pg.70) His writing, full of raw emotion, visions of gargoyles, and sophisticated language puns, showcases a humoristic slant chock full of erudite vocabulary.



"Tulips sway like occult masks, vanishing and reappearing...." The subject of vanishing and reappearing is one of his favorite frequent motifs. Another is dance: as he puts it, "dancing sparks dance with life." "Dance of Death," (pg. 25) after Strindberg, is a Marquis de Sade-like narrative, one of "golden myth sent back by morse crickets come to evacuate the uncertain sensibility of dead solitary dawn." (pg. 67) The poet's conviction that something transcendent is haunting him is illustrated with a masterly hand: "For

we have returned/ from each angle/ in this rotating wind from nowhere." (pg. 71)

Throughout the book, Graubard as poet-critic dedicates his *modus vivendi* to neo-surrealist causes, not only locally, but also in Croatia, Romania, France, the U.K., Holland, Venezuela and Canada (to name just a few). Don't fail to drink from this fountain of poems - and you shall return!

What is Science?

by Sundar Sarukkai

National Book Trust, India, 2012, 225 pp.

ISBN: 978-8123763675

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In *What is Science?* Sundar Sarukkai provides a magisterial overview of science as a human activity today, covering definitions of science, the social organization of science, philosophy of science, and ethical issues arising in and from scientific activity. He ends with an impassioned plea for deep engagement in new dialogue and negotiation by the scientific community with other segments of society. Through this process he argues scientists will both enrich their creativity, develop new forms of science, but also become far more responsible citizens of the world. The book is written for a general, non-academic public and is accessible both to working scientists and artists.

Several particularly strong narratives stand out.

In chapters on Science and Logic, Science and Reality and Science and Knowledge, he outlines the history of concepts such as Time and Space within

different philosophical traditions and their connections to scientific periods. I was intrigued with his discussion of the ontological status of space, with some comments on the concept of aether in Indian traditions. It would be interesting to trace this issue of the aether, a topic that has come alive again with the mystery of dark energy in cosmology, but also certain concepts of cyberspace. Linda Henderson, in her forthcoming *Leonardo* book on the 4th Dimension and non-Euclidian Geometry in Modern Art, develops at length the way the concept of the aether was dominant in much of 19C science and art work even until 1919 and the eclipse confirmation of one of the predictions of general relativity; the concept of the aether continued to have influence in the arts in the post war period and also in spiritual circles and is being re-injected into current art-science discussions as documented by Henderson. Concepts of space in science continue to evolve with string theory.

Sarukkai contextualizes the development of scientific ideas and methods and, more particularly, mathematics, within the multiple influences and exchanges between the various Mediterranean and Asian civilizations, with a strong rebuttal to the dominant European mythology of its predominantly Greek roots (more on this below). He develops at lengths the variety of ways that mathematics is connected at the hip with modern science, arguing in part that this due to the fact that mathematics, as a language, is a proliferating combinations of sub-mathematical languages adaptable to the evolution of scientific practice; here he offers a variety of responses to Eugene Wigner's ill-posed question about the 'mysterious effectiveness of mathematics'.

Finally in a very rich and well argued section he further develops his previous arguments on the ethics of curiosity, and its social evolution from a Christian sin to a scientific virtue, and the lack of corresponding discourse in the Indian philosophies.

I am particularly interested in his argument, argued at length in the closing chapters of this book, that the scientific community should and must engage in deep dialogue with other sectors of society. This line of reasoning connects to Helga Nowotny's call for a 'socially robust science'; and the proposition that the art-science dialogue currently burgeoning internationally was one example of the beginnings of a deep dialogue and negotiation.

A connected issue is the concern that after 45 years of existence the Indian subcontinent is virtually invisible in the *Leonardo* publishing program and networks. In the Chapter on "Doing Science" he explains some of the perverse effects of scholarly publishing, and mechanisms with social consequences that reinforce the hegemony of government supported science in North America and Western Europe, mechanisms among others that contribute to the relative invisibility of Indian science in the global scenario.

He frames his book in the chapter on "Defining Science" with Article 51 A(h) in the Indian Constitution which states as a Fundamental Duty of the Citizens of India, "To develop the scientific temper, humanism and the spirit of inquiry of reform," the only world constitution that embeds science so overtly. He goes on to explain how Nehru himself misunderstood Indian intellectual history and allied himself with the 'sciento-optimism' that

was so characteristic of the immediate post world war II era, symbolized by Vannevar Bush's report on "Science, the Endless Frontier." Since that time the relationship between science and government and science and society more generally has become more complex, a topic Sarukkai explores in depth in the chapter "Science and the Human Subject," arguing that science more aggressively develop internal controls on unbridled curiosity. The recent debate on whether to permit open publications of the work on genetic engineering modification of flu viruses is indicative that this deeper debate is perhaps being initiated within the scientific community. Even Alan Leshner, President of the American Association for the Advancement of Science, has advocated the need for such deep dialogue, noting that "the link between science and the rest of society is a little fragile these days."

The closing sections of the book are perhaps less convincing. In a section titled "Science and its Impact on the Self" Sarukkai opens up an almost Jeremiad like complaint, reminiscent of some of Virilio's laments, about the pace of change and the desire for speed. "In an age defined by speed, nothing is enough... there are important psychological and social consequences of living life in this manner..". However I find myself in sympathy with his conclusion that it is necessary "to humanize science is to bring back the human subject in its fullness within science and technology". Indeed over the past few years I have helped create the Mediterranean Institute for Advanced Studies (IMERA: Chimera,fr) with its aim of working on 'the human dimension of the sciences' as one place perhaps where the deep dialogue

that Sarukkai calls for is being initiated. Sarukkai's arguments join my own belief that we need new systems of translation between Science and other sectors of society, and not just science education.

Sarukkai relates some examples of the different ways that science and religion interact in different cultures, citing the way that some scientists from the Indian Space Agency take models of their satellites to a temple in Tirupati Temple before the launch of the satellite. He explains how in the Hindu Festival Ayudha Pooja has evolved to include prayers to computers and scientific apparatus. The cultural and spiritual embedding of the scientific enterprise is rarely made explicit, as Sarukkai successfully does in his discussion of the ethics of curiosity. I remember at the International Astronautical Congress in Bangalore a few years ago, hearing the heads of space agencies each articulate in a few sentences their vision for the contribution of their agency to society. The head of NASA brazenly spoke of exploring and exploiting the solar system, a direct extrapolation of the American manifest destiny doctrine and the endless frontier mythology. The head of the Indian Space Agency, ISRO, talked of contributing to helping human civilization "stay in balance with its planet," clearly responding to a different cultural discourse; yet it is not simple: One of ISRO's proudest achievements is the launch of the Chandrayan missions to the moon, symbols of technological prowess and tokens of military capabilities, and China also has bought into the cold war era use of space as terrain for national competition. Nehru's original reasoning for including the 'duty to develop the scientific temper' in the Indian

Constitution is still alive and well in governmental circles.

Finally, I look forward to Sarukkai's future writing on new narratives of the history and philosophy of science. In a number of sections he develops elements of a new histories of the multicultural origins of modern science. Drawing on recent scholarship of Arun Bala and others, one begins to see the outlines of new answers to Joseph Needham's query of why modern science first developed in Europe and not elsewhere; incidentally Needham was a founding *Leonardo* editorial advisor, and author of *Science and Civilization in China*. The developing answers to Needham's question include; it did; it isn't always called science now though there are continuity of concepts and methods; science and its methods are not stable objects and are still evolving; modern science is not organically rooted only in Greek thought; in a 3000 year history of science it would be apparent that the interchanges between Asia, the Middle East and Europe were consequently that European scholarship has ideological and political reasons for a particular reading of history of science; that the invention of the printing press in Europe ensured disproportionate documentation of euro-centric historical sources. Finally it is hard not to observe that the history of modern science may look very different 400 years from now (800 years after Galileo) when scientific productivity of the BRIC countries outpaces that of North America and Western Europe and other cultural embedding of science bears its fruits. This will be particularly the case if the kind of deep dialogue and negotiation between science and other sectors of

society called for by Sarukkai really takes place allowing the emergence of a new ethical basis for the scientific community.

I highly recommend this book to *Leonardo* readers. It is intended for students, but also interested scientists and researchers in the arts and humanities.

(For deontological reasons I need to mention that Sundar Sarukkai is a professional colleague as a member of the *Leonardo* Editorial Board and section editor for the "Re-Imagining the Moon" editorial project of the Journal).

Maps of Time: An Introduction to Big History

by David Christian, foreword by William H. McNeill

University of California Press, 2011, 672 pp.

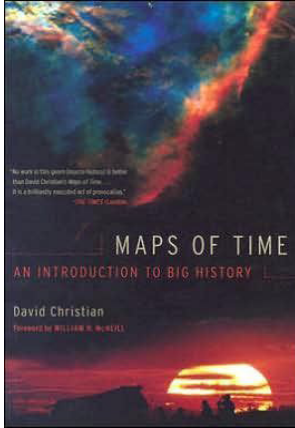
ISBN: 978-0-520235007

Reviewed by Enzo Ferrara, INRIM and IRIS, Torino, Italy

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The concept of historical consciousness emerged in the first half of the 20th century indicating the collective capability to understand and join the contemporary reality, recognizing the major events and actors that defined it, also advancing proper questions about its chance of continued existence. Two chief quantities at all times concur in determining historical consciousness: the limitation of the physical space and the awareness of the time scale people live in. Different meanings of life and humanity's place in the universe are deducible if duration of time closes over six thousands years, as stated by literal reading of the sacred texts, or expands back to 13 billions years,

as dated by science; the same applies if the perspective is limited by the Pillars of Hercules or able to appreciate even a faint gleam sinking into the most remote black hole.



Actually, historical consciousness delineates the way we look at complex questions of life, nature and society, broadening common understanding of reality and striving hard to unburden ourselves of the baggage of tradition and claims of modernity. Time and space have so much been enlightened by science that no thresholds remain to their conceptual extension. Wide awake to this concept, David Christian, historian at San Diego State University, was able to provide modern historical consciousness with its own sense of meaning. With the help of colleagues who gave lectures on geology, biology, and anthropology, Christian constructed what has been called *Big History*: an issue embracing all the cosmic, natural, and cultural passages that gave birth, eventually, to such a modern disenchanting idealism able to embed even the ephemeral story of humankind into the notions of infinity and eternity. His book was first published in 2005, with a new preface in 2011.

Before being registered in encyclopaedias, *Big History* formed in minds and discourses blending human memories and scientific evidences; it is the history on the largest possible scale, from the beginning of the world until its end. The maps of time provided by Christian's title can, in principle, help to find a place for everything but with large uncertainty. This idea is captured in the image created by environmental historian Alfred Crosby — found on the back cover of the book — and its caption “You are here” placed above an arrow pointing about halfway on a poster of the Milky Way galaxy. The book includes cosmology, geology, archaeology, environmental studies, and starts with what the author dubitatively puts forward as *A Modern Creation Myth*: the scientific narration of the origins of galaxies, stars, and planets in the inanimate universe. The discourse moves then on the appearance of life and its expansion on Earth as biosphere. The ensuing steps tackle the birth of humankind and its expansion until the present, thanks to the capability to take control over nature, delineating major socio-cultural and political achievements (cities, states, technology) in the long era of agricultural civilizations. Later on — schematizing as much as possible the centuries — recurrent courses of innovation, commercialization, and globalization forged the world approaching modernity, until the great technological acceleration of the XIX and XX centuries. Features of the contemporary age are much condensed in the title accompanying its appearance on the book: *One World* — to be compared with the previous *Many Worlds* (Early human history), and *Few Worlds* (The Holocene) — order, unity, and alliance are fundamental notions

to the idea of progress. *Maps of Time* closes with perspectives on the possible future examined at different levels: the near future (centuries), the intermediate future (millennia), and the remote future (billions of years). Each chapter ends with a summary; most have a timeline as a useful accompaniment. In a first appendix, a review of dating techniques is provided along with *A Chronology for the Whole of Time*, an outline with estimated dates and brief descriptions of the fundamental transitions dealt with in the text.

All of the depicted passages, from the origin of the universe to the industrial revolution, are reduced in a second appendix to a succession of *Chaos and Order*, whose cooperative endeavour, which we call complexity, aims but “for the second law of thermodynamics to work more efficiently towards its bleak goal of a universe without order” (p. 509). The increase in the level of complexity from simpler entities over the course of time is a consequence of natural processes, Christian explains. Such passages of *Big History* as the formation of stars from cosmic dust, multi-celled organisms from organic substances, and cities from sparked groups of settlers, have a number of common features: All are “transitions to greater complexity [that] come about through the creation of new forms of interdependence, as entities that once existed more or less independently are incorporated within new and larger structures” (p. 139). As preset by Nobel Prize Phil Anderson [1], Christian too remarks that “as new levels of complexity have appeared they seem to operate according to new rules (emergent properties, in the jargon of complexity theory)” (p.140).

Complexity is suitable to embody modern historical consciousness, and interdependence is a further possibility for evolution. Unfortunately, science makes clear that the total energy of the universe is constant, but its amount usable to create complex entities (free energy) can only decrease, while unusable energy (entropy) can only increase. Complexity is but a brief anomaly grown-up in energy differentials, ending in greater chaos. Successive steps in complexity and interdependence have determined the course of *Big History* until humans emerged. The need to corroborate human skills with universal coordinates is probably the driving force also of *Maps of Time*—the only myth coherently available for human beings educated in the bitter regret of scientific traditions, and conscious that “from the standpoint of an inconceivably distant future, when the universe contains no more than a depressingly thin sprinkling of photons and subatomic particles, the 13 billion years covered in this book will seem like a brief, exuberant springtime” (p. 491).

References

[1] Philip W. Anderson, *More is Different*, Science, Vol. 177, No. 4047, Aug. 4, 1972, pp. 393-396.

The Terror of History: On the Uncertainties of Life in Western Civilization

by Teófilo F. Ruiz

Princeton University Press,
2011, 200 pp.

ISBN: 978-0691124131

*Reviewed by Jan Baetens,
University of Leuven*

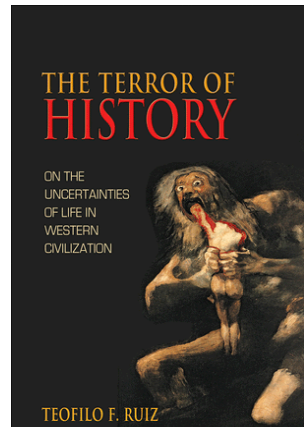
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This book by a scholar of Portuguese and Spanish cultural history is not a scholarly enterprise although it borrows many of its examples from the author's erudite background, but rather it is a personal, deeply subjective attempt to come to terms with the questions raised by the atrocity of life. The opening pages are on the Florentine Plague, which killed half of the population and during which some citizens became flagellants, others turned to sex and alcohol, still others turned their eyes to the beauty of the surrounding scenery, while a last group buried the dead and went to their work every morning as usual. As Ruiz underlines from the very beginning, the problem is that there is no answer to life's atrocity: the best one can do, he argues, is to continue to do his job, against all odds; all the rest is nothing but hiding away from the fundamental meaninglessness of human life, human society, and human culture. Of these false solutions, Ruiz then discusses three: first, religion; second, materiality and the senses (mainly eating, drinking, and sexual intercourse); and third, aesthetics (and perhaps, although the author is not very explicit on this point, knowledge, science, technology).

The author blends historical and personal examples, knitting together major case studies of his own research and individual experiences, and transforming the book into something that hovers between the personal memoir (the journey of a young man having left Cuba and discovering a new life in the sixties, eventually becoming a professor at UCLA after an education in Princeton) and a meditation on the human attempt to blindfold oneself to the horror of history. Lovecraft's famous saying: “In the beginning was Fear” could

have provided a good motto for this book, whose ambition is to free the reader from the false illusions of God, Love, and Art, in order to bring him to a Stoic acceptance of life's hardness.

The tone of the book is mild. Ruiz is not attacking religion, romance, and aesthetics as if it were drugs (or examples of false consciousness, to reuse the Marxist terminology one might have expected here). Instead, he often demonstrates more than just sympathy to these illusions, and he shows a real understanding of what pushes people to embrace mysticism, corporeal excesses, and a belief in beauty as the true solution to all human and historical evil. Yet at the same time he also warns us against the deceptions of these answers.



Ruiz does not claim his classification of defence strategies against history to be original. His master is clearly Johan Huizinga, whose seminal work on *The Autumn of the Middle Ages* is quoted as a major source of inspiration. But contrary to the Dutch historian, Ruiz proposes an essay that foregrounds the interpersonal dialogue with the reader. The reader of this book is less addressed as a scholar than as the freshman discussing

the Meaning of Life in Professor Ruiz's office at UCLA. It explains the charms of this book, but also its limits, for *The Terror of History* is not a research-driven or oriented book, but a kind of academic self-help publication for upper middlebrow bookclubbers.

The Beginning of Infinity: Explanations that Transform the World

by David Deutsch

Penguin Group USA, 2011,
496 pp.

ISBN: 978-0140278163

*Reviewed by Richard Kade,
Ubiquitous Iconoclast*

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In fairness to the author, publisher, and all collaborators in this ambitious undertaking, this review is of the US edition of the book. Whatever differences may exist between this version, the presumed original published in London and others published in Australia, New Zealand, Canada, South Africa and India are unknown to me as this review is being written.

The above disclaimer is made, in part, to provide context for a minor personal complaint over the often-jarring hodgepodge of seeming inconstancies observed in the process of localizing orthography. While the "Z"s have been put into the spelling of such words as "realize", "theorize", "specialized", "customizes" and "categorize", other words have not made the "trip across the pond" such as "analysing", "realisation", "analogue", "defence", "megatonnes", "coulour", "behaviour" and "favourite". Another minor annoyance is what,

in the US, is rendered as a single word "forever" but, in this US edition, seems always to be two words "for ever". The traditional French spelling of "programme" has given way to the US version, "program". How these and other words are handled in other editions I have no idea. Will perturbed readers demand those responsible for lapses in localizing of UK-isms do time in "jail" (not "gaol"?) for driving them, however briefly, to distraction?

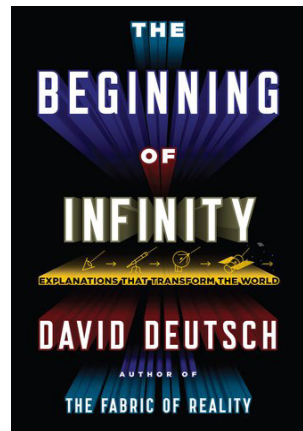
The seeming digression (of the previous paragraph) was merely a mini-reply of sorts to a brief riff on meme evolution by the author where differences in phrases between UK/US English are cited: ("in hospital" / "in the hospital", "learning to play the piano" / "learning to play piano" but never "learning to play the baseball"!).

Now, at last, to the substance of this book. Readers familiar with *Gödel, Escher, Bach, Ton Beau de Marot* and *I Am a Strange Loop* by Douglas Hofstadter, will find much of the same material (even an update of sorts on the Turing Test, Incompleteness Theorem, Achilles racing the Tortoise, etc.) covered in this newest book by David Deutsch. Indeed, his bibliography lists two of the three named works above under the heading of further reading.

Where *GEB* may be best synopsized as a shrug-of-shoulders look at the question of what is so special about human thought and *Ton Beau* as a similar survey of what, exactly, is "spirit" or "soul", *The Beginning of Infinity* seems "merely" an astrophysicist's explanation, in "near-Hofstadterian" style, of "everything new under [over, through, beyond, wa-a-a-a-y beyond, etc.] the sun" combined with a brief course in "Quantum Physics for

Dummies" and a dollop of most delightful discourse on, among other things, how highly hostile to human life nature is and how only our ability to acquire and pass along knowledge has enabled us to survive and prosper.

The title, *Beginning of Infinity*, comes from Isaac Asimov's *The End of Eternity* and a beautiful snippet from that serves as epigraph for the final chapter titled "The Beginning". The book is replete with "beginning of infinity" definitions as they relate to the subject matter of almost every chapter.



Probably the most wonderfully enjoyable part of this book, especially for those of us who have seen almost every page of *Leonardo* since 1968 and think about the interfaces of art, science, and technology, is the chapter titled "Why Are Flowers Beautiful?". There a quote from Richard Dawkins' *Climbing Mount Improbable* is interwoven with a strand from Peter Shaffer's *Amadeus* and a reminder of the passage from John Archibald Wheeler, used at the start of the first chapter:

"Behind it all is surely an idea so simple, so beautiful, that when we grasp it - in a decade, a century or millennium - we will all

say to each other, 'How could it have been otherwise?'

Another equally pleasurable bit, not too long after that metaphorical tapestry, is the juxtaposing of Beethoven's seemingly sloppy cross-outs on manuscripts with the remark by Feynman, "the only equipment a theoretical physicist needs is a stack of paper, a pencil, and a waste basket." Others are thrown into the mix including Bronowski and Keats' assertion "Beauty is truth, truth beauty" along with dissenting opinion by Thomas Huxley.

Throughout this book reference is made to Einstein's axiomatic impossibility of anything exceeding the speed of light. In LIGHT of the hoopla over CERN's recent faster-than-light neutrino announcement, Deutsch replied, when interviewed by Wired.co.uk:

"This question is being asked the wrong way 'round, both by the press and, as far as I can tell, by many physicists. This is not a matter of 'likelihood' or any other subjective concept. Science is objective. And in my view we cannot take any experimental results seriously except in the light of good explanations of them. So we need explanations first. Where we have good, testable explanations, they then have to be tested and we drop the ones that fail the tests.

"The neutrino results do make existing explanations unsatisfactory, but that is not very exciting in itself because that includes all sorts of parochial explanations about things like the properties of the outgoing detectors, the accuracy of the GPS, and thousands of other such things. So, those who wish to explain the results by questioning the accuracy of GPS now need to produce good, testable

explanations of what is going wrong with GPS, or with the way that the experiment used it, etc. Those who wish to question the theory of relativity need to do exactly the same in regard to the structure of spacetime. As far as I know, there exist no good explanations of the latter type at present. The closest I've seen are ideas about neutrinos taking shortcuts through higher dimensional space, but those seem to be refuted by observations of supernova neutrinos, so they won't work as explanations.

"The implications for science broadly cannot be known until we have an explanatory theory that explains the results. If it changes fundamental theories, the change may or may not be big." [1]

No can-kickin' down the quantum continuum for Deutsch!

Notes

[1] <http://www.wired.co.uk/news/archive/2011-09/26/david-deutsch-qa> . See also Charles Krauthammer, "Gone in 60 Nanoseconds", Washington Post, Page A- Friday, October 7, 2011 [www.washingtonpost.com/opinions/gone-in-60-nanoseconds/2011/10/06/gIQAft1RERL_print.html]

The Fossil Chronicles: How Two Controversial Discoveries Changed Our View of Human Evolution

by Dean Falk

University of California Press, 2011, 280 pp.

ISBN: 978-0520266704

Reviewed by Rob Harle

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Intrigue, deceit, and fierce competition are characteristics we

do not usually associate with scientific inquiry. *The Fossil Chronicles* reads like a thriller novel in many parts: Who would think that discussion about the cranial capacity of a skull could be such exciting reading? This is partly because Falk is an excellent writer and partly because the stakes of finding missing links in human evolution are extremely high. As he writes, "When it comes to the subject of human origins, scientists have been every bit as passionate about their convictions as religious fundamentalists are" (p. 194).

This book concentrates mainly on the discovery of two fossils: Taung, discovered by Raymond Dart in Africa, and The Hobbit (aka. Flo) discovered by Michael Morwood in Flores, Indonesia. These two contentious fossils caused extreme controversy because they were so unique and because they challenged existing concepts of human evolution and origins. "If readers feel some of the excitement and drama of pursuing questions about what made us human and the thrill of refining the tentative answers in light of newly discovered fossils, I will have achieved my goal in this book." (p. 2)

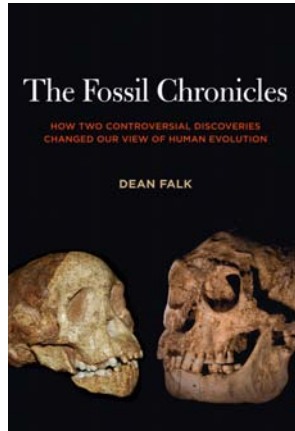
The Fossil Chronicles has an Introduction followed by nine chapters, together with extensive notes and an excellent Bibliography and Index. Extensive black & white illustrations and diagrams help explain the subtleties of paleoneurology. Much to my joy (and surprise) Falk provides a *Glossary of Neuro-anatomical Terms* that is very helpful, considering some of the specialised scientific terminology used throughout the book. Even with the complex science involved in the description and discussion of cranial endocast

analyses the book is equally suitable and accessible to scientists and the general reader.

Dean Falk is a Professor of Anthropology at Florida State University and a Senior Scholar at the School for Advanced Research in Santa Fe. She brings her rather unique specialisation in human brain evolution to the analyses of these two above mentioned fossils and gives new evidence crucial to interpreting both discoveries and proposes surprising connections between this pair of extraordinary specimens. She has authored two previous books concerning our origins and the nature of human brain evolution. Paleoneurology is a specialised discipline within paleoanthropology that studies brain development as revealed by marks, size, and peculiarities present in cranial endocasts, both physical and virtual.

As with most other organisations, academic life has its petty politics; however, paleopolitics raises this pathetic situation to a whole new level. "In addition to 'age-old jealousies, ideology, and the quest for personal power,' turf guarding often seemed to motivate the negative receptions to new hominin discoveries." (p. 98) It is a shame that the personal agendas and gigantic egos of many scientists actually hold scientific inquiry back. The actions concerning new fossil discoveries by some of the scientists described in this book are morally despicable, and in the corporate world would be grounds for dismissal, disgrace, and possibly criminal charges. Falk discusses the now infamous Piltdown fossil hoax, not extensively, but enough to provide the facts behind this absurdity that has held back the advancement of human-origin scholarship in many subtle ways.

I bring this paleopolitics deceit to readers' attention because, firstly, the general public is not fully aware of its existence and, secondly, it occupies a large part of Falk's discussion. To give her credit though she always remains positive and tries to give a balanced account of the situation and the scientists she discusses where possible.



What puzzles me is how professional academics can falsify raw data and then deliberately bias the analysis of this data to support their own entrenched beliefs and be allowed to continue their work after they have been shown to be frauds? Even when they have published in *Nature* or *Science* and subsequently been asked to "Please Explain" by these prestigious journals. Further, in many cases the funding, and consequently the scientist's employment, comes from public funds. To whom are these cheats morally responsible, it seems no one, not even themselves?

The Fossil Chronicles is a fast paced, highly enjoyable read, and apart from the knowledge that Falk brings to the non-anthropological aware reader, the exposition of the workings of academic, institutionalised science may help reduce the

bitter rivalry and advance the understanding of our origins.

Secrets of Women: Gender, Generation, and the Origins of Human Dissection

by Katharine Park

Zone Books, 2010, 419 pp.

ISBN: 978-1890951672

Reviewed by Jac Saorsa,
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This is a review of the paper edition of *Secrets of Women: Gender, Generation, and the Origins of Human Dissection*. The Trade edition, published in 2006, won the 2007 Margaret W. Rossiter Prize given by the History of Science Society (HSS), and the 2009 William Welch Medal given by the American Association for the History of Medicine.

Where the term prosection defines the dissection of a cadaver carried out by an experienced anatomist as a demonstration of anatomic structure, in *Secrets of Women*, award-winning historian Katharine Park conducts a prosection of the history of anatomy itself. With almost surgical precision she avoids a 'universalising approach' to the subject and carries out a specific examination of the development of dissection practices in Northern Italy during the period between the 13th and 16th centuries. The scope of the book encompasses the breadth of anatomical knowledge from devotion to Galen's authoritative anatomical text by earliest medical masters of the University of Bologna, to the publication of *De Humani Corporis Fabrica*, the great anatomical treatise of

Vesalius published in 1543, but it is particular in its focus.

Park eloquently opens up the very concept of “opening the body” by addressing the religious, linguistic, and cultural contexts of the time that gave rise to the variants of the practice of human dissection that are often ignored, or at least considered unimportant by more scientifically oriented studies. But this is not all. Her scalpel slices through the underbelly of the male dominated scientific view of ‘anatomies’ (or dissection) by focusing, through individual case studies, on the central role played by women in the development of early modern anatomy in patriarchal Italian society. She argues that women’s’ bodies, “real and imagined,” held the “secrets” of gender and reproduction that “alternately alarmed inspired attracted repelled and fascinated” (p.38) men, and thus it was through the opening up of women’s’ bodies that men attempted to understand and know their own.

“A nun with visions of Christ’s Passion. A blind, crippled, homeless holy woman. Four Patrician wives and mothers. Two prophetesses, one of them a married, lactating virgin. An executed criminal. These very different women had one thing in common: their bodies were opened and their viscera examined after their deaths” (p.13).

The deliberate focus on women here does not define a feminist perspective. It rather highlights what Park defines as the “gendered lens” (p.80) through which the female body was seen at a time when Italian learned discourse on anatomy and dissection was male and public, as opposed to secret forms of knowing that were considered characteristically female. This

concept of secrecy moved from the acknowledgement of women’s repertoire of therapeutic remedies — here exemplified in Chapter 2 with an interesting account of chicken husbandry — to being associated with sexuality and reproduction, or generation. As possessors of “hidden interiors” and a sexuality that could not be as easily and obviously understood as that of their male counterparts, women became, without any will or provocation on their part, objects of knowledge in the scientific context. The enigma of the female body was to be solved by men through thorough and intimate investigation, and the study of the deepest secret, the uterus, became a paradigm of dissection.

It should be clear that *Secrets of Women* is not the dry academic fare that may be expected of an historical account of human dissection. The book is, in fact, a very accessible and engaging work written with the energy and eloquence of an author who is clearly very much immersed in her subject. Lively narrative fleshes out the bones of erudite analysis, the two neatly sutured together to create a meticulously sourced and fully documented work that benefits from extensive notes and bibliography.

The fact that the notes and bibliography take up more than a third of the book itself could seem at first a little daunting, and the need to constantly refer to the notes in order to fully appreciate the text can make reading the book a cumbersome and erratic experience. Complex cross-referencing and some repetition within the text, along with the apparently ill-considered placement of some of the illustrations, only add to the problem. These issues however should do not detract from the fact that *Secrets of Women*:

Gender, Generation, and the Origins of Human Dissection is an absorbing study and deserves the awards that the hardback edition has already received. This new softback edition will serve to restate its rightful place within the field of historical anatomy.

Great Discoveries in Medicine

by William Bynum, Helen Bynum (eds.)

Thames & Hudson, 2011, 304 pp.

ISBN: 978-0500251805304

Reviewed by Enzo Ferrara, INRIM and IRIS, Torino, Italy
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The Dutch historian Johan Huizinga wrote in *The Waning of the Middle Ages* (1919) that one of the most significant cultural transitions of Western civilization took place in the late medieval Europe (XIV-XV century), when sight definitively prevailed at a brainy level above other senses, until thinking itself was conceived as a sequence of visual images. This passage coincided with a breakthrough in the theoretical and practical means — clocks, maps, weights, and pilot books developed to quantify the observable physical reality. Even music started to be ‘read’ on pentagrams by chanters and musicians, to delight ears.

In the Middle Ages sight and quantifications became the basic instruments of artists as well as of artisans, scholars, and merchants. It was the integration of their separately refined skills that gave birth eventually to the first scientific developments: perspective and optics attracted painters; anatomy was interesting for sculptors, statics for ar-

chitects. Quantification was the springtime of Renaissance and, later on, of modern sciences, which with the key contribute of mathematics were to blow up in the following centuries.

Evidence of surgery is reported in Egyptian papyri; the first European school of medical philosophy was founded in the X century AD at Salerno (Southern Italy), a crossroad of Arab, Greek, Latin, and Hebraic civilizations. But the apprenticeship of medicine as a mature discipline took millennia. Differently from other sciences, even after the Middle Ages, it remained more like sorcery barely anchored to an uncertain empiricism than an ordered subject of study.

The evolution of medicine as art and science can gladly be appreciated through the pages of *Great Discoveries in Medicine*. This is a collection of 382 sketches, stamps, photos, digital representations, and microscopy images depicting from the earliest descriptions of disease and healing in ancient Near Eastern cultures (Assyrian, Babylonian, and Egyptian) until the momentous hyper-technological approach of the late XX century, including assisted reproduction, cardiac surgery, key-hole treatments, and organ transplants.

William Bynum – professor emeritus at University College (London), author and editor of numerous books on the history of medicine – and Helen Bynum – who lectured in medical history at the University of Liverpool, now a freelance writer – already co-edited in 2007 the five award-winning volumes of the illustrated *Dictionary of Medical Biography*. In this new superb visual account of historical theories and practices of healthcare, they have been able to alternate technical and

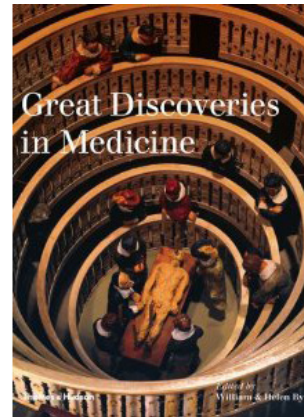
scientific discourses with representations intimately linked with religious and supernatural interpretations of medicine.

Seventy contributions of distinguished experts from around the world forms the book that is composed of seven parts dealing with such themes as the discover of body functions, from ancient times (Egypt, India, China, Greece, Islam) to modern pathological anatomy; the progressive understanding of health and disease, from the make out of blood circulation to psychoanalysis; the succession of medical triumphs, from anesthesia to neurosurgery. Concise descriptions of the analyzed issues complete the presentations that repeatedly combine technical illustrations with allegoric, informative or even advertising images.

Other topics include the long revered concepts of humors and pneumas – i.e. the ensemble of body fluids and air required by various organs to function, according to ancient Greeks, related with cosmic energies, the discovery of the pathogenic role of parasites and vectors, the consequences of the genetic revolution, the introduction of machines as defibrillators and endoscopes, and the pharmacological cure of pandemic illnesses as tuberculosis, smallpox, typhus and HIV. The Bedlam institute of London, the most famous mental hospital in the English-speaking world, is also briefly depicted

One point emerges in particular as a landmark of medical developments: the inner features of medicine are as hardly adaptable to mathematics as their evidences are suitable to be appreciated by direct sight. Although scientific quantification took at last advantage on the uncertain

pragmatism of medical art; nevertheless, our understanding of the workings of our bodies and minds remains inextricably related to how we perceive ourselves and the world we live in. It was only combining the invention of microscopy on one side, with statistics and epidemiology on the other, that the two emblematic levels of medicine – microscopic and macroscopic – were reconciled.



The editors explain that actually people “live longer, suffer less pain, and are healthier than even their grandparents were two generations ago” (p. 259). Yet, a major endangerment of public health is the dehumanization of medicine, due to the ubiquitous use of pills, exam techniques, and instrumental therapies treating our bodies as machines, with structural (muscles, bones, and skin), mechanical (the heart, veins, and lungs imagined as pumps and tubes), and electrical (brain, nerves, neurons) components, all of them changeable or reparable, of course, like technical devices to be refurbished. This is not the case of this collection, whose convincing result is a restoration of both the components of rational medicine it deals with: art and science. Through its pages, soul alternates feeling of pain

and hope. It is an exaltation of the human element too, reminding us that “the reasons for a healthier longevity are complex and the real medical improvements that have been made during the past century are only a part of the story” (p. 259).

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

by Phillip Prodger

Oxford University Press,
2009, 320 pp.

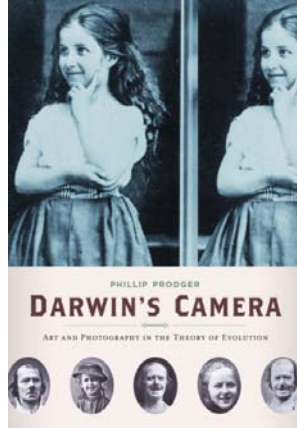
ISBN: 978-0195150315

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The idea that context is an important component in both the presentation and nature of empirical studies became popular at the end of the twentieth century and is often considered an outgrowth of Kuhnian paradigms. With the elevation of paradigmatic perspectives, however, came the quandaries of what contextual 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 expres-

sion and this scientist's overall approach to the *Expressions* project, a component of 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 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 *The 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 be seen only 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 Étienne-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 Darwin worked closely with, Oscar Rejlander (1813-1875), experimented with sequential imagery for the Darwin project, but was unable to produce sequential pictures suitable for his purposes.]

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 *Expressions* was produced at the cusp of a change in attitudes toward photography. One reason the time frame is important becomes clear at the end, when the author directly turns to questions about “evidence” and “illustration” in relation to Darwin's work. Taking on some researchers (e.g., MaryJo Marks, Carol Armstrong and Jennifer Green-Lewis) who have criticized Darwin for fabricating gestures and scientific positivism, Prodger explains that these critics are anachronistic because they ap-

ply 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 *Expressions* 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 to enhance not only the visual appeal but also to add clarity to their images. Indeed, this urge toward clarity and the perspective Darwin brought to his work may have derived from the ethos of drawing for scientific illustration, since drawings have an inevitable degree of interpretation, however objective the artist may attempt to be.

One of the most potent aspects of the study is its sensitivity to the artistry of scientists and the methodology of art in the nineteenth century. Prodger provides a particularly compelling window through which to ponder cross-disciplinary problem-solving and, in this respect, *Darwin's Camera* is remarkably unlike and yet curiously similar to Prodger's earlier *Time Stands Still: Muybridge and The Instantaneous Photography* (see my *Leonardo Review* at http://www.leonardo.info/reviews/apr2003/Time_lone.html). Similarities include the fact that both books offer insight into photographic innovation, the creative imagination, and experimentation in the nineteenth-century. *Time Stands Still* captured the history of the quest to translate action into still photography, how it related to Muybridge's innovations with sequential stills

to record action, and provided insight into the trajectory that led to the invention of cinema. *Darwin's Camera*, in contrast, focuses in on how Darwin used photographs to tie his theory of evolution with his theory of expression. With Darwin, Prodger is analyzing an aspiration to combine motion and still photography that dealt with a different set of problems. Each perspective offers a viable reference point in the development of photography as a scientific tool and a means to consider how both photographers and scientists were wrestling 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 and non-human animals expression is an important part in the story of how photography came to be seen as "objective."

Many of the book's details add to its value. Comparative photographs from the Darwin archive are used to help us get inside Darwin's mind and allow us to see what he did to emphasize particular points Prodger wants 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 expressions were given by God, an idea quite popular among nineteenth 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 experimentation 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 Muybridge may have read a publication of Rejlander's outlining his experiments to capture motion. If Muybridge incorporated ideas published by Rejlander when developing his own motion study techniques, then he is directly linked to both Darwin and Muybridge. Another notation that showed Prodger'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 was necessary for some readers. Will those who are unacquainted with photographic history conceptualize how important Prodger'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 characterized 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 the deserted street is a deceiving

image because what was normally a busy street was “lost” due to the long exposure times of early photography. In other words, in Daguerre’s image the capture of a person was serendipitous because everything else was moving too fast to register during the ten-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 standing 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 he worked to capture expressions that happen to 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. If so, it is 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 become accustomed are designed precisely 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 introduction of photography in the nineteenth century and how the efforts to capturing fleeting expressions required some degree of contrivance.

Prodger notes that Darwin’s *Expressions* quickly went out of favor, possibly because the fashions of the models made the book look antiquated. None-

theless, Darwin’s contribution to scientific photography was revolutionary. Even if *Expressions* did not have a transformational impact comparable to a book like Vesalius’ *De Humani Corporis Fabrica*, which provided a foundation for the modern disciplines of human and comparative anatomy and physiology, *Expressions* was still a remarkable achievement, as this pioneering study demonstrates. Both *Darwin’s Camera* and the recent publication of an annotated edition of Darwin’s *Expressions* by Paul Ekman, (which includes contributions by Prodger as well) attest to *Expressions*’ current relevance. All in all, *Darwin’s Camera* is well written and nicely produced. Prodger 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.

Pharmakon

Society for Literature, Science and the Arts Annual Conference & Media Art Show
Kitchener, Ontario, September 22-25, 2011

Conference Website: <http://liitsciarts.org/slsa11/blog/>

Reviewed by Jennifer Gradecki, Dehlia Hannah and Hannah Star Rogers

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Pharmakon was the theme of the annual meeting of the Society for Literature, Science and the Arts and the title of an art exhibition that coincided with the conference. On view at University

of Waterloo’s Critical Media Lab (CML), Pharmakon was curated by Marcel O’Gorman, Director of the CML and a Professor of English at Waterloo, as well as an artist in his own right. The exhibition included 10 contemporary artists working in a wide variety of mediums, from painting and sculpture to embroidery, digital media, and interactive technologies. These artworks formed part of an interdisciplinary conversation that probed the tensions and multiplicity of ancient and modern meanings embedded in the concept of *pharmakon*, or “that which can both kill and cure.” In investigating this theme, artists engaged religion, philosophy, pharmacology and scientific research as domains in which the effects of substances and ideas are indeterminate and unpredictable.

The windows of the storefront gallery were strewn with giant plaster pills labeled “Buspar,” the work of Colleen Wolstenholme. A small flat case displays metal charm bracelets and necklaces resembling casts of psychotropic medications, including Prozac and Wellbutrine, pieces from her “Charmed” series. Begun in the late 1990s, when the use of lifestyle drugs was increasingly a topic of social concern, the series offers a sculptural memoir to medication use and explores the conflicting promises and stigmas associated therewith. As consumable as the medications themselves, the documentation of the pill charms included cease and desist letters from drug manufacturers and enthusiastic coverage by news outlets and women’s magazines, evoking the profit motive as a pharmakon among pharmaceuticals.

Nearby, a medicine cabinet displayed Brad Necyk’s “Mythologies” (2011), rows of or-

ange plastic pill bottles baring handwritten quotes from philosophers such as Nietzsche, Freud and Foucault; whose writings destabilize the ideas of mental illness and reason alike. Paul Roorda's collection of antique glass pill bottles filled with capsules containing individual pages of the New Testament added to the appearance of the gallery as a well-stocked pharmacy.

At the center of the gallery a row of vintage glass syringes filled with red liquids were suspended upright inside a wooden frame, their long metal needles pointing downwards. Also by Roorda, "Seven (Heavenly/Deadly)" (2007) powerfully evokes the fear that medicine can be as destructive as it is curative. The red liquid in Roorda's syringes is not blood but dye extracted from Gideon Bibles, as though it were possible to distill their redemptive power into a more readily deliverable form. Roorda's fluid-filled vintage syringes take on a heightened significance in light of Jacques Pepin's recently published book on the history of AIDS, in which Pepin argues that the HIV pandemic was caused by intravenous injections administered in the course of colonial public health campaigns against diseases such as sleeping sickness and syphilis: a shocking example of iatrogenic illness. When, in another work, Roorda embeds a snake-bite kit inside a bible, it is ambiguous whether science is meant as a cure for religious enthusiasm, or whether what is needed is an antidote for too much knowledge.

Given these concerns, limitations on scientific research might seem a welcome prophylactic. Yet, as Jennifer Gradecki's IRB #G10-02-066-01 (2010-11) suggests, institutionalizing constraints on research carries

its own risks. The piece consists of documentation of Gradecki's attempts to file for institutional review board (IRB) approval and a classic shock machine which users can choose to use, yet unapproved by the IRB, but available for use by gallery-goers. The IRB, created initially to protect the rights of research subjects, may ironically be violating the rights of researchers. Shock machines have been used for both torture and for therapy, to damage and to stimulate. Gradecki offers us access to the forbidden or, at least, unapproved. The artist as provocateur risks backlash while raising challenging questions. This *pharmakon* can induce catharsis and generate reflection on the institutionalization of science as something that does not always save science from itself.

Kiki Benzon's textile books *Neuron* (2010) and *WHYFOR 1.0* (2011) are hand embroidered science textbooks that illustrate basic concepts and processes. The thick ivory wool pages of *Neuron* are bound inside a black canvas cover embellished by a single red neuron. A fine wool fringe resembling a neural net flows from the pages, each depicting different types of neurons and neurological processes depicted and carefully labeled. In contrast to scientific illustrations that strive for the effect of transparency, these didactic images evoke the painstaking and time consuming process required to reproduce them, a process that mirrors in an alternative form the tactile and material dimension of scientific knowledge production.

"Taxnomia" (2011), by Maria Whiteman, is a series of photographs of preserved animal specimens found at the University of Alberta's Museum of Zoology. These visualizations of visualizations re-represent

what science has already attempted to represent. What then has Whiteman managed to reintroduce or add, that these specimens lacked, suspended in formaldehyde in the scientific context? The specimens articulated fingers and toes remind the viewer of fetal representations and, therefore, of a flurry of concerns around the materiality, care, and consequences of life.

Leaving the gallery one day, there was a moment that brought our discussion of *pharmakon* and the rhetoric of pharmaceutical marketing into sharp focus. A man, appearing to have fallen on hard times, wore an old t-shirt emblazoned with his contribution to the conversation: "When Life Just Blows: Fukitoll!"

Art Biennale - Venice, Italy

Illuminations: 54th
International Art Exhibition
June 4th - November 27th,
2011

Reviewed by Yvonne Spielmann, University of the West of Scotland

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Every two years the Art Biennale Venice reinvents itself, new title, new director, curators, new locations and more novel countries that participate first time. However, the event itself has established a certain tradition that goes on undisputed, namely the presentation of art rubriced by national identity in separate pavilions that each have their own, country-specific curators. In addition, the Biennale director-curatorship (Director: Bice Curiger) sets the tone for the range of diversity regarding the presentations in the post-industrial spaces of the Arsenale. This flagship show

together with the exhibition in the Giardini main pavilion, is surrounded and eventually outnumbered by a growing increase of other national pavilions and extra events that do not fit into the limited space/settings of the Giardini where the national pavilions house "their" own art shows. The extra events are given the title "collateral events" which sounds promising but by no means feeds any content-related expectation, it is rather another tag or selling point attached to art works that are mostly presented in old palazzis that sometimes are more worth seeing than the shows presented therein.

On the whole, this year's Biennale had no striking highlights, no interferences or political statements that would disrupt the rubrics of nationality and also the many countries that have their location outside the Giardini for the majority do not reflect the sites of Venetian palaces or any cultural-historical specificity of the site. This, to remind, has been quite different in past years, when for example, the Spanish pavilion was only accessible with a valid Spanish passport. This year, the same pavilion shows an assemblage of multi-media performance acts and related documentation, the pavilion turns into an unstructured media theatre with no clear beginnings or endings, and it has nothing new or challenging to offer hereby. In contrast, other individual national pavilions and individual artists reflect on urging matters such as the global war zones, networked, intercultural communication and ethnic-cultural specificities. Also, a significant tendency to deal with religious matters cannot be overlooked. The overall aim is to focus on aesthetic-artistic matters, not so much on media

conditions. The days of the Arsenale when it was bursting with video works with competitive sound levels seem past. Today, the interesting media arts are either concerned with processes of self-reflexivity and/or political-societal matters, the hype of technology is definitely over.

This year, the British pavilion has undergone the most radical transformation. Mike Nelson was allowed to remove the original roof and inside he built a completely new and different wooden structure that is hiding the existing walls. The new structure disrupts the idea of a pavilion and transforms the place in a Turkish building site with an open courtyard - all of which reminds me of the initial site in Istanbul where the artist did show his work at first in 2003 at the Istanbul Biennale. The "work" in Venice now tells a nomadic story of cultural transfer that has effect on the sites where the transfer takes place, here it results in the transformation of a defined art space into a labyrinth consisting of small rooms, dead-end corridors, filled with tools referring to trading, craftsmanship, arts and household tools. Walls are plastered with photographs of the original site of the exhibition. Clearly, this place stresses the contemporaneity and non-fixity and instability of territory. In another direction, the Greece pavilion radicalises pressing matters of identity in relation to place and space, but the stress is on the convergence of economy and politics. "Beyond Reform", the title chosen by artist Dohandi for an empty Greece pavilion that represents the state of the art of Greece seen as "blank" and "sold out" in mental, political and economic terms. The outside of the building is covered with a wooden construction that looks

highly provisional and instead of the entrance sign reads black letters: sold out. Inside, the space is empty, more precisely: the floor is flooded with water, a wooden runway above water level leads across the space. At the focal point opposite the entrance an opening in the wall sheds bright light - another reminder of nothingness. There are clearly no signs of change or progression, except our activity of moving across the space which in its purity is aesthetically appealing.

Another work with water is represented by Italian artist Fabrizio Plessi in the Venice Pavilion which consists of over-life size boat-like structures that are erected to upright sculptures. Monitors that replace the ground level of the ships reveal streams of flowing waters as if we could see through the bottom of the ship. This kind of imagination reminds of the early days of media arts when such surprise effects did catch attention but in the context of the 2011 Biennale the position has a historical tone, although Plessi's work is of 2010.

More to the present state of media art, we are immersed into multi-dimensional effects of animation in the Japanese pavilion that is turned into a three-screen and multi-mirrored black-box environment wherein everything, including our presence, is subject to reflection. We are encompassed into the media presentation of animation shorts that refer to aesthetics of Japanese Manga and anime and develop imaginary creatures, features, flora and fauna against the backdrop of Tokyo-density of cityscape. The animation is fluidly developing and surrounding us with a culturally specific view on the convergence of nature and media in a dream-like

mode with lots of humour, enjoyable fictional creatures and surprise effects. There is also another layer of experience, when we leave Tabaimo's animation world and go below the building where the open round that we saw in the middle of the animation screening room now reveals as another projection site. An additional cylindrical projection of form and formless bubbles, water and creatures is presented below the screening room in the open space below the building (the basement level of the Japanese pavilion is open to enter - but has rarely been used by artists as an extra installation space). Here, the animation is everywhere, it shows the state of the art or our present: it blurs inside-outside relations and has become an ubiquitous component of our lives.

Next to the Japanese view of "Teleco-soup", a 'natural' media mix by young female artist Tabaimo, who graduated from the prestigious Kyoto University of Art and Design, we find the solid structure of the German pavilion that has been converted into a "church" dedicated to Christoph Schlingensief, who had passed away recently. The building and its interior exhibition support the setting of a memorial that transports a debatable personal incorporation of the relationship between art and religion. The interior church-like space is flashing with monitors, films, videos, photographs and overloaded with further over-mediated samples, like films and video documentation by and with Schlingensief also in the side-rooms. This creates highly problematic personification of religion and in effect is only once more stressing Schlingensief's unreflected megalomania. The setting provokes distance, in particular where the attempt is

made to connect the artist's life and work to the historically preceding art events of the Fluxus group, to which this work has no connection, whatsoever. For what reason, the German pavilion receives the Golden Lion for Best National Participation, needs further explanation and can only be justified by blunt facts that dead artists are more valuable in the art market.

In contrast, to dead-end memorials, we can enjoy 24 hour cinematic pleasure with Christian Marclay's film screening around the clock, for which the audio-visual artist from US won the Golden Lion at the "Illuminations" exhibitions in the Arsenale. Marclay, a known artist of compilation films and audio-works with samples, has searched years through film materials to compose a film of samples that gives the exact local time minute by minute. Marclay has spliced together, extensively sampled uncountable sequence, scenes, shots, portions of shots where the exact time of our viewing is given so that the given time in the fictional context exactly equals the local screening time. Notably, at 3 pm we see a clock in the film showing 3 pm, and this proceeds minute by minute, 24 hours long. It is amazing to think of cinema in this way that seen as whole contains all possible times. The setting of the film also highlights self-reflexive modes of the medium where fictional time and timing of the fictional event, which is screened, are conflated. In this lucid representation of time measurement and measured time, the time of the film and the filmed time are the same.

The Silver Lion was awarded to Haroon Mirza from UK for works that display technological circuits of light, tone and energy

but do not have any reflection that points outside the closed circles. Like Plessi's works, these pieces are interesting in themselves but we have seen many alike in the emerging days of media technology.

One of the most surprising and truly participatory and interactive installations was presented by the Lithuanian Pavilion which received a Special Mention. The point is that artist Darius Miksys does not need any complex or complicated media technology, on the contrary, his work is grounded on the idea of an archive. Miksys' "Behind the White Curtain" stores all art works *in actu* that have been selected and awarded by the state of Lithuania. What may sound like an odd idea of national representation, becomes a lively interface because the actual "exhibition" before the white curtain consists only of the pieces that we, the audience, visitors, are selecting from the catalogue of the complete works that were awarded in Lithuania. The works that are picked by us will then be brought from the storage and set up in front of us and remain there till future visitors will change the settings. Without interaction and participation there would be nothing on show at all, and this gives an interesting comment to the curatorial practices as they are underlying the machinery of the concept of the Venice Biennale and also lead to categorisation based on nationality. Another Special Mention was received by another conceptual installation work: a series of trash cans presented by Swedish artist Klara Lidén reveals at a closer look that they come from different countries across Europe and in this respect we are made aware that our waste, trash is also culturally specific

and can be classified according to national origin. This work provokes reflection also on the usual practices of some first world nations to “sell” their waste to other countries.

Among other works outside the Giardini and Arsenale, only a few strike in terms of making connection to the location. We may call the installation by UK artist Karla Black (representing Scotland) site-specific in as much as her work in the rooms of the Palazzo Pisani uses pastel colours, light pink, yellow, green and blue that coincide with the colour decoration of the ceiling and walls of the rooms in the Palazzo to form a spatial-architectural environment. Black’s work is highly ephemeral: she employs powder, soil, paint and plaster, soap, dust, and paper and cellophane to create temporary structures within existing building structures that refer to matters of compulsive beauty, on the one hand, and to artisanal-craftsmanship practices of converting the material world into something else, on the other hand. Everything seems to be lasting herein only for the moment, the dust, the soil, the paint would blow away if wind comes in. The artwork holds this balance between “work” and “non-work” and amuses us with the choice of light colours that support the lightweight of the installation.

Anish Kapoor with his site-specific installation “Ascension” in the Basilica di San Giorgia points one step further into immateriality and manifests the convergence between seeing and believing in almost literal terms. Kapoor has chosen the Basilica which houses the famous painting “Last Supper” by Tintoretto and also Tintoretto’s very last painting (in a side chapel). Into this context, Ka-

poor brings the idea to visualise the invisible, when he installs a cylindrical container at the intersection between transept and the nave of the church which pours smoke into the open. Because of a huge ventilator machine that is mounted below the cupola of the church right above the opening where the smoke comes out, the smoke moves up in direction of the ventilator and forms a dust column that is more or less visible, depending on side winds. The ventilation machine on the top is supported by four wind machines on the side that keep the smoke within the circle and allow us to view the interplay between visibility and invisibility. The work deliberately refers back to the biblical motif of “ascension”. Although this work might be perceived as a commentary on Christianity, it also makes reference to the dual concept of media appearances with respect to visibility and invisibility of its material base.

The matter is further pushing the boundaries when it comes to the first time representation of a Roma Pavilion that is hosted by the Unesco in Venice. The installation has video documentation in interview-style where Roma people report on issues of housing, education, travel and income. In addition the installation also finds a spatial expression for not being at home, because a wooden-metal structure is almost literally cutting across the building and indicates another option for connecting spaces in a rather nomad-like structural network, internally and externally. It will be interesting to follow, if and how this initiative will develop in the future.

Television as Digital Media

by James Bennett and Niki Strange (eds.)

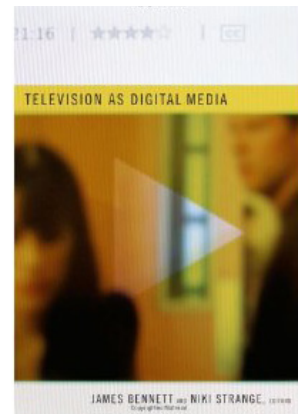
Duke University Press, 2011, 400 pp.

ISBN: 978-0822349105

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Once upon a time television was analog. We watched programming at prescribed times, *en masse*, tuning to defined, commercially driven channels, seeking the packaged content, created, we thought, by a talented few. As a mass medium, television helped define and organize everyday life into a social collective experience.



Now television is d-d-d-digital content for the media stream, bits to be remixed at will . . . “just one moment please” . . . and whim by anyone channeling the Max Headroom métier across a broad range of non-site-specific platforms: mobile telephones, game consoles, iPods, iPads, and online video services like YouTube and Hulu. As a hybrid technological form, television now invites participation anytime, anywhere, as producers generate personal content, as individuals pursue special entertainment/information interests, or as communities share television moments, often live.

Television as Digital Media, a collection of essays edited by James Bennett and Niki Strange, examines this evolving and shifting digital landscape. Essays by television and new media scholars from Australia, the United Kingdom, and the United States, speak to a hybrid confluence of production practices, industry strategies, aesthetic markers, audience practices, historical antecedents, and resulting contemporary digital culture. The end result is to help shape a new paradigm for connecting television and digital media by addressing the questions "what is television, and what is it for?"

Television as Digital Media is arranged in four parts: history, production, aesthetics, and audiences with essays in each part examining that particular focus. The first part examines the switchover of television from analog to digital around the world thus providing an historical context for changes to the traditional producer-text-audience relations.

Essays in the second part of the book examine economic and production strategies associated with digital television, seeking to close some of the gaps between the way(s) producers and academics talk about and understand television.

In part three, the focus shifts to the aesthetics of convergence in digital television. By asking what these aesthetics are, and how we might approach them, the essays in this section suggest directions for approaching the aesthetics of digital television as a converging and fragmenting media form.

The book's final part provides examples of user-generated content and digital audience practices, attempting to move beyond the simple dichotomy

of user generated content as good, and its co-option by media conglomerates as bad. Instead, essays in this part speak to the complex and often contradictory roles of producers and audiences in the digital television arena and how producing content often produces audiences which, in turn, produce content, which produces yet other, different audiences, and so on.

The essays collected in *Television as Digital Media* speak to a broad range of producer and audience interests: political economy public service broadcasting, iPlayer to YouTube, ideology to cultural practices, podcast to digital short(s). Rather than a definitive definition of digital television, these essays suggest the limits of digital television are increasingly unclear, being that they are always already evolving under a wide range of experiences and technologies.

Facebook's "Adorno Changed My Life"

by Georg Boch

Icarus Films, 2011, DVD, 28 mins.

Distributor's website: <http://www.icarusfilms.com>

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"All that is solid melts into air." Theodor Adorno didn't say that, Karl Marx did. But it came to mind as I watched this inconsequential, fluffy film.

Several men - noticeably, no women - in the Facebook group "Adorno Changed My Life" contribute their thoughts, insights, and gripes. The speakers are enthusiastic, especially about

Minima Moralia, with the enthusiasm others may show for Diogenes: the Modern Science of Mental Health, or about novels *The Fountainhead*, *The Turner Diaries*, the *Twilight* books, or religious texts. Director Georg Boch solicited videos and Skype conversations from members of the group. In one case, a guy set up his camcorder outdoors on a grim, wintry northern European day. Two speakers are German, one is Turkish, one (who we see at the beginning but never again) is Chinese. The most thoughtful and articulate is located in Austin, Texas and talks as if he's a grad student or junior faculty at University of Texas; I'd have preferred 20 minutes from this guy to the film's silly smorgasbord.

I was hoping for some fresh insights on critical theory from these contemporary readers, global but conversing electronically, but no such luck. Critical theory sprung from the work of Adorno and others at the Institute of Social Research, often called the Frankfurt School, in 1930s Germany, and in the countries the influential members settled when the Nazis closed it. Adorno was influenced by his colleague Walter Benjamin yet denied him funds at a critical time in his research. For several years Adorno lived in exile in Southern California where he wrote on music and its use in movies as well as other aspects of popular culture about whose influence on contemporary society he was pessimistic. After WWII he returned to Germany and a university teaching career. Weeks before he died (of a broken heart?), his classes were interrupted by both revolutionary counter-lecturers and bare-breasted female admirers. Chill, Prof baby, it's the Age of Aquarius!

None of this information is mentioned, nor does any overview of Adorno's work and ideas appear on this disc (it could have been a good extra, in some form, to accompany the short film). Teddy bear collector Dennis Redmond facetiously compares Adorno's oeuvre to the digital commons without details. Nobody really has much to say on Adorno's work, beyond a shrug, "Theodor Adorno is of no great help when it comes to jobs or employment."

David Jenneman begins his book on Adorno's years in the US with a quote from the philosopher's *Minima Moralia*, "To say 'we' and mean 'I' is one of the most recondite insults." Perhaps this offers insights on Facebook groups and the affect-less affirmation of its "Like" button. There probably is more about Facebook than Adorno here, and there could be a tantalizing interrogation of both social media and the philosopher, but it never gels. In *Minima Moralia*, Adorno writes, "In many people it is already an impertinence to say 'I', so what of the virtual self? Art historian (the bear toy connoisseur) Travis English uploads his face into a Facebook app that searches its database for a doppelganger, or approximation. One supposes that this illustrates that point, or another one somewhere, by Adorno on media. If so, English doesn't share it, doesn't make the connection.

Facebook's "*Adorno Changed My Life*" has been shown at the 2012 Leipzig Festival for Documentary and Animated Films, the 2011 Berlin International Film Festival and the 2011 Zagrebbox International Documentary Film Festival. It's marred by the bad visual design of one long passage of white subtitles beneath a German speaker are

illegibly displayed upon fallen snow. Why didn't they switch to black text there?

The film is slight, though still too long by about 5 of its 28 minutes, and its final speaker really doesn't impart too much knowledge or even information as the film fizzles out inconclusively. Still, parts of it might be a good thing to show a university class before they embark on reading Theodor Adorno in order to stimulate discussion afterwards. In fact, I think I'll send my copy of Facebook's "*Adorno Changed My Life*" by inter-campus mail to a Philosophy Professor, for I'd get nothing out of watching it again.

Divining a Digital Future: Mess and Mythology in Ubiquitous Computing

by Paul Dourish and Genevieve Bell

The MIT Press, 2011, 264 pp.
ISBN: 978-0262015554

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Designers are often preoccupied with the idea that technology can be designed to become seamlessly incorporated into everyday experience. At one point, designers felt it was useful to start measuring the physical dimensions of human beings so that cars and office chair were easier to use. Later on, especially when computers began populating workplaces, some designers attempted to design based upon rather basic computational models of the mind. Over the last two decades, technology designers have become more interested in the

social aspects of technology use. It is now very typical to find academics from anthropological and social science backgrounds working in teams with engineers, scientists, and designers working within the major technology organisations and Universities. The co-authors of this book have observed and experienced the bringing together of the social and computer science research communities from both disciplinary perspectives. Dourish, currently Professor of Informatics at UC Irvine, trained as a Computer Scientist and has been a part of research groups at a number of the world's leading centres for computing research. Bell is a trained anthropologist who has worked at Intel for over a decade, studying the appropriation of new technologies in different cultural contexts. Despite coming from rather different disciplinary roots, both authors find themselves situated within the same frame of argument - that designers, engineers, and scientists within computing-related disciplines would do well to pay more attention to the societal and cultural phenomena surrounding the use of technology.

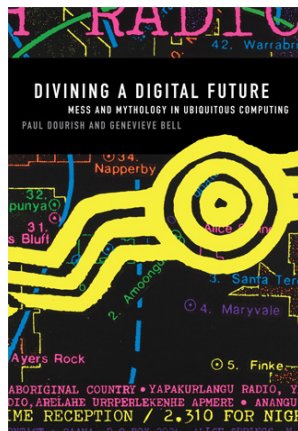
In this book, Dourish and Bell bring their perspectives on HCI together on the specific subject of Ubiquitous Computing. For the uninitiated, Ubiquitous Computing - or 'UbiComp' as it is often referred to by HCI experts (and I'll refer to it in this way here) - is an area of research that, broadly speaking, develops and studies technologies that permeate beyond the traditional confines of personal computers. As a paradigm of research, the origins of Ubiquitous Computing is typically associated with the work of Mark Weiser in the late 1980s, and in particular an article published in *Scientific American* where Weiser described his

vision for 'the computer for the 21st century.' [1]

Weiser pictured a future where computers were omnipresent in peoples' experiences but at the same time disappeared into the background: "They weave themselves into the fabric of everyday life until they are indistinguishable from it." In the article, Weiser invoked that this would be an engineering challenge, one that requires lengthy collaboration with other disciplines; social scientists, ecological psychologists, artists and designers were all referred to in his writing. Dourish and Bell start off their contextualisation of UbiComp with Weiser's article, not necessarily as it is the first instantiation of the idea of computing 'everywhere' but due to its formidable impact on computing research ever since. In the years following Weiser's article, research groups developing ubiquitous technologies and pervasive computing systems started to emerge in key (mostly American) Universities, and large conferences such as UbiComp and Pervasive [2] became important venues to disseminate the latest knowledge on the subject. The ubiquity of Weiser's article lives on in the vast corpus of peer-reviewed papers archived from these conferences that directly cite his original article. Similarly, key ideas that Weiser introduced—small wearable tags, mobile pad-like screen devices, and large tabletop and wall-based interactive screens - are still central focal points of the UbiComp research community.

Dourish and Bell explain the above context in chapters one and two as, from their perspective, it is the legacy of Weiser's work and more specifically his *Scientific American* article that has supported the mythology of

UbiComp. In chapter two they go on to argue this mythology is founded on the idea of a proximal future where technology will permeate everyday environments and, as Weiser argued, calmly enter the backdrop of our experiences. It seems, within the very Anglo-American centred world of UbiComp research at least, that Weiser's vision is still not quite being achieved - technologies do not integrate well with one another, computer systems require a lot of human effort to keep maintained, and technological breakdowns are a frequent occurrence. Dourish and Bell find this assertion, which prevails in the UbiComp literature, flawed. Firstly, they highlight how in some regions, such as the Republic of Korea and Singapore, the UbiComp vision is already established and part of everyday life (although those experiencing it would doubtfully recognise the similarities between their own use of technology and those predicted by Weiser in 1991). Secondly, and more importantly from the authors perspective, they argue that many cultures experience UbiComp already—it is just that this experience is distinctly messy, effortful, and chaotic—and against the imagined future that Weiser presented.



In chapters three and four, Dourish and Bell set out their particular approach to understanding the messiness of UbiComp as it is practiced and experienced within certain cultures and settings. Chapter three provides an introductory overview of anthropology and ethnography and the distinctions between 'the social' and 'the cultural' as they are conceptualised in these disciplines. In chapter four, they discuss in more depth the relationship between ethnography, its methods of study, and the study of computing technologies. As I noted above, the use of social science methods in HCI is far from being unusual (Dourish in particular being a key early member of this part of the community) but, the authors argue, ethnography is typically used primarily as a feed for the eventual outcome of HCI and UbiComp research - the design of a new system. Whilst it is not unusual for a systems design team to include an ethnographer of some description, the outcome of any field study is typically a list of guidelines or heuristics for engineers and designers (who are completely disconnected from the studied context) to implement. The work of ethnographers and anthropologists working within HCI and UbiComp, therefore, tends to be very weakly translated to the scientists and engineers working on the same team. This appears to highlight the great problem of much technology research that claims to be interdisciplinary - that is, at the end of it, the 'designers' (who typically tend to be engineers of some description) are the gatekeepers at the end of the project.

It is clear that part of the problem that Dourish and Bell have with UbiComp research is that although it makes use of social

scientific methods, often it is done with a complete lack of sensitivity to the subjects of interest for social scientists. They argue that: "First, it constructs ethnography as a point of mediation between, on the one hand, a domain of everyday practice and, on the other, a domain of technological design. Second, it implies that people will encounter technology as something just as it was designed and, hence, is appropriated or incorporated into practice" (p. 73). The way in which social science is used in technology design focuses on studying 'the field', finding gaps to be filled by technology, and then designing in response to the ethnographic account. Problematically, the very principle of using social science in design in this manner is paradoxical. "Seeking to close the gap through the application of ethnographic methods is a contradiction in terms; the gap is where all the interesting stuff happens, as a natural consequence of human experience" (p. 73). The suggestion implicit here is that the subject of study for the social scientist is rather different to that of the design team. Not only is this a significant difference, but also the very idea of using social science contextual work in design to alter a culture is, in itself, counter to the ethnographers cause. Rather, Dourish and Bell argue that ethnographic studies should be used to generate accounts of everyday uses of technologies but not directly influence the design of new systems. This is not to say, however, that ethnographic enquiries are not useful for designers; it's that "the most useful strategy when engaging with ethnographic work is to 'read for theory' as much as for empirical evidence, since in the end these may be where the truly significant implications lie" (p. 75). Dourish and Bell argue

that whilst UbiComp researchers are continually striving for the seamless integration of technology into being, people from diverse cultures are already enacting technology into being in a 'ubiquitous' manner—it is just the process of enaction is messy and in many case unremarkably mundane. Ethnographic studies are useful here in theorising this mess, and by understanding technology use in highly diverse contexts, it is possible to find patterns that allude to the ways people make technology coherent over time.

Chapters five through eight form the second part of the book, where Dourish and Bell deploy their 'messy' approach by tackling influential concepts from within the UbiComp research agenda. In these chapters Dourish and Bell continually juxtapose seemingly disparate ethnographic works with one another in order to bring out tensions in the overriding themes—a process of 'defamiliarisation'. Chapter 5, 'What lies beneath', begins by unpacking the concept of space as it relates to UbiComp. Dourish and Bell examine space from the perspective of ethnographic infrastructures [3]. Infrastructure, here, does not refer to technical infrastructures but rather experience of a multitude of space and how this is influenced by a number of infrastructures, such as "naming, movement, interaction ... [that] emerge from and are sustained by the embodied practices of people who populate and inhabit the spaces in question" (p. 108). These infrastructures, therefore, are both the shape of and shaped by these embodied, culturally-contextualised, experiences. Chapters 6 through 8 provide similar re-conceptualisations of 'Mobility and Urbanism', 'Privacy' and the prevailing

stereotypes of domesticity in UbiComp research.

Whilst chapters 5 to 8 read smoothly, they do feel somewhat drawn out—particularly to someone who is already familiar with the author's past work—and each chapter really acts as a reiteration of Bell and Dourish's claim that ethnography is at its best at unravelling the messy and effortful use of technology rather than food for designers to work with. These chapters are primarily an extended lead-in to the third part of the book, which contains just the one concluding chapter, where a 'reimagining' of the next quarter of a century of Ubiquitous Computing research is outlined. They begin by reaffirming their argument that studies of social and cultural meaning making cannot be used to directly inform design to close the gap between technology and practice. By their argument, design cannot act as anything other than a consequence of social action—new technologies are shaped by the encompassing cultural milieu and therefore become incorporated into them, or appropriated in a manner so that they do. As social scientists working within an area that essentially designs new technologies, however, Dourish and Bell appear to be forced to relate the 'implications' of their book back towards design in one form or another. Design, rather than responding to studies of culture by trying to smooth over cultural cracks, should instead act as embodiments of sociotechnical theories and arguments. By embodying these arguments, newly designed technologies can act as theoretical lenses to uncover new aspects of the world that were previously hidden. This is not to argue that they support technological determinism—far from it, by embodying

cultural conceptions of space, mobility, privacy and the home, designers might move beyond the technical rationality of current systems. By understanding the relationship between social science and design/computer science in this manner, they proclaim the possibility of a future 'socio-technical practice'.

There is much to be taken from Dourish and Bell's book. They provide a wonderful summary of the past 20 years of research on the subject of UbiComp with a distinctly ethnographic lens, and add considerably to scholarship on the fringes of the sciences and humanities that focuses attention on collective human agency in the production and consumption of technologies. For designers who want to be more critical of their practice, they emphasise the fallacy of predicting how users will react, appropriate and use new designs and technologies. For those interested in disciplinary intersections, they make us aware of the problems of negotiating ontological and epistemological boundaries. They make us ask: How can knowledge from one domain be both translated and applied in other disciplines without losing meaning or, as Dourish and Bell argue, contradict the basis of the knowledge itself? They also make researchers reflect on the dominance and 'myth' associated with key texts, articles, and works, and they do so in a way that is at once in-praise and damning of Weiser's original work. We should not burn down the archive and forget it ever existed, but we should not be frightened of shaking at the foundations of a disciplines research enterprise.

There is a strange circularity and contradiction to the way in which Dourish and Bell bring

their argument to a close however. As social scientists, they understand technology as a social construction. At the same time, in forming their socio-technical hybrid practice, they argue that technologies reveal new dimensions of the world and allow for the reimagining of how people can act in the world. By their argument design is both a passive and active constituent of cultural meaning making—but they offer little to understanding moments where it is one, the other, neither or both. There are also a number of times when I found myself confused at sudden dichotomisation of the social or cultural with the physical or natural—dichotomies that are understandable when we stick strictly to a particular disciplines heritage (social science) but felt at odds with the idea of working in an inter- or trans-disciplinary manner.

I feel there is a more basic issue with the book, however - not to do with philosophical dichotomies or self-contained contradiction. Rather, it is that I worry this will be another example of literature from outside of the computer science and engineering literature that will have very little impact on the actual practices of technology designers. As someone already familiar with the authors' work and the use of social science in design, there were very few moments where I paused for thought out of confusion. Those with little to no prior understanding of the language of social work, however, may find some sections more inaccessible. Perhaps this is not an issue - perhaps the future of a socio-technical hybrid design practice that Dourish and Bell outline must by a necessity only to be practiced by a small pocket of researchers who have the space to critically reflect on

their actions. There is already a community of researchers within studies of human-computer interaction who are fully accepting of ethnographical studies of computer use and appropriation. The case presented in the book, therefore, would be preaching to the already well doctored. As I read the book, I felt as though Dourish and Bell wanted to impact beyond this well-trodden area - to communicate their reimagined future of ubiquitous computing to a new generation of human-computer interaction scholars, computer scientists and engineers. Weiser's articles provided the conditions for mythology by cutting across disciplinary boundaries—even if in a rather uncritical and crude manner - perhaps, in a way, Bell and Dourish need to let go of theirs just a little bit more.

Notes

[1] Weiser, M. (1991) 'The computer for the 21st century', *Scientific American*, pp. 94-104.

[2] www.ubicomp.org and www.pervasiveconference.org

[3] Star, S. L. (1999) 'The ethnography of infrastructure', *American Behavioral Scientist*, 43(3), pp. 377-391.

How to Do Things with Videogames

by Ian Bogost

University of Minnesota Press,
2011, 192 pp.

ISBN: 978-0816676477

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Like many digital technology artifacts, videogames are subject to far-reaching claims of either ruining or rescuing society. In *How to Do Things with Videogames*, Ian Bogost posits "a less flashy answer": Rather

than ruin or rescue, technology influences and/or changes the way we perceive of and interact with our world. Evoking Marshall McLuhan and his argument that any medium extends human experience because it structures and informs our understanding and behavior, Bogost, a noted games theorist, designer, and builder, argues that we can understand any medium by examining what it can do. The “things a medium does to a culture,” he says, “are more important than the content it conveys” (4). Think McLuhan’s famous probe “the medium is the message.”

For example, the medium of photography can document the atrocities and celebrations of war—record-fleeting moments in time—preserve the ordinary moments of family life, or capture the speeding car for ticketing. The uses of photography can vary widely, and it is this breadth and depth that make it a mature medium.

Like photography, says Bogost, videogames are a medium because they have properties that precede their content. Rather than textual descriptions or visual depictions, videogames are models of experiences the operation of which require that our actions be constrained by their rules. And, since videogames are computational, these model worlds and the rules they embody can be quite complex. Therefore, understanding the properties of videogames helps us to understand their nature and implications.

Bogost begins by arguing that videogames, like photography, writing, books, film, music, or any other medium, should not be reduced to overly-simplified or emotional categories or uses—highbrow or lowbrow, serious or superficial, useful or useless,

ruin or rescue. Instead, Bogost, again evoking McLuhan, suggests an expansion of media ecology, “a media-agnostic approach to understanding how a host of different technologies works individually and together to create an environment for communication and perception” (6).



Throughout the rest of *How to Do Things with Videogames*, Bogost reveals “a small portion of the many uses” of videogames and how, combined, “they make the medium broader, richer, and more relevant” (7). Chapters are devoted to how videogames are currently, or may be, utilized to promote thinking about art (introspection and creativity), empathy (understanding the plight of others), reverence (a reprieve for the weary and steadfastness in the face of devastation), music (focus on rhythmic and musical construction), travel (continuous attention to the unfolding scene), branding (cultural and social preconceptions and circumstances), electioneering (direct participation in the effects of policy), promotion (how and why companies seek to persuade us to use their products), snapshots (appreciation for the craft of creation), texture (appreciation for the vivid diversity

of the physical world), relaxation (de-emphasize and focus the senses rather than escalate and expand them), throwaways (emphasize the pleasures of the fleeting, the transitory, the impermanent), titillation (defamiliarized and uncomfortable experience of the various logics of perversion that stimulate other human beings), exercise (social rituals that make us want to be physically active), work (understanding of mechanics that change the world through the play actions themselves, rather than future coercion or reflection), habituation (culture familiarity by constructing habitual experiences players want to experience repeatedly), disinterest (foster disgust for sadistic, troublesome, and controversial acts), and drill (trying in virtuality acts we may have to perform in the real world, before we have to undertake them).

In conclusion, Bogost positions videogames as a medium that pervades contemporary culture from art to tools and in between. Videogames aren’t just for adolescents, he says. Instead, once they are understood to have value and valid applications across a broad spectrum, videogames will provide meaningful and engaging gaming opportunities for the masses by, for example, documenting important historical and cultural events, providing educational opportunities for both children and adults, promoting a better understanding of commercial exchange and interaction, and serving as platforms for many different and varied human endeavors.

Neither the stuff of ruin nor rescue, *How to Do Things with Videogames* is, as Bogost promises, not very flashy. Still, this little book is compelling and useful as an insightful and

thought-provoking discussion of how we might reconsider one of the more significant cultural phenomena of our time.

Gaming Matters: Art, Science, Magic, and the Computer Game Medium

by Judd Ethan Ruggill and
Ken S. McAllister

University of Alabama Press,
2011, 155 pp.

ISBN: 978-0817317379

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As one of the most powerful cultural forces in the United States since the mid-1970s, computer games have long been debated and theorized from a wide range of rhetorical perspectives. Further discussion on every front quickly assumes an irreconcilable quality similar to M.C. Escher's 1953 lithographic print "Relativity" with its series of ascending and descending stairs infinitely looping one into the other. The result is a much better understanding of what such games are in their concrete, distilled sense as well as a vision of what they may be in their grandest, most abstract sense—but little has worked in the past to link the two together.

Judd Ethan Ruggill and Ken S. McAllister seek to address this gap in their book *Gaming Matters: Art, Science, Magic, and the Computer Game Medium* by arguing for a game medium as the preferred focus of inquiry and, then, seeking to detail the specific features that give rise to computer games that are both similar and diverse within this

medium. Their approach makes sense for both those new to the study of computer games as well as those seeking a fresh approach to old ideas.

Ruggill and McAllister establish a variable set of skills, habits, techniques, codes, conventions, and the constantly shifting articulations between them as the basis for a computer game medium. Although games are rule based, there are no inviolable, universal rules for designing and building them. The medium is plastic, limited only by taste, technology, and imagination. The structure, meanings, and experiences of computer games are discrete and peculiar, specific and ambiguous. "Quintessentially transdisciplinary," say Ruggill and McAllister, the computer game medium "sits at the nexus of engineering, mathematics, hermeneutics, logic, kinesthesia, narratology, performativity, art, and many other ways of seeing, understanding, and interacting". This multiplicity of perspectives makes computer games "synergistic artifacts whose nuance really only begins to make sense when approached in kind" (3).

Ruggill and McAllister propose seven qualities—idiosyncrasy, irreconcilability, aimlessness, anachronism, duplicity, work, and alchemy—as fundamental to the creation of a staggering array of computer games that are at once diverse yet consistent. Devoting a chapter to each quality, the authors probe critical, cultural, technical, economic, artistic, and scientific underpinnings in order to capture the complexity and diversity that facilitates the practice of each in computer game culture.

In the first chapter, "Idiosyncrasy," they argue that computer games are complex, engaging

both human players who play them and the machines on which they are played in nested and multifarious ways. The result is that computer games are idiosyncratic and difficult to apprehend through singular or specific ways of seeing.

The "Irreconcilability" chapter explores the complex and often conflicting discourse(s) surrounding the development, play, and analysis of computer games, arguing that this multiplicity of attempts at explanation by developers, players, and scholars to talk to one another is often unsuccessful because the very terms used for such discussions, even those widely used like "genre" and "style," disintegrate when examined closely.

The "Aimlessness" chapter argues that computer games are essentially boring. Computer games and their developers must constantly provoke ("hail") players into action. Thus, players not only play computer games, but also are played by them in turn. This insistency is what drives gameplay and what keeps players interested and immersed. This prompting is, on one hand, interesting and worthy as a quality of computer games. On the other hand, it is not always precise, or successful.

The "Anachronism" chapter argues that while there is a future and past to game development, there is virtually no present. A short shelf life and long development cycles conspire to prevent games to be built using current cultural trends or technology. Instead, developers strike a balance between the past and future, relying on play objectives that can be traced back to ancient games such as chess, hide-and-seek, and go and massive promotional campaigns to

assure that such compromises are well received by consumers.

In the chapter devoted to "Duplicity," Ruggill and McAllister argue that computer games are "dependent on rhetorics of truth despite being determined by fictions, fantasies, and lies" (6). For example, both game hardware and software is purposefully designed to as to appear simple and seamless, thus masking the complexity that lies below the interface. Such duplicity, they argue, serves a controlling function as an element of computer game design with regard to the "technical design, industrial and interface design, game design, industry practices, and scholarship" (11).

The "Work" chapter argues that computer games are better understood as work than play in that it is the work of developers, players, and scholars, as well as audiovisual and kinesthetic technologies that ultimately constitute the computer game medium.

The final chapter, "Alchemy," argues that the computer game medium can only be understood momentarily, tangentially, because of the speed and complexity with which it changes. The medium is thus enigmatic, unpredictable, and evanescent despite seeming mechanical, evident, and predictable. This suggests a number of ways—technology, art, discourse, science, and magic—that computer games can be studied.

The overall approach of *Gaming Matters: Art, Science, Magic, and the Computer Game Medium* is to promote a sustained and cohesive theoretical examination of the constitutive elements and meaning making process in the computer game medium. Ruggill and McAllister are careful to note that the qual-

ities of computer games they probe can be shared to some degree by other media, but rather than a comparative study, they seek a concentrated one and in this sense their book is both stimulating and informative, contributing to ongoing discussions and debates about computer games, perhaps moving forward some that have stalled.

Program or Be Programmed: Ten Commands for a Digital Age

by Douglas Rushkoff

OR Books, 2010, 152 pp.

ISBN: 978-1935928157

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Douglas Rushkoff has, through his books, columns, and commentaries, established himself as a leading expert extolling the virtues of digital media and society. In *Program or Be Programmed: Ten Commands for a Digital Age*, however, Rushkoff takes a different tack, wondering "if we adopted certain systems too rapidly and unthinkingly" (18).

We have, he says, embraced digital technologies and literacies "without learning how they work and work on us. And so, we remain one step behind the capability actually being offered us" (13). We tend to think less about how to "integrate new tools in our lives than about how simply to keep up. ... As a result, instead of optimizing our machines for humanity ... we are optimizing humans for machinery. ... replicating the very function of cognition through external, extra-human mechanisms

... that have the ability to think and operate other components in the neural network - namely, us" (16).

We are, he writes, living in a time where many are aware of problems engendered by digital technologies, yet few of us have any understanding of what is happening and how to cope. The solution, says Rushkoff, is to understand how such "thinking" devices and systems are programmed, even to have some input into how it is done, and for what purposes (17). In short, learn to program our digital technology or be programmed by it.

Sustained thought and discussion about the problem, and its possible solutions needs to be started, says Rushkoff, and so, he endeavors to explain 10 of what he considers the most significant biases of digital media technologies. Each bias, he says, stems from the tendency of digital technology to promote one set of behaviors over others. A chapter is devoted to each bias, along with discussion of how to turn these liabilities into opportunities, suggesting how to balance each bias with the needs of real people using that technology to live and work in both physical and virtual spaces, sometimes simultaneously.

For example, Chapter 1, "Time," Rushkoff notes "because computer code is biased away from continuous time, so too are the programs built on it, and the human behaviors those programs encourage" (25). The command: "Do Not Be Always On." Engage with the digital network as a choice rather than an expectation. Where the computer lives by its internal clock, humans live in the spaces between the clock's ticking, where time actually passes. "Do not surrender time to a technology that knows and needs no such thing" (34).

In Chapter 2, “Place,” Rushkoff says “digital media are biased away from the local, and toward dislocation” (37). The command: “Live in Person.” Exploit technology’s strength in delivering interactivity over distance, but preserve the ability to engage without its interference when we want to connect locally. Chose when we wish to live and work in real places, with one another, and, and, unique to humans, in person.

Chapter 3, “Choice,” focuses on how “the digital realm is biased toward choice, because everything must be expressed in the terms of a discrete, yes-or-no, symbolic language. This, in turn, often forces choices on humans operating within the digital sphere” (49). The command: “You May Always Choose None of the Above.” Freedom to withhold choice, to resist categorization, or even to choose something not on the list, is always available. This freedom of choice distinguishes human life from its digital imitations.

The bias highlighted in Chapter 4, “Complexity,” is that “digital technology—and those of us using it—is biased toward a reduction of complexity” (56). The command: “You Are Never Completely Right.” Digital simulations are models, and models are necessarily reductive. They are limited by design, like maps. They can chart the territory, but never replace the experience of knowing and understanding that territory.

Chapter 5, “Scale,” notes “on the net, everything is occurring on the same abstracted and universal level. Survival in a purely digital realm—particularly in business—means being able to scale, and winning means being able to move up one level of abstraction beyond everyone else”

(68). The command: “One Size Does Not Fit All.” Abstraction occurs at one level removed from reality, whether in the physical or virtual world. Abstraction can provide a way to undertake and succeed at various endeavors in either world. The danger is to live solely in the abstraction, the simulated. Instead, understand and use the technologies that promote abstraction to write the code from which such symbolic representations of reality are created.

Chapter 6, “Identity,” argues “the less we take responsibility for what we say and do online, the more likely we are to behave in ways that reflect our worst natures—or even the worst natures of others. Because digital technology is biased toward depersonalization, we must make an effort not to operate anonymously, unless absolutely necessary. We must be ourselves” (83). The command: “Be Yourself.” Maintain a strict sense of online identity. Realize that nothing online is off the record. Do not say anything you would not be proud to see quoted, shared, and linked to. Do not put words into the digital realm unless you are willing to own them (89).

Chapter 7, “Social,” notes “our digital networks are biased toward social connections—toward contact. Any effort to refine or hijack those connections for profit ends up compromising the integrity of the network itself and compromising the real promise of contact” (93-94). The command: “Do Not Sell Your Friends.” Digital interactive technologies promote networking on greater levels of organization. Each new communication technology affords new excuses/ways to connect and collaborate with one another. Your friends are not the content of your social network;

rather, they are the connection that makes the network happen and should not be shared simply because the creators of social networking software want to harvest them for advertising or marketing purposes.

The bias highlighted in Chapter 8, “Fact,” is “our interactions in digital media shifts back toward the nonfiction on which we all depend to make sense of our world, get the most done, and have the most fun. The more valuable, truthful, and real our messages, the more they will spread and better we will do” (106). The command: “Tell the Truth.” A person’s value in the digital realm is dependent on the strength of their facts and ideas, or the disinterest of others to ascertain either [my addition]. Those who communicate well in the digital realm are the ones who can quickly evaluate and pass along what matters to others. They are the authorities, the ones who discover and innovate, who find and do things worthy of attention, who create more value for everyone. The way to flourish is to tell the truth, and to have a truth to tell (111).

Chapter 9, “Openness,” notes a bias in digital technology toward openness. “The architecture of shared resources, as well as the gift economy through which the net was developed, has engendered a bias toward openness. It’s as if our digital activity wants to be shared with others. As a culture and economy inexperienced in this sort of collaboration, however, we have great trouble distinguishing between sharing and stealing” (114-115). The command: “Share, Don’t Steal.” To function, the digital community must learn to abide by standards that will evolve from programmers developing software together and learning to capture some of the value

they create. Innovations occur from someone building off another's innovations. Such participation, however, is dependent upon knowing both the programming skills necessary to improve a software program and the social code necessary to respect the contributions of others. A real understanding of both forms of code "makes stealing a nonstarter" (127).

Chapter 10, "Purpose," concludes the book noting that digital technology is programmed and is biased toward those with the capacity to write the code. Not understanding the coding, or at least that there is code behind any interface, puts one at the mercy of those who do the programming, those paying the programmers, even the technology itself. The bias, simply put, is "programming is the sweet spot, the high leverage point in a digital society. If we don't learn to program, we risk being programmed ourselves" (133). The command: "Program or Be Programmed" is also the bottom line through Rushkoff's self-described "poetics" (20). "[Digital technologies] are not just objects, but systems embedded with purpose. They act with intention. If we don't know how they work, we won't even know what they want. The less involved and aware we are of the way our technologies are programmed and program themselves, the more narrow our choices will become; the less we will be able to envision alternatives to the pathways described by our programs; and the more our lives and experiences will be dictated by their biases. On the other hand, the more humans become involved in their design, the more humanely inspired these tools will end up behaving" (142-143).

Players Unleashed! Modding The Sims and the Culture of Gaming

by Tanja Sihvonen

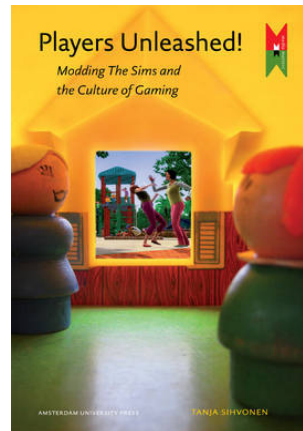
Amsterdam University Press,
2010, 224 pp.

ISBN: 978-9089642011

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Taking as its central example the computer game, *The Sims* (2000), Sihvonen's book analyses the practice of game modification, or 'modding'. Modding is the reconfiguration and reworking of commercially released computer games by players through the production or alteration of game content, characters, sounds, graphics, new maps and levels. The game's creator, Will Wright, is well known for creating computer games that offer players 'possibility spaces' that make it possible for players to build and control a range of simulated scenarios (*Sim City*, 1989; *Spore*, 2008). In these games players are not required to complete a particular quest or arrive at a pre-specified outcome, but instead, game-play is led by the player's own concerns. Because of this, *The Sims* makes a useful example in a discussion of modding because the game is explicitly intended as a platform for user creativity; Sihvonen's book provides an exploration of the way in which *The Sims* game enables player's creativity. Sims players are pre-eminent modders and creative expression, and interventions of players are central to the game dynamic of *The Sims* game-play, which is centred on activities of interpreting game content, configuring

it, and modifying it—practices that are not only carried out by a small subset of hardcore players but also are a highly popular and common activity.



In an introductory anecdote, Sihvonen describes her early experiments with the game, some of which involved killing her Sims; for example, by encouraging them to go swimming and, then, deleting the ladder that would allow them to climb out of the pool—the result being that exhausted, they drowned. While *Players Unleashed* is based on a broad survey of player activities using *The Sims* and the communities and platforms that support and serve these modding practices, this example is exemplary of the way users of any technological platform, including games, will often seek to use that platform to achieve not only a range of forms of self-expression but also to test the limits of their own imagination and agency within the space of the technology. Citing David Serlin, "modders do not play games, they play with games," (p.105), Sihvonen sets out to explore the way in which *The Sims* game supports this type of player intervention and expression. The result is a close reading of *The Sims* that

draws together multiple threads and ideas regarding the forms of player creativity it supports, and a number of insights into of game technology and computing are focused on an analysis and assembly of approaches to and discussion of this particular gaming environment. Thus, Sihvonen surveys a number of the key issues and literature that can contribute to an understanding computer games from a play-centred, ludic perspective [1] as materials that offer a canvas for performance, exploration, appropriation, creation and dé-tournement.

Sihvonen offers a framework for talking about the various forms of 'modding' activity (p.89-90): interpretation; "semiotic interpretation of the game - what it is for - how should we play, what do the elements mean? [including] glitches and bugs which might be exploited by users - design flaws which allow players to, for example build a house on columns which are then removed - leaving a floating house" (p.92). Another category is that of configuration where elements of the game are adjusted to provide player configured aspects to the game such as personalised avatars. Re-working 'the deconstruction and reassembly of game elements' (p.89) offers the most important focus for discussion. Playing with the game is the active intervention by players on the materials (files and code - digital content and assets) on which the game is based. These are edited or replaced using other software tools either provided by the game designers or produced by the modding community. Finally a further category, that of redirection (using the game to produce new media content) is discussed. This aspect of modding is present in activities such

as machinima and gamics (comics produced using screenshots from games).

What is particular of interest is the way in which modding appears to allow a space for users to reconfigure software products to their own uses. Player instigated reinterpretation and modification of game content offer examples that illustrate how game software production fits into a wider framework of analysis for the critical understanding of the interplay between media technologies, industry and culture. Arguably, the way in which a media technology and their protocols emerge from patterns of use and adoption may be as much influenced by the concerns of users of that technology – in this case the players – as that intended originally intended by its designers or the material affordances of the existing technological platform. The forces that shape technological and media products can, in the case of modding communities, be seen to lay with the concerns of players, as expressed through activities like modding. As Sihvonen tells us, modding practices and games that enable them allow players to access "negotiations of technological agency, identity and gender" (p.186). Talking about modding reveals further aspects of the interactions between the designers or authors of computer games and their public.

Modder activities not only impact upon the experience and agency of players themselves but also the industrial production of games. These modding practices have been part of the game industry in one form or another and offer an unpredictable, if sometimes extremely valuable, outlet for player creativity and production. As Sihvonen notes, fan cultures have

already been noted as active (often unauthorised) authors in the story-worlds in which they have imaginary investments – exemplified in Henry Jenkin's (2006) discussion of groups of fans writing alternative materials for story-worlds such as Harry Potter, etc. A number of games developers have made tools that enable different levels of modding and associated player practices, such as the production of 'machinima' (cinema produced in games) part of their products since the early days of FPS (first person shooters). Companies like Id and Valve have included software tools that made it possible for players to produce their own levels, resulting in some cases, in the production of entirely new titles based on existing game engines – such as Valve's *Counter-Strike* (1999), produced by players as a modification of *Half-Life* (1998) and then officially released in 2000.

It has been argued that the game industry is arguably increasingly dependent upon a range of benefits that the modding community bestows upon it (Kücklich, 2005). Whether or not the economic dynamics of this relationship should be viewed with suspicion is open to debate. Arguably the games industry is increasingly dependent on a player workforce, whose activity is conceptualized by Julian Kücklich as a form of 'playbour,' a form of productive play in which gamers produce their own game content, train themselves for work in the industry, do valuable marketing work, and also prolong the lifetime of games by producing further content and levels (in some cases whole new titles such as *Counter-Strike*) for games that would otherwise have a far more limited shelf-life. While, in some cases, we may consider the mobilisation

of modders as a workforce as an opportunistic and pragmatic move for developers, designers like Wright appear to have been acting upon another imperative: exploring the possibilities of what is afforded by computer simulation and the possibility of producing games that offer players the chance to engage with materials in a similar way to which they may with more traditional toys and construction sets—hence, *The Sims* being described as a ‘virtual doll’s house’. With regards to this question Sihvonen (p.45) acknowledges and discusses this role of player interaction with the industry in this way but points out that the domestication of this type of activity for use by the industry is problematic; modding can, therefore, be conceptualized as an activity that inhabits a contested ground between authorised and unauthorised play, cultural production, and the modification of software as intellectual property. In this light, the possibility that fans are being exploited by developers is a simplistic view of the dynamics of the relationships between these parties.

Sihvonen’s cultural-studies-centred reading of *The Sims* often returns to the particular ideological uses of the game by players for activities, such as gender play and the production of ‘deviant characters often produced in particularly high relief upon the backdrop of *The Sims*’ white suburban, conformist landscape that appear to lend themselves to the questioning through play. The ‘doll’s house’ becomes a space in which players can use a variety of tactics to question gender ideologies, resulting in politicised play practices. Sihvonen’s analysis dwells upon this use of the game platform as a text for rewriting alternative

roles and lifestyles. Far from understanding modding as an exploitation of player’s free labour activity, or the commercialization of play, Sihvonen presents us with a landscape of different acts undertaken by communities of players that question a range of political ideologies and use the platform to distribute to a public the results of these interventions. The interactions between official developers and public can, therefore, be seen as far more uneasy than a simple reading of capitalistic engineering of servitude but instead an open engine of play.

Many of the examples in the book show how the practices of modding can be seen as a politicised form of narrative construction offering players an outlet for general cultural resistance. This kind of critique is particularly visible in *The Sims* because of the traditional suburban spaces that are the canvas for game-play and the highly normalized body and lifestyle templates offered to players in order to create their Sims. The setting and game-play of *The Sims* has, as Sihvonen points out, been criticized in the cultural studies literature for the way in which it ‘conveys the consumerist ideology associated with domesticity and the American suburban mental landscape’ (p.34). However, Sihvonen revisits this critique, suggesting that the underlying intention of the designers seems to encourage modding and player performances that include the ‘subversive re-appropriation’ by players and the ‘bending’ of the ‘original inclinations of the game’ (p.164). Many of the ideological biases that appear to be built into the game are quickly dealt with by cheats, mods, and fixes that are both available through player communities, and, as Sihvonen points out, also described

by the developers themselves in the instructions that accompany the game. An example is the ‘Joy Booth’ that bypasses the expensive and time consuming nature of Sim courtship – which in line with the capitalistic ideological framework of the game relates success in love to material gains – the game objects that enable the more complex forms of romantic encounters are also the most expensive (p.166). So while the game is structured around the acquisition and use of objects by the pursuit of increasingly better-paid work, it provides a ground against which many players explore non-traditional lifestyles. It may, in fact, be the case that the developers intended the limitations of the Sims game and the ‘object oriented’ dynamic of play, a provocation to players to question the norms of the game (p.168). This indicates a very different model of the discourses that might emerge between developers and players.

With reference to these discussions, at times the text feels as if it is covering too much ground. Some suggestions and observations would have supported a longer, deeper focus. For example the observation that the sexuality of the Sims is not dictated by their gender in the game but rather emerges from their behaviour. Perhaps an alternative reading of the conservative and consumerist ideology of the game is suggested by this – as Sihvonen points out: The game’s reality is one in which sex of a game character does not result in inbuilt, ‘natural’ behaviours, inclinations or actions. This said, in its breadth, while dictated by its focus on a particular game and set of player activities, the book draws together a lot of material and ties together a great many threads as well as stimu-

lating a range of questions regarding game modification and player communities in games outside of the FPS genre.

References

[1] The games studies literature distinguishes between a ludic understanding of game-play - where games are considered as materials for play activities and player performance - and the understanding of games as narratives, which more like films, or novels, can be progressed through by players whose actions reveal the underlying story contained within the text, but who, to an extent are led to conform with predicted aspects of the storyline (Aarseth, 2001). In contrast to this, games like *The Sims* in particular demand an analysis of the procedures and outcomes of game-play, which cannot be analysed or predicted without attention to the actions of the player within the game-space.

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Switching Codes: Thinking Through Digital Technology in the Humanities and the Arts

by T. Bartscherer & R. Coover (eds.)

University of Chicago Press, 2011, 448 pp.

ISBN: 978-0226038315

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Not many scholarly books I review invite the reader to physically chop-up parts of it with

scissors! Less unusual possibly is how the respondents to the main essays chop-up, intellectually, the previous essays. If that's not all, there are poetry, games, dialogue, scholarly essays, and short fiction all thrown in together. What is the world coming to? *Switching Codes* goes a long way in helping us understand this question by discussing side-by-side — digital technology, the humanities and the arts.

As the editors of this important and most enjoyable book state, "The aim of this volume can be simply put: to bring together scholars, scientists, and artists to reflect on the impact of digital technology on thought and practice in the humanities and the arts". There is an anti hero ... or maybe hero, exposed in the Epilogue which is perhaps, "a foil for you, dear reader" (p. 1). It is difficult to generalise about the book's readability as the contributions are so varied in style: Some are complex and require prior academic knowledge; others are easily digested. Having said this, I think the book will be accessible to most reasonably well educated readers.

Switching Codes has 10 main essays, followed by critical essays in response to these. They are arranged into four parts:

Part 1 – Research, Sense, Structure

Part 2 – Ontology, Semantic Web, Creativity

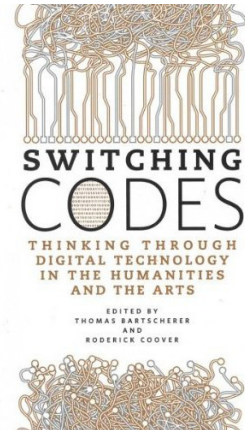
Part 3 – Panorama, Interactivity, Embodiment

Part 4 – Re/presentations: Language and Facsimile

Following the texts is a List of Contributors and an excellent Index. There is a smattering of black & white images to illustrate points made in the essays.

Time for the scissors! *Interlude*, between parts two and three is a game - *Figment: The Switching Codes Game* by Eric Zimmerman. This is a bona fide card game designed specifically for this book, and you, dear reader, are invited to cut out the 200 cards, read the rules, and play the game with friends. Scissors are not provided with the book, probably because of Custom's security regulations? If you do not want to *cut-up* the book (the historical use of this cut-up methodology is the basis of the game), you may photocopy the pages or download them from Zimmerman's website.

All the essays are thought provoking and add important understanding to our world's current — technology < > humanities divide. Two essays however really stood out for me.



Firstly, *Scholarsource: A Digital Infrastructure for the Humanities* by Paolo D'lorio and Michele Barbera, this is a "Skype Dialogue" between a fairly traditional English, Oxford Philosopher and a much younger, "Google Generation", Computer Scientist. The latter writes sentences like, "r u kidding i'll multi-task while u talk lol". This essay really brings to the surface how difficult it is going to be to fully

integrate digital technologies and the humanities into a new discipline, honouring both, but existing in its own right. Fortunately these two disparate characters find some common ground and show that the task is not impossible.

The second essay, *Rewiring Culture, the Brain, and Digital Media* by Vibeke Sorensen sums up the global situation as it actually is. It is easy to forget amongst all the hype about how great the Internet is, and “always on, always available” will bring about a better world politically, that the majority of people on this planet are not connected to the net. “But statistically, 75 to 90 percent of the world population remains *not* connected” (p. 242). Sorensen sees, correctly in my opinion, that the present growth of digital global networks is similar to that of twentieth century colonialism and imperialism. The bottom line is that while some things may be gained through colonialism, a great deal is lost and this is usually irreplaceable. “The tendency to fragment and deconstruct cultures is still progressing. It is also reinforced by strong and persistent neocolonial tendencies” (p. 243).

Understanding the impact of rapidly changing information technology on intellectual and cultural life is increasingly difficult. For me this book is a successful attempt to provide a basic understanding of the issues involved and also give tentative suggestions of ways to proceed into our uncertain future. “Automated computation may in certain respects change “what it means to be human.” “This possibility — both a promise and a threat — is clearly on the minds of many of the contributors to *Switching Codes*” (p.5).

Performing Presence: Between the Live and the Simulated

by Gabriella Giannachi and Nick Kaye

Manchester University Press, 2011, 240 pp.

ISBN: 978-0719080043

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Presence: gift, being here-now, charged, fraught with tension, is a concept rich with layers of meaning — yet somehow always elusive, especially when embedded in simulated and live practices of multimedia theatre, video installation, mixed reality performance, and locative arts as questions about its nature are thrown into relief, like the shadows in Plato's cave. Presence is not held static in a snapshot of present time being there, but is embodied relationally in actual active viewers, participants and performers; it is thrown between selves. As such it is a difficult concept to contemplate unless we think in process terms as this book attempts to do. The authors, in unrelenting examination, successfully, I believe, unearth questions, murmurings, articulations and well described philosophies (especially in critique of Husserl) that are useful in bringing understanding to this phenomenon.

Part of a major research project led by Giannachi and Kaye and funded by the UK Arts and Humanities Research Council, this hardback book will be of particular interest to students, researchers, and practitioners of theatre and performance, contemporary art, media, the new media, and technology. It ex-

plores the edge of art, science, technology, and philosophy through case studies, specifically the work of Lynn Herschman Leeson, Paul Sermon, Gary Hill, and Tony Oursler, The Builders Association and Blast Theory, as well as through the analyses of related environments created for CAVE (an immersive virtual reality environment). Clearly describing each of these projects, the authors give the reader clear *entrée*, through analysis and interviews with practitioners, to understanding some of the most exciting art and media projects being produced today.

Plato's cave analogy is a very useful place to start to think about the questions explored in this book. He wrote of Socrates' description of prisoners who have lived chained to the wall of a cave all of their lives, facing a blank wall. They watch shadows projected on to the wall by entities passing in front of a fire behind them and understand the images as reality. Philosophers, Socrates claimed, are like these prisoners freed from their cave. Now, instead of shadows, they can perceive reality. Is virtual reality (the shadows on the walls of a cave) really virtual, or does it augment real reality, whatever that is? Is there actual reality or is all experience endlessly mediated by simulacra (words, included), as Baudrillard claimed in the days before computer generated environments? Is reality a construct? Plato thought there were perfect forms, in places beyond shadows; we, of the modern era, have a different stance: We play with our thoughts as shadows on the wall, observing them dance in difference and fusion. It is certainly interesting stuff, especially when the human element of presence (or telepresence) is added.

Virtual reality, as the authors of this book note (p. 119), are 'technologies or environments that provide realistic cues to some or all the senses, sufficient to engender in the participant a willing suspension of disbelief'. We are used to thinking of virtual reality as computer generated – and this book reinforces that. The authors note that virtual reality can be presented in three ways: immersive or inclusive, via goggles, gloves or data suits; a desktop virtual reality 3-D technology observed through a window or screen; and 'third person VR' where you steer and view an image of yourself interacting in a virtual world. The image has a prosthetic quality and leads to a sense of having a double existence where the difference between presence and absence doesn't matter any more. Any technology, however, has this capacity to 'provide realistic cues to some or all the senses, sufficient to engender in the participant a willing suspension of disbelief.' The written word is a prime example. We are trained to read shapes on a page or screen and make meaning through the lens of our social group, our history, and our personal experiences. Thus, while the virtual technologies and the art forms that describe and are generated from them have become very sophisticated, the basic entwining and understanding of that chiasm remains somewhat mysterious. What is presented here in this book, *Performing presence: Between the Live and Simulated* is a thought-provoking and provocative account and analysis, but the work, in my view, has just begun.

Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno

by Miriam Bratu Hansen
University of California Press,
2011, 408 pp.
ISBN: 978-0520265608

*Reviewed by Jan Baetens,
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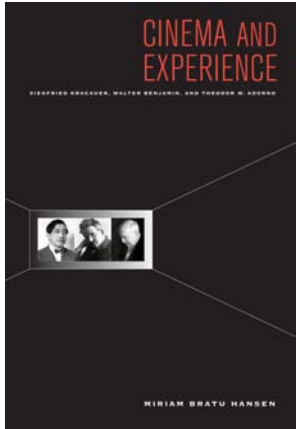
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Cinema and Experience is, alas, a posthumous publication, and the exceptional qualities of the scholarship of a book like this, by one of the leading voices in contemporary film theory and history, are so rich throughout that one feels ashamed to simply review it in the absence of its author (actually, each of its pages would deserve a close-reading and a meticulous and careful discussion). One can only hope that the research of Miriam Hansen, whose work on spectatorship has been crucial in the cultural turn of film studies, will be continued in many ways by those who have found in her writing and thinking good reasons to study film in new and innovative ways.

This book is clearly the result of a lifelong dialogue with the three major German authors on film of the (post-)Weimar period: Siegfried Kracauer, Walter Benjamin, and Theodor Adorno. The position of their work in current scholarship is however very different. Kracauer's reflection on film is often dismissed, partly due to the misunderstandings that have accompanied the reception of his 1960 *Theory of Film: The Redemption of Physical Reality* (a study accused of

naïve realism and uncritical acceptance of film as expression of representational verisimilitude). Benjamin's texts on film, on the contrary, have benefited from the exceptional impact of his "Artwork" article (which does not represent however all of his thinking on film, often simplistically reduced to the idea of film as aura destruction, more particularly in the third and last version of this essay). Adorno's ideas on film, finally, have routinely been discarded as elitist and aesthetically conservative due to their foregrounding in his famous 1947 book on the culture industry. In *Cinema and Experience*, Hansen offers a very thorough and detailed description of these three authors' ideas on cinema, and in doing this, she follows more or less the chronology of their interventions. For example, Kracauer occupies the first and last chapter of the book, whose central parts are devoted to a large section on Benjamin, followed by a briefer one on Adorno. But the aims of her study are, of course, much more far-reaching than the scrupulous reconstruction and explication of a corpus that is read here for the very first time in all its diversity. Hansen does not limit herself to revisit the notorious monuments, she delves also in numerous hardly known texts, many of them never translated into English. What she actually is looking for is a twofold basic reinterpretation: On the one hand, she proposes to demonstrate the similarities and continuities between the three authors under scrutiny; on the other hand, she also aims at questioning the monolithic interpretation of their film criticism and theory. Logically enough, both objectives are closely intertwined.

Cinema and Experience, which is a book one can only close-read, has a very plain methodology. Three basic stances determine and underlie all of its interpretations.



First, *historical contextualization*. Hansen reconstructs the intellectual and conceptual background of all the major concepts used by Kracauer, Benjamin, and Adorno, and she achieves this goal by painstakingly unearthing the permanent debate between these three thinkers and the ongoing debates of their times (the plural is crucial here, for none of these works can be pigeonholed to just one specific intellectual environment or context), as well as by detecting the sometimes dramatic changes undergone by some of these concepts during their internal evolution.

Second: *the palimpsestic character of the close-reading*. Hansen does not simply rereads and reinterprets the texts and the concepts in the edited versions that have become canonical, she also discloses their previous versions as well as their marginalia and intellectual afterlife (including in the discussions between the three authors themselves). In the case of Kracauer, this means, for instance, that

the 1960 *Theory of Film* (directly written in English, a problem for some of its first readers such as Pauline Kael) is confronted with the bilingual (German and English) notes that the author had been taking since his exile in Marseille (where he had to wait for the authorization to legally immigrate to the US). For Benjamin's "Artwork" essay, Hansen uses each of its three versions: the handwritten manuscript, the French translation by Pierre Klossowski as published in 1936 in the *Zeitschrift für Sozialforschung*, and the revised third or "German" version, which is from 1939 but whose publication will remain postponed till the posthumous 1955 *Illuminationen* edition. In the case of Adorno, Hansen completes the 1947 version of the *Dialektik der Aufklärung* (co-signed with Max Horkheimer) with later or excluded material that did not necessarily represent the vision of Adorno's co-author.

Third: *the exclusive focus on the double concept of cinema and experience* (for this is not a book on film theory in general, and certainly not on the analysis of particular movies). The notion of experience (in the sense of "Erfahrung", socially grounded in a whole context of living, and not of "Erlebnis", which refers to a more immediate yet also more isolated form of experience) is of course a strategic concept. It is in itself a reply to Adorno (whose insistence on the inherent qualities—or if one prefers, lack of quality—of film as culture industry tended to put between brackets any form of concrete experience); it is also a way of saving the heritage of Kracauer (who appears to have said much more on the cinematographic experience than his many detractors have always suggested) and a way of refocusing the Benjamin

scholarship (overobsessed, according to Hansen, by the mere idea of film as aura destruction). Cinema, on the other hand, is not to be read here as "film," but as the specific experience that was both creating modernity and being shaped by it. Cinema provides the framework that simultaneously reproduces and invents new ways of coping with technology, community, rupture, innovation, art, and most of the other notions and concepts that Hansen scrutinizes in her study.

Cinema and Experience is a difficult book. Not because its style is obscure or confused (on the contrary), but because its intellectual and philosophical ambitions are so high. Hansen takes for granted that her reader is perfectly familiar with the existing scholarship and the many cultural and historical debates on the reception of Kracauer, Benjamin, and Adorno, and this is placing the stakes for the "ideal reader" very high. But all those who accept to follow the author on her passionate journey will be richly rewarded. Our apparently too well known ideas on film according to Kracauer, Benjamin, and Adorno become at second sight a frightening labyrinth with many dark meanders, but eventually the strong hand of Hansen leads us to unforeseen yet always illuminating insights, too various and too complex to be summarized by way of a review (in this regard one may regret that the index, which contains mainly proper nouns, does not fully pay justice to this wealth). And the style of the book is so compelling that no one will want not to follow the slightest of its threads.

Talk to Me: Design and the Communication between People and Objects

by Paola Antonelli

The Museum of Modern Art,
New York, 2011, 208 pp.

ISBN: 978-0870707964

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The purpose of design has shifted, over the last 100 years, from utility, to function, to elegance, and now, in response to affordances of digital technologies, to visualization, communication, information, interaction, future scenarios and projections, scientific inquiry, and interfaces. Design has become a way of constantly connecting the open source movement with a creative network to promote interdisciplinary collaboration. The result is design's new terrain: enhancing communicative possibilities, embodying a new balance between technology and people, and bringing technology to a comfortable, understandable human scale.

Talk to Me: Design and the Communication between People and Objects, published in conjunction with The Museum of Modern Art exhibition of the same name (24 July-7 November 2011) by exhibit curator Paola Antonelli, with essays by Jamar Hunt, Alexandra Midal, Kevin Slavin, and Khoi Vinh, celebrates this diversity and open-endedness of contemporary design by providing snapshots of nearly 200 projects, including interfaces, websites, video games, devices, tools, charts, furniture, and infor-

mation systems from personal to global scale.

Building on the shift in design from function to meaning, and with the overlay of twenty-first century focus on social media communication, *Talk to Me* posits communication as the nexus of contemporary design, the embodiment of the openness and flexibility necessary for embracing diversity and the critical questioning and imagining preferred as the method of inquiry. As *Talk to Me* demonstrates, designers, beyond giving objects form, function, and meaning, now write the initial scripts that provide a new metaphysical and expressive layer of interaction and communication between people and objects.

Interfaces provide many of the objects included in *Talk to Me* with depth and dynamism, as well as the ability to communicate in different ways. Some communicate in text, diagrams, or other graphic interfaces. Some seem empathetic, almost telepathic, keeping us company or storing our memories. Some provide sensory allure, with warmth, scent, or texture. Such objects populate our homes, buildings, lives, beckoning with identities or characteristics we find compelling, natural, and meaningful. They contain information beyond their immediate use(s) or appearance(s), yet each one prompts the promise of communication.

For example, interfaces (wristbands and sensors) allow individuals to monitor themselves or be monitored by others at a distance. Some websites are interfaces for publicizing information at different scales, from digital water coolers to WikiLeaks. Any device that can send and receive text can be used for acts of civil responsibility:

activating alerts, mapping emergency areas, searching for survivors. And, as we have seen in world events, interfaces can bring government to the individual or the individual to government. Interfaces have been created for Catholic confession and Taoist prayer. Wheat fields provide QR-code salutations for airline passengers flying above them. Many other examples are included in *Talk to Me*, each one interesting, compelling, and indicative of what lies ahead as design continues to explore how our objects, with their built in radical functionalism and their abilities to inhabit different environments and frames of mind simultaneously will become ever more central to our cultural development.

In addition to the lavish exhibition photographs and curatorial notes, *Talk to Me* also includes four essays by the designers noted above. Hunt's essay, "Nervous Systems and Anxious Infrastructures" notes that "we are drifting into a new alignment, in both mind and body, with technology that is far more immersive, encompassing and confounding. Surrounded by synthetic voices that talk to us, we are entering an age of uncanny technologies" (48). Midal's essay, "Design Wonder Stories: When Speech Is Golden," speaks to the transdisciplinarity of modern design as it draws from the theoretical bases of anthropology and sociology, as well as its future as a discipline disengaged from functionalism, able to forge a new conception of design and design history. Vinh's "Conversations with the Network" notes that the contemporary digital designer is "charged with engaging the user in conversation through the framework itself. Design solutions can no longer be

concluded; they're now works in progress, objects that continually evolve and are continually reinvented. A designer creates a framework for experience, the user conducts experiences within that framework, and through feedback—both implicit and implicit—the designer is expected to progressively alter that experience to reflect the user's usage patterns, frustrations, successes, and unexpected by-products. . . . When an inveterate user of a digital product encounters a new change, she is listening to the object talk to her" (131). Slavín's "Reality is Plenty, Thanks: Twelve Arguments for Keeping the Naked Eye Naked" argues for inventing new ways to see rather than new things to look at, objects with which we can see the world "in ways that we've never known" (173).

Talk to Me: Design and the Communication between People and Objects, both The Museum of Modern Art exhibition and the its associated catalog, does just this, providing nearly 200 new and different ways of looking at the world through objects or our creation and pursuing a conversation with those objects about what we see.

Acoustic Territories: Sound Culture and Everyday Life

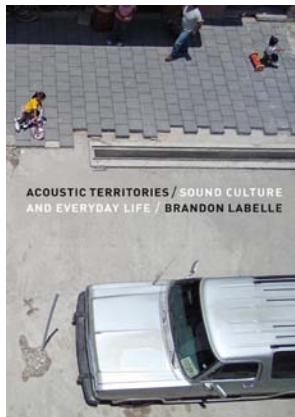
by Brandon LaBelle
Continuum, 2010, 304 pp.
ISBN: 978-1441161369

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The central argument of *Acoustic Territories: Sound Culture and Everyday Life* is that sound

provides a significant model for thinking about and experiencing the contemporary condition. In exploring this thesis, Brandon LaBelle, an artist and writer working with sound and locational identities, notes at the outset, "the seemingly innocent trajectory of sound as it moves from its source and toward a listener, without forgetting all the surfaces, bodies, and other sounds it brushes against, is a story imparting a great deal of information fully charged with geographic, social, psychological, and emotional energy. . . . My feeling is that an entire history and culture can be found within a single sound; from its source to its destination remaining specifically tied to a given context, as a deeper expressive and prolonged figure of culture" (xvi).



Combining research on urban theory, popular culture, musicology, anthropology, histories of media and cultural practices, and auditory issues, *Acoustic Territories* seeks to examine the exchanges between environments and people registered through deep listening aural experience. In particular, LaBelle is interested in the ways in which sound disintegrates and reconfigures space through a political process, turning them into

acoustic territories. To analyze such territories, LaBelle focuses on five everyday spaces: the urban underground subway; home interiors, suburbs, prisons, and gated communities; urban sidewalks and streets; shopping malls and airports; and the sky, filled with television and radio transmissions, both commercial and pirate. In examining each space, LaBelle foregrounds sound as an anxious and restless transfiguration that "might identify a means for occupying and exploring the multiple perspectives of the present" (xxvi).

For example, regarding the sky as an acoustic territory, LaBelle sees transmission towers as "giving material expression to the immaterial, emanating the potentiality of medial reach" by displacing the corporeal on the imaginary plane of virtuality comprising the ether in which wireless broadcasts occur (238). Similarly, they speak to control over an organized electromagnetic spectrum through which are broadcast corporate or state propaganda. Such borders and controls are resisted, if not completely ignored, by pirate broadcasts, transmission arts projects incorporating the content sent via various frequencies of the spectrum, and the use of mobile telephones, making each user both a transmitter and a receiver, charging the imagination with potentiality of worldwide connective presence.

Such instances, says LaBelle, contribute to an aerial imagination made manifest by the presence of alternative content and the mapping of the borders of aural sources with the terrestrial tension(s). "Transmission," says LaBelle, "is equally about power and propaganda. . . . To transmit is to tap the political heart of social connection" (220).

This same approach is pervasive in each chapter of *Acoustic Territories*. LaBelle follows the transmission of various sounds back to their sources, uncovering a culture of aerial imagination and the opportunity for personalized expression, just as he follows those same sounds outward from their sources to their eventual receipt. Arguably, at times this trajectory travels too far, deteriorating into a series of echoes, beyond a useful arc, just as does sound as it ranges outward from its source. In between, however, by bumping up against the material world, or constructs of virtual ones, these arguments/sounds create a sense of space contextualized by relations located within larger cultural histories and ideologies.

In the end, the dynamic quality of auditory knowledge works to create shared spaces that belong to no single public yet still impart the feeling of intimacy, says LaBelle. Sound then is a network that “teaches us to belong, to find place, as well as how not to belong, to drift. ...based on empathy and divergence, allowing for careful understanding and deep involvement in the present while connecting to the dynamics of mediation, displacement, and virtuality” (xvii).

Art and the Senses

by Francesca Bacci and David Melcher (eds.)

Oxford University Press, 2011, 622 pp.

ISBN: 978-0199230600

Reviewed by Rob Harle

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It seems cross-cultural, transdisciplinary scholarship is increasing at an almost exponential rate. The last five

books I have reviewed have all been concerned with fostering a mutually advantageous relationship between science and the humanities. This book is exemplary in this regard, specifically exploring the scientific and common sense understanding of the *senses* and their relationship to the arts. Art is used in the broadest manner and includes all modes of creative artistic endeavour from basic crafts through to opera, fine art, cinema and classical music.

Art and the Senses is no shrinking violet. Weighing in at just under 650 pages, it covers a lot of ground. The essays explore many of the subjects discussed at the *Art & Senses Workshop* at Oxford, England in 2006. “The aim of this project, in addition to providing a unique multidisciplinary resource on the senses, is to inspire future cross-boundary interactions”. The book does not claim or aspire to be the definitive work but rather to offer, “a collection of examples on how scientists, artists, and scholars in the humanities are investigating and commenting on the senses” (p. 2). The editors Francesca Bacci and David Melcher (both from the University of Trento, Italy) have done an excellent job in achieving this aim.

Following the Foreword by Siân Ede, the List of Contributors, and the Editor’s Introduction, there are 31 chapters with such enticing titles as: *Hearing Scents, Tasting Sights: Towards a Cross-Cultural Multimodal Theory of Aesthetics*; - *Mirror Neurons and Art*; - *Visual Music and Musical Paintings: The Quest for Synaesthesia in the Arts*, space does not permit listing them all. There is literally something for everyone; all the essays are well written, accessible to both academic and well

educated general readers and cover a huge range of history. Some of the chapters are in-depth philosophical investigations into aesthetics and the senses; others take the form of discussions between scholars, and still others are more accounts of practising artists who have a major concern about their work and sensory response. The book has numerous black and white photos and illustrations and a small number of colour plates.

Two essays that particularly struck a chord with me were *Aesthetic Touch* by Rosalyn Driscoll and *Sculpture and Touch* by Bacci. These authors discuss the underrated importance of touch, and how touch influences and modifies the other senses. Driscoll creates sculptures specifically to be felt and explored through touch. During the 80s and 90s I often had a sign displayed on my own sculpture exhibits. “Please Touch Me”. Given the general restriction of touching a work of “Fine Art” this unnerved quite a few gallery goers! This was, of course, my intention — what damage could someone running their hands over a half tonne piece of marble do?

As these two authors point out specifically, and some of the other contributors generally, denying an observer the right to touch a sculpture, which more than any other art form is created by direct hands-on touching, is absurd. The result is an impoverished, incomplete experience of the artwork. This taboo of not touching is not only restricted to artwork, but rather it spills over into everyday life. In the village where I live we have a saying, “Three hugs a day keeps you healthy,” but many adults never touch other human beings. The further we move towards online,

mechanistic lifestyles, together with the possibility of sexual harassment charges for touching a fellow worker on the arm in a complimentary way, the more our quality of life as humans becomes compromised.

This book has ramifications far beyond the arts. Perhaps this was not originally intended by the editors, but it is an important bonus because as many of the contributors show, we now know the senses do not exist in isolation or as separate entities. Each sense modifies the experience of the others. As an example, to touch a fine crystal glass alters the actual visual experience of the glass! "The mainstream view in cognitive science was, and to a certain extent even today is, that action, perception, and cognition are to be seen as separate domains. The discovery of the MNS [Mirror Neuron System] challenges this view as it shows that such domains are intimately intertwined" (p. 456).

Art and The Senses is a vitally important book and applies to so many different research disciplines that I cannot begin to suggest them all. One area, though, that I think will benefit immensely from the application of the findings presented in this volume is the healing profession, particularly psychotherapy and art therapy.

Modernism After Wagner

by Juliet Koss

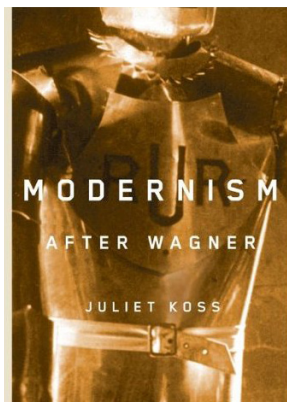
University of Minnesota Press,
2009, 416 pp.

ISBN 978-0816651597

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In *Modernism After Wagner* Juliet Koss aims to recover Richard Wagner's seminal conception of the *Gesamtkunstwerk* (total work of art) to its original interdisciplinary idea as conceived by Wagner in order to show how its principles lie at the very heart of modernism. Contrary to the frequent retroactive assessments of Wagner's work, Koss situates it in the historical and political context of the period between the 1890s and the 1930s in Germany. In doing so, she proposes that the common opposition of the *Gesamtkunstwerk* to the central themes of modernism, such as autonomy, medium specificity and artistic purity, does not hold once the concept is liberated from uncritical associations with fascist aesthetics and from misleading interpretations of the spectators as entirely passive and engulfed in an overpowering force conveyed through a blurring of creativity among a variety of artistic disciplines. The *Gesamtkunstwerk*, as conceived by Wagner, on the contrary, retained the specificity of the single discipline but enforced its strength through an interdisciplinary collaborative effort. As quoted in Koss (p. xii), Wagner declared that art forms:



"[E]ach attain the capacity to be and do the very thing which, of

their own and inmost essences, they long to do and be. Each, where her own capacity ends, can be absorbed in the other, ... proving her own purity, freedom, and independence as that which she is." [1]

Departing from Wagner's focus in the arts in poetry (which he conceived as foremost and the art of the future) music, and dance, Koss draws out the historical specificity of the wider implications of his conception of the *Gesamtkunstwerk* in art and especially architecture (as well as some sidelines into the areas of theatre, music and film) with a focus on the active co-creation of the artwork on behalf of the spectator's involvement. This chosen focus on the spectators' involvement in the co-creation of the artwork sets up a framework to address core questions around politics and aesthetics as well as the relationship between form and content. This focus is carried through the book, starting with chapter 1, with the exploration of Wagner's original conception of the *Gesamtkunstwerk* against the backdrop of the failed revolution in 1848-49 in the German Confederation as a 'radical means of encouraging audiences' active engagement.' Chapter 2 contextualises the exemplification of Wagner's *Gesamtkunstwerk* in the establishment of the Bayreuth opera-house, which is drawn into the wider theatrical arena in chapter 4 through critical reflections on the applications of the idea of the total artwork among other in relation to Nietzsche's conception of the festival in case-studies of the Darmstadt Artists' Colony and the Prinzregententheater in Munich, as well as in chapter 5 the Munich artist's theatre. Chapter 3, most crucially for the perspective of the audience's engage-

ments, discusses some of the core investigations into the subject of empathy and the sympathetic relationship between spectator and perceived (art) object in 19th century psychophysiological approaches in the sciences and aesthetic theory. This chapter provides the foil for the apparent break between the 19th century understanding of an active spectatorship (as present in Wagner and for example in Robert Vischer's work) and the 20th century conceptions of the passive spectator as part of a mass audience. Whilst Koss posits among others the technological media developments as key context in the shift from the individual artwork to a mass audience, particularly in chapter 6 with a brief sidestep to some discussion of the emerging cinema, the controversies of contradictory models of the empathetic engagement of the spectator in chapter 3 intrinsically reveal some of the prevailing paradigmatic shifts at the turn of the century that reshaped the understanding of subjectivity in most fundamental ways, which Koss further epitomises with regard to Hildebrand's and Woringer's conflicting approaches to theatre and empathy in chapter 5. It is on this more philosophical level that Koss provides an intriguing starting point to further explore some of these tensions that have, in recent decades, been addressed among other through a resituating of the historical roots and drivers of the concepts of embodied vision, enacted perception and the dissatisfactions with design theory that resulted in equally unsatisfactory conceptions such as co- or experience design. Koss, however, remains within the book's argumentative framework in her discussion in chapter 7 of Bauhaus theatre and dolls as object *par excel-*

lence to reflect on the previous aspects around the tensions between empathy and estrangement and Weimar models of subjectivity and spectatorship and concludes in chapter 8 with critical reflections on the placement of Wagner's work in the German history of nationalism in particular the associations with National Socialism.

Koss successfully restores the original conception of Wagner's ideas on the *Gesamtkunstwerk* and shows their relevance for the understanding of modernism in its very own interdisciplinary efforts in the development of visual abstraction and its rhetoric of purity. At the same time, she calls for a reconsideration of how modernism itself had to be understood more fully in relation to the theoretical and historical development of the *Gesamtkunstwerk* by which she counters the body of literature conceived by retroactive prescriptions of modernism from the perspective of mid and late 20th century theory that excluded, as Koss argues, the historical specificity and wider context of interdisciplinary engagements. [2]

In doing so Koss convincingly recovers the original intentions of Wagner's *Gesamtkunstwerk* from its historical oblivion, not least caused by Wagner's own attempts to obliterate any connections with his involvements during the revolution. The particular relevance of *Modernism After Wagner* lies in a recognition of the significance of this concept for today's central collaborative method of interdisciplinarity in many fields, not only in the academic arena. It contributes to the theoretical foundation to build sustainable and productive interdisciplinary collaboration and exchanges, whereby the specificity of the disciplinary

methods and strengths remain distinct but are put into service for a greater whole and in this process are strengthened by return. It can be concluded that only through a thorough understanding of interdisciplinarity (perhaps in a similar way in which Wagner conceived of the *Gesamtkunstwerk*), drawing from Koss' insightful treatment, cross-disciplinary collaboration can successfully lead to investigations of a transdisciplinary character aimed at the emergence and identification of new topics and concerns that otherwise remain uncovered. [3] *Modernism After Wagner* provides a rich framework to investigate more thoroughly into some areas of the arts; aesthetics, philosophy and psychology of perception, and in this sense provides a transdisciplinary foil for further research into the active participation of the spectators in mass media - a significant area to address in relation to contemporary media environments (e.g. games and online technologies) in particular as they reveal the complex relationships between politics and aesthetics with regards to users' engagements.

References

[1] Translated by Koss from Wagner, Richard. 1849. 'Das Kunstwerk der Zukunft'. In *Samtliche Schriften und Dichtungen*, 3: p. 156.

[2] We can here also see a connection with Aby Warburg's attempts to innovate art-history at the turn of the century through interdisciplinary methods, by which he conceived the very foundation of interdisciplinarity in the disciplinary strength and integrity of the interacting frameworks. Koss mentions Warburg only briefly in the introduction (p. xxi) in relation to recent art-historical approaches to open the disciplines to other fields with Warburg as paradigmatic forerunner for such attempts that at the same time foreground the discipline's central preoccupations.

[3] This particular approach to transdisciplinarity has been developed by the International Network of Transdisciplinary Research, led by Michael Punt at Plymouth University, drawing in particular on Helga Novotny *et al.*'s work, i.e. Novotny, H., Scott, P. and Gibbons, M. 2003. 'Mode 2' Revisited: The New Production of Knowledge - Introduction', *Minerva*, 41(3), pp. 179–194.

Magical Mathematics

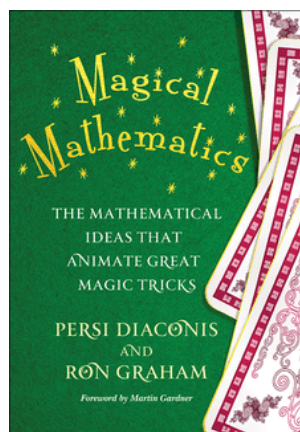
by Persi Diaconis and Ron Graham; foreword by Martin Gardner

Princeton University Press, 2011, 258 pp.

ISBN: 978-0691151649

*Reviewed by Phil Dyke,
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I must admit that before I opened this book, I was skeptical. Here's yet another book dressing up a popular pastime (magic) in a mathematical cloak in some kind of try at academic respectability. How wrong I was. This is a splendid book with lots of wonderful insights. Quite a lot of it is about cards in one way or another. Many so-called tricks turn out to be the application of precise mathematics. Sometimes it is permutations and combina-

tions; at other times it is the more modern mathematics of coding theory that is less than 70 years old. We learn about de Bruin sequences and about the Gilbreath principle and how this is related to Mandlebrojt sets, the famous gingerbread man on multiple scales. The mathematics is well presented. If the reader has only poorly remembered school mathematics, then the whole book should still be accessible. The symbols are restricted to the square root, powers, and indices. There are numbers, letters to represent numbers, but there is no algebra and certainly no calculus. Remarkably, the more sophisticated mathematical reader is also hooked; the authors manage the very difficult trick of avoiding condescension yet remaining accessible. Another feature is analyzing the shuffle in terms of graph theory; perfectly shuffle enough times, and the cards revert to the start position. This can be represented by a cycle in graph theory. Modulo arithmetic also comes to the rescue to explain some card tricks and also tricks involving coins and predicting selections. There are other chapters not about cards. There's one on the *I Ching* and probability, and another particularly interesting one explaining juggling. Juggling is analysed not in terms of the mechanics of objects but rather by using sequences and modulo arithmetic. It is this that tells you when to throw and catch, though for potential jugglers the advice on how to throw and what to concentrate on is invaluable and has little to do with mathematics. Near the end of the book are biographical accounts of interesting people and their particular claims to fame. Personally I found this very interesting, particularly the piece on Martin Gardner who contributed the preface to this book in

what sadly was the year of his death at the advanced age of 95. I am one of thousands who was led into mathematics as a schoolboy by Martin Gardner's wonderful books. Give this book a try; you certainly will not be disappointed.

Alfred Jarry: A Pataphysical Life

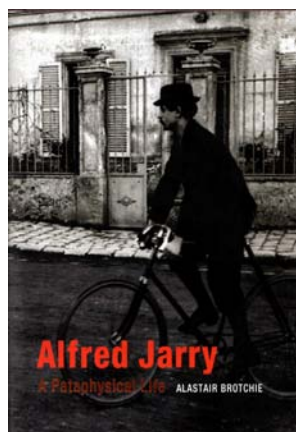
by Alastair Brotchie

The MIT Press, 2011, 424 pp.

ISBN: 978-0262016193

Reviewed by Allan Graubard

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Reading Alastair Brotchie's new biography of Alfred Jarry is something other than "pataphysical," a term that Jarry coined early on to counterpose the prevailing scientism he faced with a kind of wit, pastiche, and farce we would do well to take note of—this capacity for "imaginary solutions" to any number of issues, from quotidian needs to abstract speculation, that every now and then compels us to sit up on the edges of our seats and breathe deeply, no longer encumbered by givens and the traditions that claim them.

So, no, I am not an objective reference for Jarry. Ever since

encountering his plays, as foundational to modern theater as Ibsen, Chekhov, and Strindberg, and his novels, I have ever sought him out, among some very few others, when disentangling myself from set opinions and easy solutions.

Laughter enters here, as it should, the kind that slaps us in the face because it is just so bracing. But then that is Jarry, and why in his milieu in Paris at the far end of the 19th century he commanded such allegiance from poets, writers, and artists we esteem: Mallarmé, Remy de Gourmont, Oscar Wilde, Henri Rousseau, Lautrec, Bonnard, to name a few.

There is Jarry, all of 23, premiering his play, *King Ubu*, in 1896 at the 900-seat Nouveau Theatre, with its now mythic scandal propelled by the opening “Merrrrrrrrrrre...” There is Jarry, quickly using up his inheritance to found a lavish avant-garde journal *L’Ymagier*, with its list of leading lights. There is Jarry, cyclist extraordinaire when the technology, finally become affordable, was just gaining in popularity. There is Jarry, cultural journalist, librettist, poet, and ever the outsider at elite cultural gatherings, sweaty and mud soaked from his 20-mile cycle into Paris from his shack on the Seine.

There is Jarry, with just enough money from his writing for a bare existence, relying on his fishing for food, his charm for society, his drinking for continuity and his black humor, or *umor*, as he called it, to sustain him – the latter enriching Dada and Surrealist sensibilities a decade or two later that used it if only to keep the wolves at bay in their way, as Jarry did in his.

And for us, has so much changed as our illusions about

personal wealth and security fade in and out of the firing line of daily struggles and corporate theft? More simply, where would we be without our capacity, schooled in part by Jarry, to eviscerate our misery, seemingly never to be done with it, but certainly not to have it do us in?

The book, thus, chronicles a gifted writer whose extraordinary entrance onto the cultural stage and whose terrible exit from meningial tuberculosis seems of a stamp — as if the one parodied the other. The creator of *Pere Ubu* — a glutinous and grotesque character, blind to the source of his power yet using it to crush his enemies with his “debraining” machine — is done in by a disease that attacks the base of the brain. That none of his doctors recognized or treated it, however clinically adept they thought they were, a clandestine autopsy unmasking their ignorance is par for the course.

Add Dr. Faustroll, and what the Faust-Troll dyad meant for Jarry, along with his other central characters, and we have someone still vivant: the lascivious Mesalina in the novel of the same name; the four-man bicycle team of *le surmale*, off on a 10,000 mile race with its captivating experiment to determine en route and on saddle the greatest number of sexual climaxes a man can have in 24 hours; the ever curious *Visits of Love*, or his *Days and Nights* and, of course, the *Ubu* plays: *Ubu the King*, *Ubu Cuckolded*, and *Ubu Enchained*.

Of Alastair Brotchie, biographer, his tone is clear and informed, rooted in a familiarity with Jarry that has something quite personal about it, which is all for the good. For now we know something more about Jarry, his friends, the period in which

he wrote and caroused, his works and how they played for their audience, successes and failures both (by whatever values you measure such things), and his errant slide into death, age 34. Threaded throughout are wonderful archival photos that capture a history in Paris and its environs that you can still find, here and there, if you search for it.

And perhaps you will with this echo in mind: “Merrrrrrrrrrre...”

Helmholtz: From Enlightenment to Neuroscience

by Michel Meulders

edited and translated by
Laurence Garey

The MIT Press, 2010, 264 pp.

ISBN: 978-0262014489

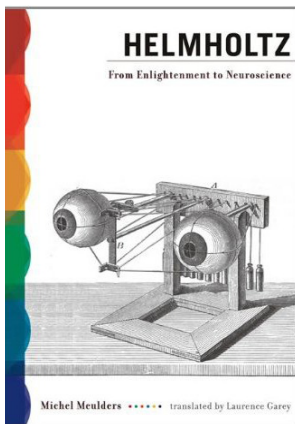
Reviewed by Amy Ione, *The
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A recurring topic among those interested in art, science, and technology is the value of transdisciplinary approaches. In my view, those who gravitate to this area (or related areas such as interdisciplinary, multidisciplinary, and integrative studies) see broad-based thinking both as a creative tool and a means to innovatively address some of the complex issues of our world today. Among these people are some who value disciplinary boundaries and believe that those who can operationally span their narrow parameters have the best foundation for conceptualizing how to innovate and see beyond known territory. The tendency to cast Leonardo da Vinci in the role of the “historical archetype” of this type of person, the “Renaissance Man,” has perhaps allowed us to lose

sight of the many other original thinkers who exemplify what creative minds can accomplish when paired with a far-ranging, inventive imagination.

Helmholtz: From Enlightenment to Neuroscience by Michel Meulders offers a reminder that we can identify a number of figures in the past who worked across disciplines. The book introduces us to Hermann von Helmholtz (1821–1894), trained by Johannes Müller, and one of the most accomplished physiologists of his time. A key nineteenth century polymath, Helmholtz used a versatile toolbox for his co-discovery of the principle of the conservation of energy, his invention of several instruments (e.g. the ophthalmoscope, the ophthalmometer and the telestereoscope), and his many significant contributions to physics, physiology, physical theory, philosophy of science and mathematics, and aesthetic thought.



How Helmholtz brought his varied interests and education into his laboratory is one thread that runs through the book. We learn that during his formative years he was exposed to philosophy and strongly influenced by his father, a German teacher who cultivated an interest in science

and philosophy. Although Hermann was strongly attracted to the natural sciences, his father urged him toward medicine because funding for medical education was available. After training in physiology, Helmholtz worked in many areas outside of medicine over the years. Indeed, a defining feature of Helmholtz's work was the way he branched out in many fields as he sought to translate his biological insights through an empirical and mathematical framework. In this, he was aided by his keen observational abilities and his passion for experimentation.

I began this book expecting a biography that would offer a chronology of Helmholtz' work, along with contextual material to help the reader place his work within the nineteenth century world. The author instead offers a quite variegated picture that made it somewhat difficult for me to see the man as a whole as I read. The challenge in ferreting out Helmholtz' story was due to the amount of material the author included that contextualizes Helmholtz in terms of the people and ideas that influenced him. For example, the chapter on "Goethe and His Vision of Nature" is 13 pages and does not mention Helmholtz. It seems its purpose is to provide a framework for where Helmholtz' views of color differ from those of Goethe, which is discussed eight pages into the next chapter. Long "asides" such as this are quite distracting and make it difficult to understand what the author wanted the reader to take away from the book. What was clear is that the author has great enthusiasm for the accomplishments of Helmholtz. In addition to the Goethe chapter, there are chapters on "Johannes Müller: Man of Iron" and "Conclusion: The Wisdom of Alexander von

Humboldt." It is hard to say if this format was intentional or if the chapters began as stand alone articles and were later pieced together into this book.

The strongest chapters are the two that cover Helmholtz' work on hearing and acoustics and the one chapter that summarizes Helmholtz's theory of visual perception. Helmholtz's introduction in his *Sensations of Tone as a Physiological Basis for the Theory of Music* says that this work aimed to bring together work in physical and physiological acoustics, music and aesthetics that had remained unreasonably far apart. The author explains that Helmholtz's early musical education and cultivation of musical activities throughout his life provided a foundation as well as a motivation for the experiments with sound. We also learn that this scientist invented the "Helmholtz resonator" to identify the various frequencies or "tones" present in musical chords and other sounds containing by multiple tones. The bell was among the instruments Helmholtz studied. His attraction to this instrument says quite a bit about he approached his work overall. Helmholtz was drawn to the bell because it is difficult to cast a good bell, for one needs to obtain an equal thickness around the whole circumference. If the thickness is different at two different places, there is a spot on the edge of the bell that vibrates to give a certain tone, while the neighboring spot produces a different tone and the intermediate zone between the two produced both tones at the same time. Helmholtz wanted to understand the unpleasant dissonance of this phenomenon. Ultimately, he demonstrated that difference and combination (or sum) tones existed objectively, outside the

ear. (Although, ironically, bells are characterized by anharmonic relationships among their tones, but they still sound good.)

Another disappointment with the presentation was that the captions for a number of illustrations were far too abbreviated. Many basically said what the image is and provided virtually no information about how the depicted equipment (or whatever) works. Because this was not always the case, particularly in the chapter on music where the captions were full-bodied descriptions, the captions, too, led me to wonder if the chapters were originally written as stand-alone articles.

All in all, once I adjusted to the book “as a collage” and absorbed it on its own terms, I found it an informative read. It developed Helmholtz sufficiently to send me looking for more details. When I read further, I realized that all the basics were covered. It was only because the book covered the territory in an unusual fashion that it was harder for me to see the geography, so to speak.

Finally, based on the title of the book, *Helmholtz: From Enlightenment to Neuroscience*, I thought I would find many references to contemporary neuroscience. This was not the case. Basically, at the end the book acknowledges Helmholtz's contributions to contemporary investigations, saying:

“Neuroscience and cognitive science, as we call them today, owe numerous research domains to [Helmholtz], as well as attitudes. No phenomenon of nature, life, or environment left his encyclopedic mind indifferent. He believed he could reconcile science and philosophy, notably by thinking that Kant's *a priori* had in the last resort a

physiological basis that would one day doubtless be discovered.” (p. 215)

Personally, I think adding more specifics to this comment would have offered the contemporary reader a better grasp of Helmholtz's accomplishments than the chapter on Goethe. For example, there is much one can say about Helmholtz's color theory. As Meulders points out, Helmholtz modified Thomas Young's trichromatic (three-color) theory, which is based on the idea that the eye responds to three primary colors. It is an additive color mixing theory and predicted the existence of three classes of color-sensitive cone receptors. What it does not explain are afterimages. A contemporary, Ewald Hering, who was more of a phenomenologist, took issue with the trichromatic theory based on the existence of color afterimages. Hering proposed an opponent process theory of two pairs of opposites across the color circle. He also held that both theories could be equally valid. We now know that Hering was correct in seeing compatibility between the two theories. What Meulders does not really discuss is that science today allows that there are different levels of visual processing, corresponding to the two theoretical approaches. Thus, to some degree, both Helmholtz and Hering were correct in principle, although wrong as to some of the details.

In closing, even though there was a lot to like about this book. Those seeking a biography of Helmholtz may want to start with the excellent contemporary biography by Helmholtz's friend and associate, the mathematician Leo Königsberger (which is available in full on Google Books [1]). Unfortunately, as I noted, Meulders' book does not

attempt to update the science relating to Helmholtz's work, and the Königsberger book is out-of-date scientifically. Some more recent collections that I found were also useful in pulling the threads together, particularly David Cahan's *Hermann von Helmholtz and the foundations of nineteenth-century science* [2].

References

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Body Sweats: The Uncensored Writings of Elsa von Freytag- Loringhoven

by Irene Gammel and
Suzanne Zelazo (eds.)
The MIT Press, 2011, 432 pp.
ISBN: 978-0262016223

Reviewed by Allan Graubard
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In 1910 a 36 year-old woman promenades down Pittsburgh's 5th Avenue in men's clothing smoking a cigarette beside her husband. So suspicious is their appearance that they're arrested for being “suspicious.” The next day, some 390 miles distant, The New York Times runs this headline concentrating on the woman: “SHE WORE MEN'S CLOTHES.”

Meet Elsie Greve, alias Fanny Essler, by divorce and remarriage soon to become Baroness Elsa von Freytag-Loringhoven, this former darling of *Expres-*

sionist Berlin thence to enter New York Dada stage center, a marvelous, subversive presence in every sense available to us.

Excessive in dress, provocative by style, seductively passionate by need, antic, delirious and lucid when it suited her, a major poet and striking performer, living what she wrote and writing what she lived, finally reappears within the pages of this book, her writings "uncensored," as the subtitle notes. But be warned: the Baroness won't be taken lightly, as you do coffee with sugar. When encountering her, you do so on her terms from the brilliance of her texts to the secrets of her flesh, even as Man Ray and Marcel Duchamp did, the latter her once lover - whom she dubbed "M'ars" ("my arse") -- in their first film together: "The Baroness Shaves Her Pubic Hair."

Framed by the editors with precise commentary for context, a mix of history and interpretation, the poems rush out with unnerving vivacity, lust, heresy, humor, and a musicality tuned pitch-perfect to the chaos of a city in capitalist rubato. Add in hefty strokes of wit, critique or wonder at the way things were, and the "Orgasmic Toast" she leaves us with - is it only a poem? - is more than enough for lunch.

Here is a woman who used tomato cans for a bra and long ice-cream soda spoons for earrings, wore a birdcage for a hat, adorned her body with vegetables, and shaved her head for the pleasure it gave her, and the pleasure she had when she painted it vermillion red for the delectation of her public, known and unknown, especially on the street.

Here is a woman who could focus the poetic act to single-word lines and who perfected

sound poems without words with her "strangely rough and powerful voice," replete with stutters, guttural intonations, expostulations, ululations, and anything else she wished to add, the body become so much more than metaphor.

Even the titles to her poems and collections situate her in this regard but now, of course, for us: "Coitus is Paramount," "Subjoyride," "Life = 1 Damn Thing After Another," "Wheels Are Growing on Rosebushes," "Proud Malignant Corpse," "Crimsoncruising Yell," "Man-quake," "Cosmic Sense Suicide," "We Are Fleas," "Starry Grind," "Ejaculation," "A Dozen Cocktails - Please"; or the devastating poem-critique she launched against her pet "W.C." (aka, William Carlos Williams) in "Thee I Call Hamlet of Wedding Ring..." over some 21 pages at the far end of the book.

As Kenneth Rexroth once put it: "Her verse represents a more radical revolt against reality than August Stramm and Kurt Schwitters or Tristan Tzara."

Why then her neglect, just recently confronted in this and other books and exhibitions? It is hard to say. Perhaps her shifting masks and personae eclipsed a more docile kind of subjectivity, whose homogeneity more easily enabled careers; perhaps it was because she was a woman too outlandish for her peers, let alone strangers; perhaps there is another reason. Suffice it to say she was a leading voice, along with Joyce, in *The Little Review*, and appears in other avant-garde journals of note from *The Liberator* and *Transition* to *Transatlantic Review*. And of her associates - there is Bernice Abbott, Picabia, Duchamp, Hart Crane, Mina Loy, Arthur Cravan, Walter Arsen-

berg, Wallace Stevens, Ezra Pound, Djuna Barnes (who later becomes her editor and part biographer), W. C. Williams, Man Ray, and others.

Her years in New York, when she finally settles in Harlem in 1913, measure a decade. They are enough to establish her talents, which also include Dada sculptor and manuscript artist during that rebellious time when modernism, as we know it in retrospect, struggled to survive and flower.

In 1923, for reasons the book does not go into, she returns to Berlin, enduring extremes of poverty and breakdown. By 1926, finally in possession of a travel visa, she moves to Paris. Unable to make a go of it, she swings back to Berlin. On December 14, 1927, by accident or suicide, she dies of gas asphyxiation: "A stupid joke that had not even the decency of maliciousness," as Djuna Barnes writes.

At least now perhaps, Elsa von Freytag-Loringhoven can be appreciated for what she wrote, how she lived, and what she did.

For readers compelled by poetic rebellion, flamboyance, and beauty, *Body Sweats* is for you.

Duets: 1975-1976

by Jim Shaw and Mike Kelley
Compound Annex, 2011, CD
Distributor's website: <http://www.mikekelley.com/compound.html>

*Reviewed by Mike Mosher,
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The picture on the back cover of *Duets: 1975-1976* has an empty space where something or someone has been Pho-

toshopped out, between Jim Shaw and Mike Kelley. I've seen the original 1976 photograph taken by their Destroy All Monsters band mate Cary Loren, and in it, Ron Asheton stands between the two University of Michigan art students. The veteran Stooges guitarist Asheton is soon to join the band, for Shaw and Kelley were packing their bags to attend graduate school (California Institute of the Arts) and leaving home state Michigan for the west coast.

The original art gang-qua-noise rock band Destroy All Monsters consisted of Kelly, Loren, Niagara, and Shaw. This two-disc collection of Shaw and Kelley's duets probably contains sessions recorded when Loren and his girlfriend Niagara were off somewhere, making out or making movies, and the remaining two lads were back in the student house at the edge of campus they shared in this, their UM senior year. That's the house with a big sign on the front porch (purchased from a country church) proclaiming it "God's Oasis".

On Disc I, the first "Untitled" cut wears its hip-kid's-record-collection influences proudly. Parts sound like Edgar Varèse, or Lou Reed's 1975 "Metal Machine Music", alternately sporting sirens, wolf howls, industrial sounds, the dismal pessimism of Iggy Pop's 1977 "Mass Production", or the cacophony of the Stooges' "LA Blues" (Asheton as the ghost in this machine). It's the sound of guys barely having fun, a state Niagara was to sing of in "Bored", a 1977 song by a later version of Destroy All Monsters after Kelley and Shaw's departure to the Golden State. A moan and something evoking Devo's "boogie boy", an irritating babyish sing-song vocal that Kelley put to use in

"pathetic aesthetic" performance works in California in the 1980s and later. The piece has no rise and fall, only partial closure with an abject wind-down then rise again amidst plucking of the guitar strings.

On the second cut "Jim Jam Johnny A La Mode (Mocha Mix)", Kelley exclaims "Destroy All Monsters, California!" at its beginning, as if amazed at the fact these two Monsters are really there. There's more squealing, yelping, or wimpy complaining, reminding us "The squeaky wheel gets the grease." Maracas suggest a Latin American influence the mid-westerners discovered in southern California, as well as some Dick Dale surf guitar licks and moments of Jefferson Airplane soaring. We're at a primitive beach party around a driftwood bonfire. A thumping drum makes us suspect at least one of these guys had bought the Godz (on ESP-Disk) at University Cellar, the record shop in the basement of the Michigan Union. It isn't as interesting, though, as what they did with their collaborations with Niagara and Loren as Destroy All Monsters, on their songs like "November 22, 1963" about President Kennedy's assassination. A cascade of big rock drums, then kaleidoscoping guitar noodling hoodlum's notes, wash in feedback till a fade out.

Destroy All Monsters used to clear parties with their assaultive volume. "Squeeze Toy Beat", the first cut on disc II, features a squeeze toy like an irate monkey or ferret hassling Kelley's drums and Shaw's guitar exploration. Shaw comes in with

Vanilla Fudge-style organ playing on a small Orgatron, a fan-powered keyboard with seemingly as little gravitas as its boxy rival, the Magnus Chord Organ.

The listener recalls how a decade before these two were local students, Max Crook, creator of the memorable organ solo on Del Shannon's "Runaway", played a "Musitron" in the Ann Arbor supper-club duo Sounds of Tomorrow. The most variant, this cut may be the most fun to listen to.

The second "Untitled" cut reminds the listener how there was an active gamelan troupe, open to public participation, at the University of Michigan, and several of the townies who frequented Destroy All Monsters' parties and jams had played in it. There are a series of gamelan-like eighth notes played on a metal plate, a cymbal counterpoint. Kelley's percussion sounds vaguely Arabic, single drums and claves. Electronized guitar slithers in, some tremolo, twang and a distinctly Stooges-esque strum. Jim Shaw starts off excitedly, as if going somewhere, then loses the thread, daydreams, the Attention Deficit Disorder axe man. He constructs an interesting surf or secret agent riff, then quickly subverts it. Once he almost goes from the root chord to a 4th, threatening a blues progression—Whew! Almost lost myself there. Must be the drugs. Kelley taps along like a little brother, running to keep up with Shaw's fast bike.

"Tape Collage", the third and final cut suggests Fluxus musicians at the University of Michigan Once Festival of Electronic Music, in Ann Arbor a decade and a half before. Tape runs backward, a technique that transfixed the region in 1969 when the "Paul is Dead" rumor began over Ann Arbor, then Detroit, radio. Turn me on, dead man! I buried Paul! There follows the kind of electronic noise that, since the 1950s, signified

“space alien” when appearing in movies or television drama.

Beyond their 1970s youthful emergence, all four original Destroy All Monsters members continued creative visual and performance work as individuals, to varying degrees of international success. Upon the 1994 occasion of his Whitney Museum retrospective, Mike Kelley organized the first of several collaborative musical and art-making reunions of the group over the next 17 years. Shaw married artist Marnie Weber yet stayed in contact with his Los Angeles artist friend Kelley, who appeared in some of the dreams Shaw carefully drew in his 1995 book *Dreams*.

Produced by Mike Kelley for his Compound Annex record label, this disc was available for purchase (along with an 8-disc box of Jim Shaw’s solo guitar from the same era that Kelley produced) at the November, 2011 Destroy All Monsters exhibition at the Prism Gallery in Los Angeles. That exhibition, part of the multi-venue Pacific Standard Time series, featured mid-1970s artwork from all four Michigan Monsters Kelly, Loren, Niagara and Shaw. Supposedly Jim Shaw had to urge Mike Kelley, despondent after an autumn breakup of a romantic relationship, to even attend the opening of the exhibition he’d helped to organize. Yet Kelley’s spirits perked up in the course of the evening, and those in attendance recalled him laughing uproariously at Niagara’s quips at the artists’ dinner afterwards. She also urged him to revisit his hometown Detroit for a while, to chill out from his several years of exhausting productivity. The restful sojourn was not to be; Kelley stayed in L.A., and six weeks later, he killed himself.

Announcing Mike Kelley’s death February 2, 2012, NPR’s Netta Ulaby reported that Kelley had played with Destroy All Monsters, and the sound bed beneath was a Ron Asheton solo. I hope Jim Shaw was listening. Kelley would have been amused.

With Magnetic Fields Disrupted

by Sproton Layer

World in Sound, 2011, CD

Distributor’s website: <http://www.worldinsound.com>.

*Reviewed by Mike Mosher,
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Most rock records from the 1960s that were written and performed by teenagers are achingly rooted in the heart and loins, generating songs of love and lust. This document of a teenaged band in a mid-American university town is cerebral, motivated by music, art, lore and existential questioning, not (at least primarily) by a craving for the affections of girls. Or if their eyes were on the girls, its musical messages are veiled, literary and artsy, addressed to the more refined and aesthetic young women of their university-town circle.

Sproton Layer’s singer and bassist Roger Miller was 17 when *With Magnetic Fields Disrupted* was recorded in the summer of 1970, and his younger brothers on guitar and drums, twins Ben and Larry, were 16. The three were sons of an ichthyologist teaching at the University of Michigan and lived on the northwest side of Ann Arbor within walking or biking distance of the campus. The other member of the band was trumpeter

Harold Kirchen, son of an automotive engineer. At the time, Kirchen’s brother Bill was playing exemplary country/rockabilly guitar with Commander Cody and the Lost Planet Airmen, the band formed and sometimes residing in Ann Arbor. I believe I heard Sproton Layer, several months after this recording at our shared high school’s spring-time Creative Arts Festival. Instrumental skill, interesting time signatures, and arresting stop-time have always characterized all three Miller brothers’ work. What strikes this listener 40 years later is how skillful this band was, assured, and confident within its genre, time, and active rock musical scene.



The album’s opening track, “Gift”, is fey and childish, the singer demanding attention to a picture he made; “It’s red, and black, and blue, in pencil”. Chords descend the scale like in Pink Floyd’s “Astronomy Domine,” and it has the doe-eyed childishness of that band’s co-founder Syd Barrett, evincing Barrett’s profound influence upon the conscious English dandyism of Midwestern American psychedelic youth. Michigan boys generally don’t say (or sing) things like “I really think that it’s quite nice to look at” after about age 7. Kirchen trumpets with simple clarity, a medieval herald announcing guests to the castle. The song easily segues into “Pretty Pictures, Now”, its

head-nodding beat insistent as the “One of us! One of us!” banquet chant in Todd Browning’s “Freaks”. It has characteristics of psychedelic rock from San Francisco’s Haight-Ashbury or “Piper at the Gates of Dawn”—era Pink Floyd, from the bass solo by Roger and his ensuing interplay with Ben’s guitar, to Larry Miller’s drum rolls.

“In the Sun” has the propulsion of Pink Floyd’s “Pow R. Toch”, while Ben’s guitar alludes to another bravura Michigan guitarist I never would have previously noted as influencing these Millers, Ted Nugent. In the 1970s Nugent descended into macho self-parody, where he remains further freighted with right wing political editorializing but was a technically impressive player with his 1960s Detroit band The Amboy Dukes. The structure and lyrical melancholy of the next two songs reminds one of the skillful Michigan band SRC, whose “Travelers Tale” album appeared about this time. “Sister Regis” features a notable trumpet solo by Harold Kirchen and Tolkeinesque lyrics, and the moody “Bush” makes use of Kirchen’s horn too, where there is a sweet tone like Herb Alpert, with occasional Tijuana Brass mariachi flourishes. This reviewer remembers a party 40 years ago where Kirchen showed up in an over-the-head gorilla mask, which he also wore in the Ozone Parade, a goofy parody of the University of Michigan’s annual Homecoming Parade.

“Tidal Wave” begins with an atonal guitar crunch prefiguring Punk around 1980, the era Roger was having success with his Boston-based band Mission of Burma. Larry’s drums are energetic and precise. “Up” could have been performed by the White Panther Party-affiliated Ann Arbor band of that name, or

the MC5. Kirchen’s horn, however, suggests something from the Bonzo Dog Band’s “Urban Spaceman” album.

“The Blessing of the Dawn Source” begins pompously, then sails instrumentally into a clutch of lyrics rhyming “distance” and “resistance”, “glimmer” and “shimmer.” It then swings back and forth a bit monotonously, evoking Spinal Tap, until Kirchen—an interesting foil for these consummate rockers—comes in with regal horn fanfare at the end. “Nocturnal Mission” is a quirky two chord siren of spy-movie guitar and bass, beneath somewhat sophomoric (hey, half of ‘em were sophomores!) stoner poetry, but that’s OK, for it keeps up the momentum, with Larry’s furious drumming and crash cymbal, that Ann Arbor boys had grown to expect from older bands jamming at the free Sunday afternoon rock concerts all summer long.

One digs beneath the Sproton Layer’s youthful flowering for seeds of these guys’ later work. The insistent, jagged edginess in this band certainly resurfaced in Roger’s *Mission of Burma*, his solo piano album and subsequent tenure in *Birdsongs of the Mesozoic*. Ben has continued exploratory guitar projects in New York City, including a guitar orchestra and collaboration with John Zorn. The very title of one song here, “Pount of View,” exemplifies an obstinate punning, whimsical as Lewis Carroll or Edward Lear, in Larry’s mid-’70s EMPOOL zine, or his ‘90s band Larynx Zillions.

“New Air” (later the name of Roger’s acoustic band with Leslie Orlin and Larry Wahl) is one of those characteristically circa-1970 prog-rock pieces whose alternating slow and rocking parts demand focused

attention, like the MC5’s “Star Ship,” which, in the latter case, usually resulted in audience members leaving the ballroom for a while. Sproton Layer’s final track here, “The Wonderful Rise,” ends up with an oom-pah waltz beat not inappropriate for Ann Arbor, much of whose population descended from 19th century German settlers with names like Miller and Kirchen, or Schlenker, Kemf, Allmendinger and Fritz. Four years later the Miller twins’ high school classmate Jim Rees and some fellow residents of Joint House Co-op (at one time, home of Sun Microsystems co-founder Bill Joy) obtained some brass instruments and antique horn charts to launch a German-style parade band. Eschewing his teenage maturity and seriousness, Sproton Layer’s cheery tootling also prefigures some of Larry’s children’s music of the past decade, performed—and frequently uploaded to YouTube—under the name Mister Laurence. One wonders how the Teutonic turn in “The Wonderful Rise” is perceived by the German CD label responsible for this reissue.

The CD comes with a fun, illustrated booklet, with much information on when and where the lads wrote their songs and smoked their dope, assembled by Stan Rebo in 1991, plus a memoir by the recording’s original producer Mark Brahce. It is illustrated with minuscule reprints of the Millers’ hand-penned lyric sheets and drawings on school notebook paper. Not long after this recording, Gertrude Prokasch Kurath, a local folklorist and leader of children’s folk dances, commissioned publication of Roger’s songbook and deposited a copy in the Ann Arbor Public Library. We are fortunate to have such documentary magic mushrooms

of bohemian Michigan youth four decades ago as Sproton Layer's *With Magnetic Fields Disrupted* now available to us all.

The Color of Your Socks: A Year with Pipilotti Rist

by Michael Hegglin

Catpics Coproductions Ltd,
Zurich, 2009, DVD, 53 min.

Distributor's website: www.microcinemadvd.com

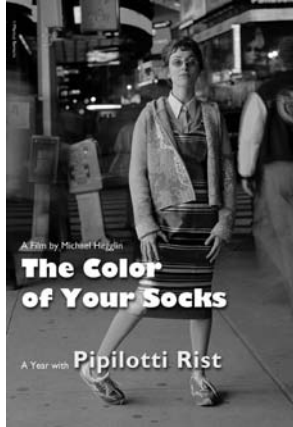
Reviewed by Mike Leggett,
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The Swiss artist Pipilotti Rist was honored with a commission to re-open the Museum of Modern Art (MOMA) in New York City in 2004. This project, a large-scale video installation titled *Pour Your Body Out*, requires visitors to lie on specially prepared carpets and gaze at the projections on the surrounding walls and ceiling. "What should we do if people don't want to take their shoes off?" asks one of the museum docents. Use some humor, suggests Rist; "Tell them, I'd like to see the color of your socks."

Color and movement is the theme throughout this observational video of the preparation of the commissioned work. Rist is the colorfully dressed CEO of her art production company, darting from one meeting to the next with her collaborators, sponsors, assistants and technicians. Sketches, maquettes, then scaled-up models move inexorably toward the day of the opening (interrupted by other more minor projects), each stage announced onscreen with titles, the what and the wherefor of the contemporary art scene: a "chic" Monument to Emilie Kempin-Spyri, the first Swiss

woman "to attain" a doctorate in law at the end of the 19th century; a Liberty Statue for London, in Basle; the shooting of Rist's first feature film, *Pepperminta*--- "so many more people will see a film than will see an installation," she observes.



For the film and video shoots, her crew uses the new technology of high-resolution microcameras mounted on the end of boom poles. The camera operator has power and screen strapped to his body, leaving his arms free to move the wide-angle, deep-focus camera around, above, below and close into Rist's performers, both clothed and unclothed, ensembles and individuals. "Naked people?" asks the visiting Swiss MOMA curator. Could this be a challenge to New Yorkers, one wonders? Surely no ...? Shoes off in public? Now that could be an issue.

There is little else left with which to engage in this DVD. It is an electronic catalogue entry, providing some background to the central character and her work. "Am I an Artist, a Video Artist or a Fine Artist?" she discusses with another assistant at one point. "An Artist," she decides. There is no interpretation of the work as would occur in a print

catalogue, no probing of the concepts behind the movement and color. "I wish for a more colorful life," says someone at a preview of the film; it's also about "overcoming barriers" and providing "exercise for back and hips," encourages the artist. Her onscreen subjects demonstrate the precept as they entwine, entangle and cavort through green fields, red apples, the "fires of hell" and super-green treetops; Caribbean seas too---"Maybe too cute?" queries Pipilotti.

Large-scale video installations as semi-immersive, cinema-like environments have become *de rigueur* on the international art circuit of biennales, exhibitions and festivals. The affordances of computer-based video and sound technology have made this possible, not only in the gathering and ordering of sound and image but more essentially in their presentation across multiple screens and sound sources, maintaining perfect operatic synchronization for hours and weeks, sometimes months on end. Contemporary art on a grand scale requires a production effort and organization akin to that of the 19th-century monumental sculptors, the Renaissance religious image industry and Hollywood itself.

At an early stage of this disappointing DVD, we are reminded of the vagaries of the fine art scene, populated as it is by bright and optimistic people like Pipilotti. Rist inspects the photograph of a work by the celebrity queen of contemporary art, Yoko Ono. It is an installation of a stepladder with a piece of paper stuck on the ceiling above it. Visitors climb the ladder with magnifying glass to read the tiny word "Yes." "This work cost \$32 million, and \$100 to produce," she pauses to muse, before darting off to another meeting

about her installations and projections onto the walls and ceilings of MOMA.

Through the Looking Glass

by Francisco López

Kairos, Vienna, Austria, 2009, CD (box set containing five CDs)

Distributor's website: <http://kairos-music.com>

Reviewed by Eugene Thacker, The New School

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Some years ago I recall visiting a sound installation by Francisco López. I cannot recall the name of the piece, although I do recall the experience. In a quiet room with speakers, I waited. Knowing López's work and seeing that the room was almost totally empty, I expected nothing but sound. And this was, in a way, what I got---though I never actually heard anything. Standing in that room, I couldn't hear anything except for the subtle and gentle rattling of the windows. Eventually the whole room started to quake. And still nothing coming from the speakers (or so I thought). Then I realized that the speakers were, in fact, playing sounds, but they were outside of my hearing range. These non-human sounds were only accessible to me indirectly via their acoustic and physical effects on the space itself (the windows, the floor, my body). Eventually more audible, rumbling bass sounds did make their appearance, but only after the sounds had first manifest themselves as the physical space itself.

This play between sound *in* space and sound *as* space is, for me, indicative of much of Francisco López's work. For over 30 years, López has been

working in that liminal space between the audible and the inaudible, producing recorded works, installations and live performances. Recently, the Vienna-based label Kairos released *Through the Looking Glass*, a beautifully produced CD box set of López's work. While López's output is voluminous, *Through the Looking Glass* offers an excellent survey of one of the most important sound artists of our time. The set ranges from field recordings made in the early 1990s to more abstract ambient works from the late 1990s to recent work that exists at the limits of sonic experience. While there are discernible continuities in López's work, in my view, the pieces collected on *Through the Looking Glass* are of four types, each differing in the way they balance the sounds of the world and sound worlds. *Qal'at Abd'ai-Salam* (1993) and *O Paradoiro Desamortuxado* (1995) both combine field recordings with various sound processing effects.

The sources of both pieces are discernible - one hears birds, cicadas, the bustle of street markets, the hum of the countryside, resplendent forests, the echo of a distant temple. The sources retain their referential aspect ("bird," "car," "bell"), but the subtle effects and layering gradually create a vibrant cacophony, a kind of shimmering din that belongs neither to the external world nor to the world of purely synthetic or electronic sounds. The titles of these pieces hint at this cacophonous naturalism ("The Game of Mud," "A Time Spirit in the Body of a Plant"). In these pieces, sounds taken from the world begin as referential sounds and gradually become non-referential. At the same time, they never completely lose their referential

quality, placing us as listeners in a strange in-between place.

From here López experiments with this relationship between sound and effects. In *La Selva* (1997) and *Buildings (New York)* (2001), López presents us with sounds without effects. Both are straight field recordings but from very different environments---in *La Selva* the recordings are drawn from several sites in the Costa Rican jungle, while *Buildings (New York)* are drawn from different residential, industrial and office buildings in Manhattan. While there is no processing to the sounds, these are, strangely, the most surreal of the recordings, in part because we as listeners do not know if one location simply follows another in sequence or if different locations are layered on top of each other, producing an "impossible" sonic reality. Both pieces are also characterized by an abstract texture---a swarming texture of insects and rain in the jungle, and the vacuous, ambient hum of empty buildings, generator rooms and abandoned tunnels. These field recordings are "fields" in the true sense, in that they transform a physical location in the world into a location that, strangely, has no actual "place" (interestingly, the sounds of human beings are absent from both pieces). *La Selva* is the dense, polyrhythmic sonorism of non-human life, while *Buildings (New York)* is the cold, mechanical life of the city.

The near inverse approach characterizes *Belle Confusion 969* (1996), in which there seem to be only effects, and no source sounds. Distant overtones, delicate trills and diffuse echoes are juxtaposed with non-directional washes, eventually condensing into a kind of thick, ambient noise. Over a period of 50 minutes, these "ambient"

sounds eventually become so dense that they start to occupy and fill space itself, instead of ambient sounds carving out or hollowing out space. In *Belle Confusion* we as listeners experience an acoustic paradox: diffuse sounds that hollow out a space from without, and, at the same time, nearly subsonic rumbles that fill a space from within. *Belle Confusion* is indicative of many of López's better-known works, such as *Untitled #74* or his numerous sound installations. In pieces like these, one rarely notices when the piece itself has begun. The sounds begin so faintly and emerge so gradually that one can easily mistake them for the sounds of one's own environment. First there is silence; then before you know it, there is suddenly an amorphous, diffuse wash of sound---was it always there or did it suddenly begin? This acoustic uncertainty is central to *Belle Confusion*, a confusion between the sound recording and the sounds of one's environment (which in most cases are never totally separate). While works such as *La Selva* and *Buildings (New York)* present us with sounds without effects, in *Belle Confusion* we have effects without sounds---as if the sound sources themselves have vanished, leaving only sonic traces.

All of this is taken to another level in López's more recent works, many of which bear the simple title of *Untitled*. *Through the Looking Glass* contains three such works, all produced in 2008. These pieces are distinct in their subtractive approach; they truly exist at the limit of audibility. Occasionally one hears faint hints of found sounds, but more often than not the *Untitled* pieces operate at the highest and lowest registers, the supersonic and subsonic: sub-bass rumbles and

high-pitched, aleatoric glitches, both faintly audible---and without anything in the middle. These pieces are fascinating in their austerity, in the way they empty out the sonic spectrum. López subtracts almost the entire audible range, leaving only the highest and the lowest, the most distant and diffuse. Sound itself becomes enigmatic, at once omnipresent and yet non-directional. López's approach to sound art is made clear in the accompanying booklet to the box set:

Typically, recorded sound is considered to be a representation of reality. Unbeknownst to the average person ... a sound recording can also be considered an entity in itself ... those extractions, in fact, are a different "reality" in themselves.

This switch, from sound as a representation to sound as presentation, is also a shift from sound as referential to sound as tautological. López is, of course, aware of the use of found sounds in the history of avant-garde music, from the experiments of Luigi Russolo to *l'objet sonore* of Pierre Schaeffer to the elusive "acoustic" sound of Michel Chion. However, López's use of field recordings also brings to mind the work of Luc Ferrari, whose *Presque Rien* series takes seriously the notion of autonomous sound worlds existing apart from their sources or their function as representational sounds "of" something. In many of the pieces collected in *Through the Looking Glass*, López adopts a process whereby recorded sounds from the external world are arranged in a non-representational and non-musical way. The sounds move past their indexicality where sounds signify objects or events in the world. These sounds also move past

simple abstraction, where a sound source is processed or manipulated so that it becomes unfamiliar. What López often aims for is a double failure---the failure of sounds to adequately or faithfully represent the external world and the failure of sounds to achieve the perfection of purely synthetic, purely artificial entities. This is, perhaps, what López means when he speaks of his experience with field recordings: "I realized the dramatic difference between listening as a semantic activity and as a phenomenological experience."

Sound art is typically positioned along two conceptual axes. One axis is that of *music* and *sound*, where music ceases to be the representation of a feeling or emotion and becomes the presentation of independent sounds without reference to feeling subjects or the objective world. Much of the post-war avant-garde explores this terrain, although its beginnings were already evident in the turn towards chromaticism and atonality in the late 19th and early 20th centuries.

The other axis of sound art is that of *sound* and *silence*, where the presence of sound as sound gives way to autonomous sound objects, whether found sounds or electronic sounds that question and challenge the scope of what is listenable, of what can possibly be included in the sonic experience. Monotones, overtones, even microtones come into play as types of barely audible differences, but so also do a whole range of found sounds and artificial tones, the sounds around you right now and those same sounds cut and spliced many times over. But here even silence is, as John Cage has shown us, never just silence,

but simply a new context for old sounds.

The sound art of Francisco López represents a third axis, one that has generally been underexplored in the history of Western sound art, and that is the axis of *sound* and *unsound*. The term “unsound” has several meanings. On the one hand it denotes something incoherent, unstable, something “structurally unsound,” like an argument that demonstrates a faulty use of logic. That which is unsound is unreliable, suspect, absurd. But the prefix in the term “unsound” also denotes a negation. An unsound is not simply an “anti-sound” (in the way that silence is the negation of sound). It denotes a negation that manifests itself as a negation, as a reduction, as a subtraction. An unsound is paradoxically present in its absence. It is the sound of the windows rattling that is not just the sound of the windows rattling. Unsound is distinct from sound because it deals with sonic characteristics that exist on the horizon of sound, from spectral overtones to ambient artifacts. Unsound is a field of sonic stillness, an acoustic deep time that moves in the “infrasonic” (to use López’s term), at the edges of the supersonic and subsonic. Unsound is also distinct from silence because it is not simply the absence of any sound (which is impossible) but the ambiguous presence of all sound, whether or not it is audible. Unsound is an empty space articulated through sound, or the relativism between the absence of sound and the total diffusion of sound. Perhaps this third axis of sound/unsound has been under-appreciated largely because all sound art and all music demand---or really, assume---that sound is generally equivalent to presence. Perhaps there is a fur-

tive metaphysics that underlies our ideas of sound, as broadly equivalent to presence, existence, being---the “it is here” and “it is now” of sound. Of course, this makes a certain sense, for it would be absurd to inquire into sound as non-being, sound as nothingness, unsound. And yet I would argue that this is precisely what sound artists such as López invite us to do.

A last word---my own “confusion” upon listening to one of the *Untitled* pieces occurred when I noticed a low, deep rumbling. Wow, I thought to myself, how does he make these sounds? And then a thought occurred to me. I paused the recording, and the rumbling continued. It was the sound of the C train, many floors below me, underground in a subway tunnel. I wonder if this is the point that López wants to evoke in the listener---when they take off their headphones, and listen.

A Little-Known Story about a Movement, a Magazine, and the Computer’s Arrival in Art: New Tendencies and Bit International, 1961 - 1973

by Margit Rosen (ed.)

The MIT Press, 2011

Reviewed by Brian Reffin Smith, Collège de Pataphysique

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This book is so hefty that it arrived in its own Royal Mail sack, large enough for a person to climb into and have him- or herself posted to Siggraph. Reading it in bed is like having a medium-sized Labradoodle

on one’s chest. But every page is worth reading, and indeed I wished for perhaps one more than the 573 pages provided, then another, to see at what point it might implode under its own gravitational attraction.

Editor Margit Rosen states in her opening article (there are also useful “Editorials” from Jerko Denegri, Darko Fritz and Peter Weibel), “For the past fifty years [the computer] has been condemned to remain the new medium.” Its use in art, indeed, lacked both history and a language of critical discourse. In recent years this has begun to change with respect to discourse, but this itself has sometimes seemed to be abducted from what we see now, today, quite often from very specific instances (which have sometimes been created as artworks to embody the critical theory therein to be discerned). The histories, until a few years ago, were often breathless, excitable and sometimes meretricious at the expense of rigor or even basic art-historical methodologies (there were a few notable exceptions, but not many). In the last few years, though, we have been treated to some excellent slices of the history---or histories---of computer-based arts. But we still lacked, for this area, someone to do what, for example, the late Charles Harrison and Paul Wood did for art in general when they published *Art in Theory*.

This book might herald the beginning of the end of the lack of an adequate history. It records, in every respect one may hope for, the development of a new art. The contributors relate how ideas of “research” in (and even as) art developed in the New Tendencies movement based in Zagreb. Also discussed is how democratic ideas of participation

in programmed, open, demystified art led to the adoption of the computer as a tool of artistic research. Indeed, just about all the important material is included in the form of articles, manifestos, catalogue essays and many extracts from *Bit International*, to which we'll come back later. It covers much of Western computer-based art, all of which is necessary for understanding how we got where we are today.

I was not present in the ex-Yugoslavian city of Zagreb then (now the capital of Croatia), but I did meet a number of artists who used early computers and ideas of computation in other Eastern European countries such as Poland. They were often innovating art ideas using relatively simple technology. Yet originality, as it seems to me was also the case in Zagreb, didn't appear to be the spur. It was mostly "playing," and none the worse for that. But what they played *with* were, on various levels---some less than others and with varying degrees of danger---the building blocks of their own societies and political systems, or metaphors for them.

It should not be forgotten that applications of cybernetics and systems thinking to cultures of making and designing, as well as of information control, were being generated in countries of the Eastern Bloc. What happened in Zagreb was not, I would argue, some sort of cultural accident or outlying anomaly. It was squarely of its time. *Bit International*, a magazine a group within New Tendencies founded in 1968, might be notable for the computing term in its title; but for this reviewer the word "International" is more revealing. Works from the West were shown alongside those from the Communist Bloc. The cultural hegemony of the

U.S.S.R. was, quite simply, bypassed. Yet the air was redolent of the zeitgeist of ways of looking at the world that had their origins in the 1960s rehabilitation of cybernetics in Russia as a movement for radical reform of the Stalinist system of science. Do not think, however, that this book addresses only questions of history, or consists only of timelines and anecdote. It is far more. If you want (and we do) theory, opinion, analysis, harangue, cutting-edge discourse and innovative, critical insights into, for example, art as politics, information as art, or correlations between constructed, programmed, systems, cybernetic, participative art and computers, and what it means, in the best sense, to make art and to compute, then this is the book for you.

In a tome so large, covering so much of use to everyone from art student to critical theorist to art historian, there will inevitably be things with which one disagrees. But apart from the rather inadequate index, nothing up to now (I cannot yet claim to have finished reading it from cover to cover) caused me to splutter. It is to be hoped that someone is presently working along similarly massive lines to inform us of possibly neglected histories of computer-based art associated with, for instance, Canada. The history in Margit Rosen's excellent and well-illustrated book is fascinating and useful. Every artist, computer user or not, should read it. It will become a seminal work, I am sure. It jumps out of what might have been seen as its niche to embrace all computer art and beyond. And the questions and thoughts the volume provokes make it worth its not inconsiderable weight in gold.

Contemporary Art in Asia - A Critical Reader

by Melissa Chiu and Benjamin Genocchio (eds.)

The MIT Press, 2011, 320 pp.

ISBN: 978-0262516235

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Melissa Chiu and Benjamin Genocchio have edited a critical reader on Asian Art as a starting point for what one hopes will be more books on the subject. Chiu, Director of the Asia Society Museum in New York, and Genocchio, Editor-in-Chief of the publication *Art Info*, are a powerhouse duo whose Pacific Rim perspectives propel Asian art studies up a notch in a Western-centric art world. This compilation of essays, about the "changing nature and reception of contemporary Asian Art in Asia and the West over the past two decades," strives to be all-inclusive. What they create is a somewhat blotchy snapshot of the current state of affairs, as some nations are still grappling with that old warhorse Marxism, although Chiu's argument about transexperience is timely in light of the hemisphere's rising economic power. There is an emphasis on rich cultural traditions that have their own biennials and triennials, museums and alternative spaces, with the underlying message being that Asians are finally gaining control of their own cultural representation.

"Open and Closed Discourses of Modernity in Asian Art" (1993), by John Clark, is the most pithy piece, mapping out Asia geographically as "The Sakhalin Peninsula . . . bound by the Siberian Steppes to the

north and the Indian Ocean and Straits of Timor to the south." Clark disparages those parts of Asia that redefine themselves through contact with the other, saying there is "often depredation at the hands of an 'other' . . . privileging the Euro-Americanization by denuding of value the Asian interface of modernity." His meaning is that, when you take an art form such as English oil painting and move it to 19th-century Japan, is that "appropriate contextualization"?

A salient and critical point he makes about modernity in terms of the Asian cultures discourse is that their art cultures are often deprived by the fact they did not originate modernism and its recent derivative, postmodernism. He defines modernism as a discourse that privileges a linked series of artistic developments for a group of Euro-American cultures that have modernized according to primary political, social or cultural criteria. He adds that, when artistic techniques jump across cultural boundaries in ways that are neither apparent nor relevant to the discourse of interpretation from the originating culture, this discourse is often interpreted as "bad taste." "Newness" can be thought of as "other." "The issue ultimately revolves around which and whose interpretative codes are to be sovereign." Euro-American codes favor rhetoric that privileges interpretation and are opposed to rhetorics that work against clarity. This explanation goes a long way toward explaining the difficult attitude in the art world toward less-developed countries' arts practices and is a refreshing and necessary explanation of said attitudes.

In "Why Cubism" (2006), Takehata Akira declares Cubism was never part of Asian art but

nonetheless penetrated into all its major cities. Proffering an invaluable timeline in deconstructing aesthetic styles since colonialism came to Asia, he says Picasso stole it from Africa. The style showed up in Japan and China in the 1920s; Korea, India and Sri Lanka in the 1930s; and Southeast Asia in the 1940s and 1950s. It spawned both urban cosmopolitan and rural aspects that were further reified by ethnic and religious cultural fragmentation and regionalism.

Many essayists take issue with the Western notion of "other" or the "exotic." In "The Politics of Curating 'Contemporary Korean Art' For Audiences Abroad" (2002), Young Min Moon questions how Korea is perceived by Westerners and asks if there is an essential quality in Korean Art. He argues that most Western art institutions base themselves on tenets of postmodern nihilism and post-conceptualism. Lots of "otherness" results in loss of identity. In "Radicalizing Tradition" (2000), Salima Hashmi examines the tradition of miniature painting at National College of Art in Lahore during the 1980s. The school, set up by the British in India in 1875, always distinguished miniature practice from mainstream art. Students are still required to grind their own pigments. They also must take a single strand of squirrel hairbrush, dip it in lampblack and paint under the tutelage of two Ustands, or masters. This practice contradicted the hegemony of oil-based paints brought by British colonizers and particularly encouraged women to use water-based painting and printmaking. After the collapse of Mughal Empire, miniature painting waned. Since, as Hashmi says, "a visual practice has to justify retaining its vocabulary," it was reconstructed

and now confronts the identity of the Muslim State, Wahabi fundamentalism, dress codes, social behavior, language monitoring and the discouragement of figurative art. Chiu's essay, "Theories of Being Outside: Diaspora and Chinese Artists" (2007), sets up a new genre of interpretation. The term *transexperience* was first formulated by Chiu to describe the Chinese diaspora of the 1980s, when artists from the banned Stars group fled to France, England, U.S.A., Japan, Switzerland and Australia. By the end of 1980s and early 1990s, these same artists were tackling what it meant to be Chinese across borders, an experience she refers to as "transexperience." In transexperience, homeland is still prioritized with multiple rather than dual experiences of diaspora. Chiu argues that this characterization summarizes the complexity of leaving one's native place and going elsewhere, adapting to a new environment and relying on change instead of on a static cultural identity. One's homeland is past and the host country is present, with no fixed moment of migration. She cites the recovering of Chinese iconography as a way of juxtaposing memories of China with current reality and the modification of Chinese signifiers (Chinese characters) to make them accessible to non-Chinese audiences. China becomes a current influence rather than frozen in a moment, and the artist, most often not fully accepted by the host society, maintains a collective vision about his or her former homeland. Transnationalism is a kind of third culture, not a third space. Salman Rushdie uses the metaphor of broken mirror and scattered shards to show its perspective is not a "tool of nostalgia" but an actual reworking of identity. What is most useful

about the term transexperience is that parts of it can also be applied to Western artists taking the opposite tack, setting their sails to Asia.

Divine Machines: Leibniz and the Sciences of Life

by Justin E.H. Smith

Princeton University Press,
2011, 392 pp.

ISBN: 978-0691141787

Reviewed by Rob Harle

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This book is an in-depth scholarly exploration of the philosophical work of Gottfried Wilhelm Leibniz. Justin Smith, by investigating Leibniz's interest in the life sciences, many of which were only just emerging in the 17th century, sheds new light on how these "sciences" influenced Leibniz's overall philosophical doctrines. *Divine Machines* is extremely well written and a pleasure to read; however, it is not really a book suitable for general readership. For philosophers, students and those interested in the history of ideas, the book will prove most rewarding. Leibniz's philosophy, in general, is not easy to fully comprehend, but Smith helps clarify some of the more abstruse concepts through his detailed discussion of Leibniz's grounding in the empirical life sciences. Leibniz explored such diverse disciplines as medicine, taxonomy, physiology, generation theory (now genetics) and paleontology, which helped him formulate his major metaphysical theory - Monadology.

This book is divided into four parts, which follow an excellent Introduction. Part One, *First Things*, consists of Chapters 1 and 2. Part Two, *From Animal*

Economy to Subtle Anatomy, is composed of Chapters 3 and 4. Part Three, *The Origins of Organic Form*, includes Chapters 5 and 6. Part Four, *Species*, is Chapter 7. These four parts are followed by five Appendices, which are examples of Leibniz's own writings. Chapter notes, an excellent bibliography and an index then follow these fascinating appendices. The information in the appendices includes:

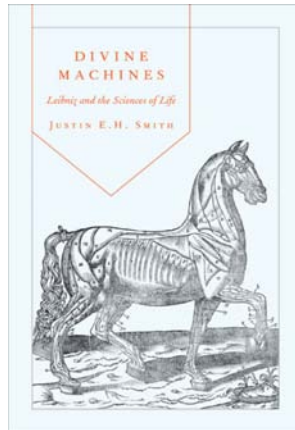
Appendix 1: Directions Pertaining to the Institution of Medicine (1671)

Appendix 2: The Animal Machine (1677)

Appendix 3: The Human Body, Like That of Any Animal, Is a Sort of a Machine (1680--1686)

Appendix 4: On Writing the New Elements of Medicine (1682--1683)

Appendix 5: On Botanical Method (1701)



The term "natural philosophy" (*philosophia naturalis*) in the 17th century was an umbrella title used to cover all disciplines of what have now become separate sciences. Smith uses the modern name biology for our clarity, as there was no such "science" in Leibniz's time. Smith's main concern is to show how to

understand Leibniz through his biological investigations. This is at odds with the predominant view that Leibniz was mainly influenced by logic, language, mathematics and theology. Herein lies the importance of this book and what assures it a place in the scholarly literature concerning the greats of philosophy and modern thinking.

As an extra bonus, this book gives us an exciting glimpse into the way of investigation and thinking throughout the 17th century. This brought home to me, quite profoundly, just how little humans knew about the fundamental workings of the world in this era and how much we have learnt since then. Two examples: Our recent understanding of DNA coding; secondly, our current ability to do fMRI scans to see the human brain actually working. But it also brought about a sense of humility, in that in 400 years' time, humans (if we are still here) will similarly marvel at how ignorant we early 21st-century scientists, scholars and philosophers were!

Smith's study gives an almost palpable sense of the struggle these early modern thinkers went through. Many other great thinkers---especially Aristotle, Galen, Descartes and Hobbes---quite naturally influenced Leibniz. He always expressed his debt to those who influenced his thinking, even when he was at odds with them, especially Descartes. Commenting on Descartes's account of human embryogenesis, for example, Leibniz derides "Monsieur des Cartes with his man, the generation of whom costs so little, but who so little resembles a true man." Yet at the same time, Leibniz never denies the enormous debt of his own philosophy to Cartesian mechanism (p. 10). This book is a scholarly tour

de force, it challenges the existing understanding of Leibniz's philosophy and opens up many areas for further research. No doubt it is essential reading for all those engaged in research into the history of early modern philosophy and science.

The Techno-Human Condition

by Braden R. Allenby and Daniel Sarewitz

The MIT Press, 2011, 192 pp.
ISBN: 978-0262015691

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This book is rather unusual in that it clearly challenges the very foundation of the way we currently attempt to solve major world problems. It explains why climate change fixes are not working, why the war in Afghanistan is not being won as originally expected and why many other similarly perplexing problems remain unsolved. "We need to substitute 'explore with humility' for 'attack with rigidity'" (p. 105). The book has a specific emphasis on technology and our human relationship to all aspects of this technology.

The Techno-Human Condition will infuriate some, and be dismissed out of hand by a few, but will unsettle almost all readers. The reason is that while Allenby and Sarewitz's analysis of current problem solving is a bitter pill to swallow, there is an underlying understanding that their approach is not only correct but also essential to embrace.

The world we are making through our own choices and inventions is a world that neutralizes and even mocks our existing commitments to rationality, comprehension, and a meaning-

ful link between action and consequence. Either we accept that we are brutes living way beyond our means ... or we search for a different set of links to connect our highest ideals to the reality we keep constructing (p. 65).

The book is suited to all levels of readership and is a fast-paced easy read. I couldn't put it down. It is the result of a grant from the Templeton Foundation, an organization that makes possible research of the kind undertaken by these two authors. Without this foundation, and its charter to fund research into answering the big questions, much important scholarship simply would not happen.

There are extensive chapter notes (for reference and further research), a bibliography and an index. Eight chapters and a fascinating epilogue precede these.

Allenby and Sarewitz use the phenomenon (or movement) known as Transhumanism as a kind of datum to refer to in their widespread discussion of technology and the human condition. Transhumanism advocates the augmentation, enhancement and push towards immortality of all humans. The authors approach what they see as the ignorance, naivety and in some ways arrogance of the transhumanists by separating technology/human interaction into three levels.

I found this classification system most edifying. Level 1 is the base technology (a jet aircraft for example). Level II is the infrastructure that attempts to run the Level I technology (flight schedules, air traffic controllers and so on). Level III is how the two previous levels can react at a global level (the rapid spread of disease, carried quickly to many distant countries almost instantaneously). Allenby and

Sarewitz argue, in fact it is their main thesis, that most problems arise when we confuse the different levels of technology, especially when we try to solve a Level III problem at Level 1 (which they insist, we do all the time).

I have one minor, though not trivial criticism of Allenby and Sarewitz's approach. Even though they vigorously analyze and attack the Enlightenment way of understanding the world, the same Enlightenment reasoning methodology underpins their approach. To be sure, they discuss religions here and there, but they do not acknowledge the "way of knowing" we could term spiritual. Many Eastern religions, Australian Aboriginal cosmology and various other tribal systems have totally different ways of knowing the world than the Western way and, consequently, different ways of solving the global conditions we children of the Enlightenment have created. These deserve serious consideration in any approach that suggests ways to deal with major Earth problems. I sense the authors perhaps have an empathy with such spiritual approaches, but it is neither articulated nor acknowledged. After all, John Templeton's vision was "the possibility of acquiring 'new spiritual information' from his commitment to rigorous scientific research and related scholarship."

This is an important book (criticism aside), if for no other reason than that it confronts the reader in a way that demonstrates neutrality is not really possible; one cannot sit on the fence, for example, regarding the way to solve climate change problems. We are forced into a position of having to (re)think the whole gamut of human-technology interactions and either

agree with the author's *modus operandi* or come up with a better approach. We are not left the myopic luxury of "business as usual."

The Deaths of the Author: Reading and Writing in Time

by Jane Gallop

Duke University Press, 2011,
184 pp.

ISBN: 978-0822350811

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"The Death of the Author" is the title of a brief 1968 essay by Roland Barthes that has become one of the most popular and often-quoted slogans of postmodernism in literary and cultural theory. Almost mantra-like, this shortcut of postmodernist dismissal of the author and subsequent foregrounding of text, system, field and signifier has been used over and over again as a way of continuing the May 1968 revolt in France against tradition. Its academic reception has systematically linked this text with Michel Foucault's 1969 essay "What is an author." It is not an exaggeration to claim that Barthes's essay has achieved the status of a truly classic work.

Yet, it is one thing to recognize the value of a text and the concept it has put to the fore, and another thing is to really read it. The starting point of Jane Gallop's book is that the easiness of the concept, which delivers a sexy and catchy meaning that we think we understand immediately, may have blocked our critical reflection on the notion as well as our reading of the very

text that introduced it. The automatic coupling of Barthes's essay with the one by Foucault, which despite its similar title presents a totally different discussion, suggests already that there is a huge gap between the deceptively simple concept and the abyss that its close reading can reveal to us. Jane Gallop is a stubborn practitioner of close reading, even in times like ours, in which there seems to be no place left for this approach in academy. Therefore, she delivers a twofold lesson in this important book. The first one is on the importance of close reading---and here the influence of Derrida, who transferred close reading from literature to philosophy and whose prestige has kept close reading present on the intellectual stage, is dramatically visible. The second one is on the meaning of the death of the author as a concept, but also as a practice---and here Gallop convincingly demonstrates that the significance of the concept cannot be reduced to its first reception in 1968.

In order to revisit the notion of the death of the author, Gallop adopts a method that is both extremely straightforward and tremendously subtle. On the one hand, she looks at how four key critics, first as readers and then as authors, have actually used that very notion. What did Barthes, for instance, write on the author after having declared that the author is dead? Did he delete the concept from his theory? Did he enjoy or lament it? Did he return to the author? Did he contradict himself? Did he react to the discussions raised by the success of his essay or did he ignore them? The answers that Jane Gallop offers to these questions painfully disclose that readers are often lazy. As it turns out, the

death of the author is just a stepping-stone in Barthes's thinking on the position and role of the author. Moreover, his thinking on this relationship did not end in 1968---as we too easily accept it did. Instead of reading Barthes's essay in relationship with general theoretical and ideological statements, Gallop reconstructs the various links that help to discern the gradual shift to a different approach to the author, who becomes, according to Barthes, the object of an erotic dream by his or her reader. It is to the extent that we are aware of the author's death that it becomes possible to once again desire his or her presence in the body of the text. Focusing on a very small set of well-chosen fragments in Barthes's work, fragments that are read and reread from a wide range of perspectives (the rhythm of the sentences, the multilayeredness of the metaphors, the conceptual variations, the play with a permanently mobile intertext, the blurring of the boundaries between the text and its publication context, etc.), Gallop succeeds in revealing new meanings of an apparently worn-out concept, gradually opening the single death of the author, an event having occurred in 1968 and never really challenged over the years, to the steadily complexifying plural of the deaths of the author.

The three other chapters that complete the new reading of Barthes, respectively on Jacques Derrida, Eve Kosofsky Sedgwick and Gayatri Spivak, follow similar lines, as far as the close reading methodology is concerned. Yet they broaden the scope in two crucial respects.

First of all, it appears that the book is divided into two well-balanced parts, which coincide with the division of reading and

writing. In the case of Barthes and Derrida, the death of the author is seen primarily from the viewpoint of the reader: What does the notion of the death of the author mean when the author I am reading is a departed author I knew? The example of Derrida, who introduced "in memoriam" as a real genre in recent philosophy, demonstrates the painful and ethically complex questions that are raised by this situation: Does one have the right to speak in memory of a friend while at the same time analyzing his or her work, and how to do it even if one is not allowed to do so, to quote the deceased friend, etc.? In the case of Sedgwick and Spivak, the viewpoint is more that of the reader as writer (even if Barthes and Derrida do reflect on their authorship as well, of course): How does the death of a friend, who is also an author, influence and change my own writing, for instance when I identify with my friend as a writer, even if I realize that I am already dead myself?

Second, and this is where Jane Gallop's close reading becomes intertwined with queer studies, the reflection on the death of the author does not only link literary theory with issues of literary ethics, it also forces us to reconsider certain basic aspects of reading and writing itself. Most essential in this regard is the notion of "queer temporalities," that is, the refusal of traditional (linear and hierarchical) ways of thinking time and the praise of "perverse" (i.e. non-canonical, non-systematic, non-quantifiable) approaches to time that tend to blur past, present and future, continuous and non-continuous time, slowness and speed, and eventually life and death. For instance: Sedgwick reading an "in memoriam" for a friend dying of AIDS but not yet deceased,

or Spivak's attempts to maintain the continuously open and never-ending character of writing as a revolt against the deadening effects of the publication of a book. In both cases, Gallop proposes a very strong political interpretation of these queer temporalities, which she links with the defense of queer sexuality (for Sedgwick) and the haunting presence of Marx, whose thinking seems condemned to final oblivion after the fall of the Berlin Wall (for Spivak).

It is a pleasure to end this review by stressing the immense stylistic and demonstrative qualities of this book. Jane Gallop is no doubt one of the best readers of her generation, but with *The Deaths of the Author* she proves that her writing is unprecedented: sharp, brisk, with a great sense of rhythm, utterly sophisticated and yet perfectly clear, from the very first till the very last sentence.

A Field Guide to a New Meta-Field: Bridging the Humanities-Neuroscience Divide

by Barbara Maria Stafford
(ed.)

University of Chicago Press,
2011, 368 pp.

ISBN: 978-0226770550

Reviewed by Rob Harle

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Any book that helps demolish the stubbornly ingrained gospel of Cartesian bifurcation is, indeed, welcome. This book is a fairly major contribution to this deconstruction project, not only exposing Cartesian fallacies but also suggesting positive, practical ways of putting "Humpty

Dumpty back together again." The humanities and the neurosciences are two powerful "ways of knowing," and as all contributors to this volume agree, these two disciplines must start working cooperatively if we are to advance in unraveling the mysteries of existence and the part that our minds, brains and bodies play in this existence.

Stafford's aim in creating this book was not to provide definitive guidelines for bridging the humanities-neuroscience divide per se but to develop literally a field guide that would point the way for future research. She uses the term "Meta-Field" to describe this new approach: "In addition to being a field guide, this book serves as a primer to intellectual possibilities and best practices in a metadiscipline that does not yet exist" (p. ix).

A Field Guide to a New Meta-Field is a scholarly collection of essays from leading thinkers in both the humanities and brain sciences. As such it is not really suited to general, popular readership. The essays presuppose a broad knowledge of modern critical/cultural theory and at least a basic familiarity with neuroscience terms and principles. The book is illustrated with numerous black-and-white drawings, diagrams and photographs. There are nine wide-ranging chapters, preceded by Stafford's own introductory essay, "Crystal and Smoke." One thing that stands out from the research that produced the essays in this book is that the brain, mind and embodiment are far more complex than most researchers ever dared imagine. As Stafford mentions:

A major message of this book is that one way of getting past what Damasio saw as the "abyssal [Cartesian] separation between

body and mind" is for neuroscientists not to limit their cultural considerations to the evidence provided by grammatically complex symbolic languages. We know that our gesturing and tool-making hominid ancestors lacked such syntactical activity. What they had, and we still have, are sophisticated compositional structures for mirroring complex mental and social situations by performing them as intersubjective events (p. 45).

The new story beginning to unfold, as encapsulated in Stafford's new meta-field, is a Kuhnian paradigm-breaking work in progress. The essays in this book will challenge many hide-bound academics' stale and outmoded paradigms and certainly make most readers sit up and think very seriously about the future direction of their research.

The essays ... are proof that the neurosciences cannot dispense with the humanities in their analyses of the brain. Equally, the humanities must reckon with scientific findings. Desegregating those who address the outer and inner worlds gets rid of warring over prestige and funds (p. 58).

Transmission Arts: Artists and Airwaves

by Galen Joseph-Hunter, Penny Duff and Maria Papadomanolaki (eds.)

PAJ Publications, 2011, 200 pp.

ISBN: 978-1555541514

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Transmission arts encompasses performance, video art, theater, sound art, radio art, media in-

stallation, networked art and acoustic ecology in a multiplicity of practices that engage aural and video broadcast media in an intermedia framework where the relationship(s) between artist and audience, transmitter and receiver can be redefined, along with the telecommunications airwaves as the site for this practice.

Transmission, the wireless sending and receiving of electric signals via electromagnetic waves, is central to transmission arts, where artists and practitioners seek a more expansive and demystified site for their creative practices derived through do-it-yourself, hands-on relationships with transmission technology, content sources and public and artistic access to the transmission spectrum. As an art genre, transmission arts is grounded in the transmission-based projects of Futurism, Hörspiel and radio-theater, post-war electronic music, Fluxus and Happenings, early video collective projects and telecommunications arts. Current communications technology, networking and activism drive contemporary development.

With such a broad palette, acquiring an overview of the persons and practices associated with transmission arts can be difficult. To address this problem, *Transmission Arts: Artists and Airwaves* provides a genealogy of 150 artists and their artworks. This survey ranges from 1921 to the present, documenting the ingenuity and creativity of the artists, as well as their discoveries in broadcast, public works, performance composition, sound and text representing alternate worlds on the electromagnetic spectrum. The artists and works included in this volume are not exhaustive, but rather provide an accessible

touchstone for understanding and appreciating this new art genre.

Transmission Arts is arranged into four sections by mode of presentation: performance and composition; installation; broadcast; and public works, networks and tools. Biographical backgrounds are provided for each selected artist, as well as a discussion of each artist's seminal work(s). A chronology of works and an extensive bibliography are also provided. Several of the artists represented in each section are well known: William Basinski, John Cage, Matthew Burtner, Negativland, Marshall McLuhan, Velimir Khlebnikov, Eduardo Kac, Tetsuo Kogawa, Orson Welles, Nam June Paik and Pierre Schaeffer, for example. Others are less known and therefore interesting and inspiring.

Together, these 150 transmission artists and their works form the foundation for a larger Transmission Art Archive under development with the guidance of free103point9, a nonprofit organization focused on cultivating and defining the transmission art genre. In addition to the more traditional linear works made for radio dissemination, 103point9 supports creative, multifaceted and interdisciplinary works across the full radio spectrum in its broadest definition. The free103point9 Transmission Art Archive is accessible at <www.transmissionarts.org> where sound, video and image files for many of the artists can be enjoyed. From the earliest experiments with radio, to current-day web- or mobile-based platforms, transmission art is enlivened by technology, not beholden to it. The artists and their works featured in *Transmission Arts: Artists and*

Airwaves provide an excellent and accessible introduction.

remixthebook

by Mark Amerika

University of Minnesota Press,
2011, 336 pp.

ISBN 978-0816676156

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At a minimum, one can say that *remixthebook* is an unconventional publication, at least according to current academic standards (after all, it is published with a very prestigious academic press). Formally, the volume resembles any other book, but it is astonishing in terms of content, if not explosive. At the same time, Mark Amerika is doing exactly what we are all doing and experiencing today: copying, transferring, reusing, mixing, remixing, mashing-up in a culture whose key words have become *detournement*, collage/montage, readymade, quotation. The avant-garde's fascination with the remix, in literary as well as in visual culture, has now become totally mainstream: We write like Lautréamont (the first to claim that "plagiarism is necessary"), we paint and sculpt after Duchamp (whose *Fountain* is now the icon of the 20th Century), and no one who writes can ignore Burroughs's cut-up technique (or one of its multiple variants). Mark Amerika has been, and still is, one of the pioneering authors of this remix culture in the digital age, which Lev Manovich taught us to understand as an expansion of the Soviet montage principles.

Amerika, a recombination of many biographical and professional stances (teacher, critic,

professor, theoretician, creative writer, performing VJ), has gathered in this book a certain number of "shows" that also exist as live performances and web creations (see his personal site: <<http://markamerika.com/>>). One can read them as a blending of autobiography, manifesto, (critical) theory and creative output---in short, as a new variation on the well-known genre of the *ars poetica*. It would be unfair, though, to straitjacket Amerika's highly inventive and innovative ad-libbing on/of remix culture into this worn-out terminology, as it is also unfair to limit the present review to the mere book form of this work, which also exists in digital form, more precisely in digitally remixed form. On <www.remixthebook.com/the-remixes>, the author has invited some 25 international artists, poets and theorists to sample from *remixthebook*, manipulating the source material according to their own insights and preferences. In comparison with the live performances or the digital reappropriation of the work, the printed volume may seem anachronistic, and this gut reaction of the reader familiar with Mark Amerika's groundbreaking work is confirmed by the reading of the book itself.

Most striking in this regard is the extraordinarily classic use of the book format itself. *remixthebook* never questions the conventional print layout and leaves the host-medium of the book as it is. When entering the work, the reader expects a much more experimental experience than what is finally being proposed. Despite the innovative content of Mark Amerika's approach, the text as well as the volume are perfectly traditional objects: The whole book can be read from A to Z (the linearity of the text is never put into danger

or into question), and although its physical appearance is not that of the average academic essay, its form is easy to recognize and to identify: It is that of the epic, narrative poem in good old free verse, and the basic rules of both free verse and *ars poetica* are fully respected from the very first till the very last line of the book (there is one idea per line, with from time to time an enjambment to spice up rhythm and style). The ideas of the book are new, but its poetic form is classic (readers of *remixthebook* unfamiliar with contemporary poetry might have the deceptive impression that there's no reason to be "afraid" of it). And to a certain extent, the novelty is less on the side of the ideas and the theories themselves (logically, most of them are quoted, sampled, remixed and therefore not always very surprising) than on the side of their very reuse (which the book can only imitate in a rather pale fashion). One really needs to go to the website in order to seize the possibilities of the mashup.



A most intriguing aspect of the remixing process that is hardly discussed or thematized by Mark Amerika is the fidelity issue. Most of the time, the samples are directly inserted into

the text, but from time to time, the author states explicitly the source of his material (name, title, etc.), as if he was suggesting that there exists a difference between “free” sampling (paraphrase?) and “faithful” sampling (quotation, with references). If it occurs that sampling involves also changing the remixed original, and if it proves that such changes do matter, it would have been fascinating to learn more about the author’s ideas on this issue. As it is now, one can only infer that the differences between ways of remixing (and the exactitude of quoting is just one example of this phenomenon) are less important than the very process of remixing itself, which I think is debatable. Any technique can be used in any possible way, and remixing should not be an exception to this rule. In that regard, the case for mash-up culture that is made in *remixthebook* misses part of the complexity of its own subject.

Modern Gestures: Abraham Walkowitz Draws Isadora Duncan Dancing

by Ann Cooper Albright
Wesleyan University Press,
2010, 100 pp.
ISBN: 978-0819570772

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Ann Cooper Albright’s *Modern Gestures* juxtaposes ink and watercolor drawings of the dancer Isadora Duncan (1877–1927) by the modernist Abraham Walkowitz (1878–1965) with excerpts from the writings of Gertrude Stein to startling,

complementary effect. Sonorous and rhythmic, Stein’s prose reverberates hypnotically:

This one is the one being dancing. This one is the one thinking in the believing in dancing having meaning. This one is one believing in thinking. This one is one thinking in dancing having meaning [1].

Walkowitz’s undulating line compounds the rhythm through improvisational images that slip like nymphs across the page unfettered. They herald that first Brancusian flight of the spirit, the gusts of liberation and abandonment that projected 20th-century modernists like Isadora Duncan from *fin de siècle* canons to unbridled creativity.

Duncan met the painter Walkowitz in Paris in 1906, in the studio of the rebel sculptor Auguste Rodin. Returning to New York, Duncan saw Walkowitz’s impressions of her at Steiglitz’s 291 in 1916. They never saw each other again, although he drew thousands of images of her ritualistically throughout his life, as though his hand was an extension of her body, his gesture her movement through time. The synergy that Albright creates between Stein’s literary cadence and the musical sensation of Walkowitz’s visual forms conveys the motion of the dance in a manner immediate and sensate. “Seeing becomes hearing,” writes Albright, and her selection of sounds, when read aloud, accompanies the dancer’s movements in simulated performance.

Like other early modernists inspired by musical abstraction, Walkowitz likened his expression to harmonious sensation alive with rhythm. His experimentation with small format drawings and watercolors explored linear motion in ways that

convey the vitality of the human figure as a vibrating force of human potential. Duncan, considered by many to have originated modern dance, rejected traditional ballet in favor of improvisation, emotion and expressionistic aestheticism. Her body became the brush in Pollack-like graphics drawn in space with arabesque scarves and colored light. It was an age of wild invention: Loie Fuller, Gordon Craig, Filippo Marinetti’s Ballet Mécanique, Émile Dalcroze and Helleriau. Not until the 1920s would such physical forays be given Freudian and Surrealist license through automatism. But at the dawn of that new century, both Duncan and Walkowitz stood poised to make their mark, seeking and finally discovering “the central spring of all movement, the crater of motor power, the unity from which all diversities of movements are born, the mirror of vision for the creation of the dance” [2].

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- [1] Gertrude Stein, *A Stein Reader*. Ed. Ulla E. Dydo (Evanston: Northwestern University Press, 1993) p. 129.
- [2] Isadora Duncan, *My Life* (New York: W.W. Norton & Company, 1995) p. 58.

Institutional Critique: An Anthology of Artists’ Writings

by Alexander Alberro and
Blake Stimson (eds.)
The MIT Press, 2011, 440 pp.
ISBN: 978-0262516648

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Institutional Critique: An Anthology of Artists’ Writings brings together key documents related to institutional critique, a con-

ceptual art movement that has raised questions about the workings of art institutions (museums, galleries) since the 1960s. Alexander Alberro (one of the editors of this volume) calls it a “gesture of negation” (p. 3) that was adopted by art-world figures as they began to critically engage with the order of things within art venues. The anthology presents the movement in four sections (Framing, Institution of Art, Institutionalizing and Exit Strategies). While the volume gives the impression that the critique is ongoing, the Exit Strategies section suggests that the initial concerns have morphed into something else.

The Framing section centers on how artists began to expose the politics of art institutions along with various inconsistencies and contradictions in their operations in the 1960s and 1970s. Hans Haacke’s response to the Guggenheim’s abrupt cancellation of his scheduled show in 1971, due to its political content, is included here. Overall, these early documents present general challenges to the status quo. Ultimately, there was a shift in strategy that is covered in the second section, the Institution of Art. This second section covers how the art world operates and assumptions people bring to art. For example, the Guerilla Girls, who first surfaced in New York City in 1985 to protest gender and racial inequality in the art world, are included in the second section as well as the third, Institutionalizing, which asks how artists can develop an alternative sphere. The final section, Exit Strategies, “brings together art projects and writings that stem from international collectives whose radical agendas and cultural politics resonate with earlier forms of institutional critique but reject significant

parts of its legacy” (p. 15). In reading the book, I was struck by the fact that the majority of the writings appear in the first two sections (314 pages), while the last two sections seem more of an afterthought. Among the artists/authors included are Hans Haacke, Michael Asher, Robert Smithson, Marcel Broodthaers, Daniel Buren, Dan Graham, Mierle Laderman Ukeles, Adrian Piper, Martha Rosler, Louise Lawler, Fred Wilson and Mark Dion.

To my surprise, I was quite taken in by the book but quite exasperated at the same time. This is because it is an insiders’ book. The editors seem to assume that readers will know who all the artists are and how their writings “fit” together within the art world at large. Thus, there are no short artist biographies, no summaries to contextualize the writings and no index to help the reader move around expeditiously. The lack of supplementary material to enhance the reader’s understanding of the writings presented makes it useful documentation for a classroom, where a teacher can provide framing, but less useful in a general sense. For example, the Critical Art Ensemble (CAE) article, titled “Tactical Media,” was penned in 1996, before Steve Kurtz became the target of an FBI investigation. Gregg Bordowitz’s 2004 article (“Tactics Inside and Out”) is more useful for understanding the trajectory of CAE and their projects. An index would help a reader who is interested in CAE but not planning on reading the entire book easily discover materials about CAE outside of the article credited to CAE.

Moreover, although the authors claim the volume is a self-contained work, this is not really the case. The five Hans Haacke ar-

ticles demonstrate that he has played a strong part in institutional critique. Yet, his work is not given in the context of his life. For example, one of the reasons he was able to continue to make political statements is that he had an economic base. From 1967 to 2002 Haacke had stable employment as a professor at Cooper Union in New York City. This “larger context” invisibility problem struck me frequently. Martha Rosler, for example, hardly seems like an “outsider.” She has taught at several universities and (among other things) serves in an advisory capacity to the departments of education at the Whitney Museum of American Art and the Museum of Modern Art and the Center for Urban Pedagogy and is a former board member of the Buell Center for the Study of American Architecture at Columbia University.

Andrea Fraser, another person who critiques art institutions, is currently a member of the Art Department faculty at the University of California, Los Angeles. In her articles, she mentions her discussions as a student in New York City with many of the contributors to the book. While her writings are included in the book, her well-known performance pieces are largely invisible. For example, there is no mention of one of her most controversial pieces: the videotape she made of herself having sex with an art collector. He paid \$20,000 to participate in this work of art. After their “encounter” the video was shown in a gallery in NYC. According to Fraser, her point in making this artwork was to comment on the reality that selling art is comparable to prostitution.

Fraser herself, however, does acknowledge the contradiction of participating in a critique that is a part of the museum/gallery

system. One chapter in the book reprints a 2005 *Artforum* article where she wrote:

Nearly 40 years after their first appearance, the practices now associated with "institutional critique" have for many come to seem, well, institutionalized . . . In the context of museum exhibitions and art history symposia . . . one increasingly finds institutional critique accorded the unquestioning respect often granted artistic phenomena that have achieved a certain historical status (p. 408).

In this sense, our contemporary institutional critique is a part of a long and fascinating history (although this history is not mentioned in the book). Other examples of critique from within institutions are the Pre-Raphaelites in England and the Realists in France (Gustave Courbet, Jean-François Millet and Édouard Manet). Alternate exhibition venues by people such as the Impressionists have also challenged the status quo. While this anthology does not look at historical precursors, the documents do offer a record that is of value as this movement takes its place in the chronology of art. Still, it is a shame that this volume does not acknowledge that, although this iteration takes place in the museums and galleries, rather than outside the mainstream, there are historical examples that show other routes.

As I read, I kept thinking about the 2004 College Art Association (CAA) Conference, where the Frank Jewett Mather Award was given to the Guerrilla Girls. This CAA award recognizes published art criticism that has appeared in whole or in part in North American publications. Their choice of the Guerrilla Girls was explained in the following statement:

During the past nineteen years, the Guerrilla Girls' work has dramatically affected curators, administrators, fellow critics, and artists. Prior to their poster campaigns in the streets of SoHo in the mid-1980s, the reality of art-world exclusiveness---whether overt or covert---with regard to gender and race was almost entirely anecdotal. The Guerrilla Girls' statistics exposed imbalances in gallery and museum representation, media coverage, and other forms of institutional support for artists. . . . The Guerrilla Girls' posters now appear in art-history textbooks and are collected by museums across the country, and the group has received awards from the National Organization for Women, the National Library Association, the Center for the Study of Political Graphics, and the Ministry of Culture in Berlin, among others [1].

Later, in 2009, the Guerrilla Girls added CAA's inaugural Distinguished Feminist Award to their accolades. According to CAA, these activists "embody the very essence of the spirit of the feminist art world: collaborative, proactive, and persistent" [2]. In other words, the activities of this group, like those of most (if not all) of the sources in the book, are now so fully integrated into the institutions that the criticisms they are noted for seem almost incestuous. Several of the articles in *Institutional Critique* reference Hans Haacke's 1972 poll/piece at the John Weber gallery that revealed, among other things, that most visitors to the gallery were related in some way to the professions of art, art teaching and museology. This book is directed at the same group. The language is specialist language and does not lend itself to dialogue with those who may feel

alienated and/or marginalized from the "high art" world critique that defines viability in the marketplace.

In 2004, as I watched the Guerrilla Girls walk to the stage at the CAA conference, wearing the gorilla masks they use to keep their anonymity, I remember thinking of a statement Max Planck made in his autobiography:

[A] new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it" [3].

Institutional Critique brings this to mind. Its subject has no doubt changed the art world, and for the better in many cases. While I am not a fan of the "high art" critique, this volume nevertheless is a contribution that will aid the study of art. Still, all in all, the most striking thing about the book was how well it aligned with Haacke's poll. Just as the majority of the visitors to the gallery were somehow in the art world already, the writings in this book are for those who are already participants in the art institutions. It is not an effort to reach the public at large. Yet, perhaps ironically, it ends with some discussion on how art projects are now expanding into a larger arena.

References

- [1] www.collegeart.org/awards/mather2004
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- [3] Quoted in Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1970 ed.) p. 150. From Max Planck, *Scientific Autobiography, and other papers; with a memorial address on Max Planck*, by Max von Laue. Tr. from German by Frank Gaynor (New York, Philosophical Library, 1949).

Spacesuit: Fashioning Apollo

by Nicolas de Monchaux,
The MIT Press, Cambridge,
2011, 250 pp.

ISBN: 978-0262015202

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Spacesuit: Fashioning Apollo is a dissection of the influencing cultures, materials and scientific practices that brought about the fabrication of the first spacesuit worn on the moon. Organized in 21 thematic chapters---echoing 21 unique and functionally adapted layers of the suit---the structure permits the author to take necessary detours and sideways glances at the factors responsible for the final and unorthodox outcome of the girdle-making company Playtex, who won the contract to make the ubiquitous moonwalk suit. More than a historical overview, Monchaux's extensively researched book recounts the battle of conflicting wills and visions, which pits the fragility and finitude of the body's ability to adapt to inhospitable environments against the cybernetic dream of total control and somatic transformation through technology. This dichotomy is articulated---specifically in the case of the construction of aeronautic protective clothing---as a war waged between a tacit, or "soft," knowledge of textile craft versus an automated, or "hard," engineering assembly practice.

A key crossover concept presented early in the book by Monchaux is derived from the unlikely ateliers of the Parisian couture houses. The "New Look," as launched by Dior, which stood for a re-structural-

ization of the feminine silhouette---with its pinched waist and atypical postwar exuberance of material---later comes to conceptualize reforms in the management of postwar defense as orchestrated by President Eisenhower. "Here the phrase 'new look,'" notes the author, "came to stand not so much for the shifting shapes of Dior's 1947 dresses, but for an architecture even more ephemeral, that of postwar reality itself" (p. 31). That a term coined in the annals of women's wear comes to propel industrial and military innovation is endemic of a continued "feminization," that is, softening, of space exploration garment design.



The same space age era sets the stage for the emergence of the intellectual and ideological neologism of "cybernetics." Initially pharmacologically based, cybernetics propels the fantasy of a seamless technological man-machine, or "cyborg." Parallel evolutions in early aviation and its nefarious and often deadly effects on the body---such as high speeds and altitude conditions of extreme cold and lack of oxygen---fail to deliver on the actualization of the "cybernetic man." Continued space-travel testing rather consistently points

research toward design artifacts that can sustain man in an environment tailored as close to possible to that of his usual habitat. Highly engaging is Monchaux's revealing of the various actants that come together to constitute the developments for a "humanistic" design to sustain man in space. These actants are collected from divergent disciplines including academic research institutions, industry (tires, girdles), engineering, politics and popular media culture and often overlap, complement as well as compete with one another in the process of producing the Apollo A7L spacesuit.

Throughout, Monchaux successfully argues and gives examples of how within the various iterations and prototypes of the spacesuit, it is the designs that take into consideration the way in which the body moves and "lives" in clothing that garner appeal and usability with the astronauts. The more traditional, custom-made, couture-crafted, one-of-a-kind, form-fitted spacesuits win out over the engineered, standardized "containers." Comfort and mobility, by way of textile innovations in rubber and synthetics developed in consideration of the body wearing the suit, ultimately speak for the success of Playtex---of bra and girdle fame, deployed under International Latex Corporation (ILC)---to prevail in the fashioning of the spacesuit. This tale of collaborative design highlights the necessary administrative accommodations between ILC and NASA in consolidating conflicting garment manufacturing processes, based on the one hand on sewing patterns and on the other in engineering technical documentation. This science-fashion hybrid-practice is exemplary for current cross-disciplinary research taking

place in the field of wearable technologies in fashion and engineering alike.

Monchaux resets a number of assumptions constructed within the media image of space travel by bringing us closer to the “messy” practice of scientific developments, eschewing the manicured media visions of man on the moon. Questioned, for example, is the sustained media popularity of the “hard” engineered suits—inspired by Bauhaus’s Oskar Schlemmer’s *Triadic Ballet* stage costumes—that come to represent the “atypical” spacesuit, as well as being another instance of the fashion-engineering crossover. As Monchaux argues, these “hard” shells function not so much as space armature but rather as symbolic representation of man’s desired mastery over space. However, the truth is that the human body has no mastery in space during lunar travel but rather must make do by keeping the elements at bay. Above functional aesthetics, above the dream of cybernetic controls, what Monchaux does with *Spacesuit: Fashioning Apollo* is to tell an enduring modernist tale of embodiment vs. engineering of design.

Cutting Across Media: Appropriation Art, Interventionist Collage, and Copyright Law

by Kembrew McLeod & Rudolf Kuenzli (eds.)

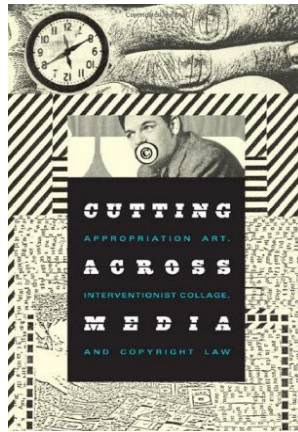
Duke University Press, 2011, 376 pp.

ISBN: 978-0822348221

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I really enjoyed this inspirational book. If there was ever a book that exemplified the immortal words of Dylan Thomas, “Do not go gentle into that good night. Rage, rage against the dying of the light”, this is it. The “dying of the light” metaphorically is the stifling of creativity, the suppression of artistic production, and the control by fear of many aspects of human creative endeavour due to copyright law. These draconian copyright laws reached their zenith at the end of the 1980s—early 1990s in the land of omnipotent litigation, the USA. As the authors state:



“With the copying in Pop Art, we saw the beginning of lawsuits based on the infringement of the private copyrights of commercial subjects that became the unwilling content of new works. Even then, such constraints on artistic freedom were still generally seen as absurd.” (p. 119)

The book includes a variety of contributions including scholarly-critical essays; interviews with artists; letters from copyright attorneys; and a number of historically interesting essays from Dada through to the present. The emphasis throughout the book is on musical artistic practice, perhaps a little too much, though it is through musicians’

“criminal” activities (sampling, mash-ups, re-mixing) that the copyright laws and ensuing enforcement of these laws were ramped up. There are 24 contributors, a smattering of black & white images, and a couple of colour plates. These are followed by an excellent Bibliography, profiles of contributors, and an exceptionally good Index.

As many of the essays in *Cutting Across Media: Appropriation Art, Interventionist Collage, and Copyright Law* point out, copyright litigation has nothing to do with plagiarism or moral concerns, nor seldom with defamation issues, it is purely and solely an exercise in greed and corporate control. The stakes involved are in many cases huge. “Every license for Office plus Windows in Brazil – a country in which 22 million people are starving – means we have to export 60 sacks of soybeans” (p. 139). It is interesting to note that now, *Open Office*, an excellent suite of office applications is entirely free, comes in numerous languages and is largely a result of the Open Source movement that has minimum copyright protection as proscribed under the Creative Commons Attribution (non-commercial) License. As is this book incidentally!

Copyright law ensures that the creator of a whole (complete) work gets paid fairly for their efforts. Very few (if any) of this book’s contributors, nor the artists they discuss, disagree with this function of copyright law. Nor do they want the abolition of copyright law *per se*. Instead they argue for the correct interpretation of Fair Use (under the law), some argue for the extension and expansion of the Fair Use clause. Further they point out that all art throughout history, to greater or lesser degrees, appropriates “bits” from

past works. This is the most important argument throughout the book and has profound cultural, legal, and social implications. It is argued that most source owners, and especially their legal representatives have no understanding of how modern art is created. These attorneys argue that there is no difference between counterfeiting entire works and “fragmentary and transformational appropriation within new works” (p. 122).

The editors of *Cutting Across Media*, Rudolf Kuenzli and Kembrew McLeod organised a conference at the University of Iowa in 2005 entitled *Collage as Cultural Practice*; many of the chapters in this book are a result of this conference. Collage is a kind of “catch all” term to describe any of the creative practices where “bits” are taken from existing works and woven into an entirely new work with different meaning and intention than the entire work from where the “bits” were appropriated. A simple example of this is the use of “cut-ups” — headlines from newspapers are placed in a new context, interwoven with other headlines that result in an entirely new work. These have been used by such luminaries, as the Surrealists, Bob Dylan, Andy Warhol, and David Bowie. It is interesting to note that Warhol gained copyright clearance for many of his works and the companies were only too happy to get free advertising?

I believe this is an important book, specifically because the issues discussed affect much of our future artistic creations; as mentioned this has profound social and cultural ramifications. As such, this book should be at minimum included as a recommended text in a variety of applicable tertiary education courses. The stakes are too

high to ignore the erosion of artistic freedom brought about by ignorant and greed driven application of copyright law.

The Hierarchies of Cuckoldry and Bankruptcy

by Charles Fourier

translated and with an introduction by Geoffrey Longnecker

Wakefield Press, 2011, 120 pp.

ISBN: 978-0984115556

Reviewed by Mike Mosher, Saginaw Valley State University

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Some of us first heard of Charles Fourier (1772-1837) in Edmund Wilson’s *To the Finland Station*, where Wilson traced 150 years of revolutionary fervor from French philosophies through Lenin and Trotsky. He was a savant, social critic with a twinkle in his eye, and visionary socialist in that thoughtful and optimistic century of William Morris, Edward Bellamy, Oscar Wilde...and, oh yes, Karl Marx. Fourier arranged human history into six societal stages of progress, from “Savagery” to “Harmonism”, with the “Civilization” of his time merely the third. A feminist, Fourier felt that the charades of cuckoldry were a result of the absurd demands of monogamous marriage, and would disappear as humankind grew in maturity and clarity. “Social progress and changes of period are brought about by virtue of the progress of women towards liberty, and social retrogression occurs as a result of a diminution in the liberty of women.” Hello! Can we now convince radical Christians in the U.S. and similar Islamists

in Egypt of those seemingly self-evident truths?

Translated by Geoffrey Longnecker, who provides a fine introduction, this little volume gives us an eccentric sample of Fourier’s thought and style in two essays published together for the first time. These are not varieties of romantic anguish but subtleties of shame, and their juxtaposition proves the similarities of a husband wronged by a wife, and an investor wronged by the vagaries of the economy. Fourier detects the ways the tables can be turned, the situation managed.

Fourier asserts that cuckoldry must be handled deftly by the cuckold, to maintain his dignity under the circumstances. The implication is that before entering into an extramarital arrangement, the sagacious must consider all varieties cuckoldry, whether classed among the Common, Short-horned or Long-horned. Swaggering, Wily, Jeering, Prescriptive, Recalcitrant or Irate; these are all among the 75 varieties therein. Number 66, among the Compound Orders, is the Judicious, or Guaranteed, Proto-cuckold. Fourier calls him “the flower of cuckolds, the flower of the race,” for he’d married a rich woman to insure they both had liberty to do their own things, with whomever. The results of this arrangement are “liberty, respect, protection and reciprocal friendship.” The author adds, “This is the species of cuckoldry to which I would aspire if I ever married.”

Fourier goes on to provide related taxonomies of attraction (three), passions (three), and the Seven Objectives of Marriage. He keeps up the same measured, logical tone as the subject turns to bankruptcy, broken into three Orders, nine

Genres and 36 Species. Species 17, the Graded Bankruptcy, "is that of a speculator who, if he carries out the operation wisely enough, can make a career out of seven or eight consecutive bankruptcies." Fourier then lists the recommended percentages of funds looted to carry off the operation credibly, so the businessman can gain, not lose, respect with every step. Goldman Sachs, John Corzine, UBS, please note.

I like lists. Recall the marvelous sequence in Peter Greenaway's 1991 movie "Prospero's Books", where the contents of Prospero's library are inventoried in multi-layered sequence, a savvy use of then-new digital film technologies. There are bestiaries and alphabets, both forms explored in the fictions of Jorge Luis Borges, whom nobody seems to read anymore but was omnipresent in the 1970s. Systematizing is like bird watching. Fourier's categorizations evoke Denis Diderot's *Dictionnaire*, or Gustave Flaubert's *Encyclopedia of Received Ideas*, a collection whose cynicism is like Ambrose Bierce's *Devil's Dictionary*. They certainly prefigured Roland Barthes' cool and thorough *A Lover's Discourse*, and Barthes himself analyzed Fourier's work in comparison to the Marquis de Sade and St. Ignatius of Loyola. The book is so methodical that I sometimes had to put it down to remind myself I was reading for pleasure. Perhaps his taxonomies are most like eighteenth-century naturalist Linnaeus. Imagine a vaudeville skit or college magazine parody: Carl Linnaeus, enough with the fershlugginer classifications, already! Oh wait, that sounds like Jewish humor, an ethnic group whose businesspeople Fourier viewed with disdain.

Bankruptcy is Fourier's term for a swindle on investors, like cuckolding a spouse, a breach of trust; think Bernie Madoff or Charles Ponzi. Fourier's Hierarchy of Bankruptcy sorts Crimes of Commerce into three Orders, nine Genres and 36 Species. Least swashbuckling and cheerfully roguish are the three Species of Agitators that "disregard moral methods and jeopardize the august profession." These include the Large-Scale Bankruptcy, who ruins "hundreds of landlords, members of the lower middle class, and other good people." His description sounds like a Wall Street trader's memo, gazing upon Autumn 2011's crowd of Occupy patriots, as he notes how it "hurts non-merchants and greatly harms the profession by giving rise to rather unflattering thoughts concerning the honest fraternity of traders." The Widespread Bankruptcy "makes public opinion rise up against the intrigues of merchants and against the stupid laws that allow this disreputable gambler such utter freedom."

These are good times to read *The Hierarchies of Cuckoldry and Bankruptcy*. One possible U.S. Presidential candidate says, "Corporations are persons too, my friend" (affirmed, alas, by the US Supreme Court), and will bet a rival \$10,000 in a wink that he's right. Another one preaches the sanctity of marriage, after commencing an affair and divorcing his cancer-stricken first wife, to repeat the process upon a healthy but unhappy second spouse with his religiously devout third wife. The news announced the bankruptcy of Kodak Corporation, the firm that commercialized mass photography in the United States in the nineteenth century, a bulwark of industry made vulnerable not by

a new young lover, but by digital camera technology. Perhaps this handsome little book could offer its corporate officers some consolation, or at least understanding. One also imagines it protruding from the suit pockets of politicians meeting to decide the economic fate of Europe; or, well thumbed, from Frau Merkel's purse.

The End of Energy: The Unmaking of America's Environment, Security, and Independence

by Michael J. Graetz
The MIT Press, 2011, 384 pp.
ISBN: 978-0262015677

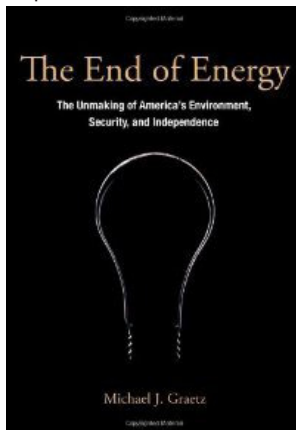
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After reading *The End of Energy*, one gets an awful feeling that one is reading the epitaph of the Fall of the American Empire—a fall that can be diverted if lessons are learnt from history and a history that is surprisingly recent. The author identified the 1970's as the defining decade that changed and shaped policies and politics relating to energy in the USA for the next 40 years. Furthermore, it fostered in the average American an unrealistic attitude to the price of gasoline. Graetz offers a critique of the history of cheap oil and consequent mistakes that are leading to a future in which questions of energy security, clean air, and a safer planet are the legacies that Americans will offer future generations. Will the next 40 years make up for the mistakes of the last 40 years that has led America into what President Obama describes as a 'shock and trace' response to

oil prices - in other words, an addition to cheap gas prices that does not reflect reality and, as one researcher has estimated, cost the economy between \$700-\$800 billion in 2008 alone?

Chapter by chapter, Graetz dismantles this mythology of easy oil and brings to the fore the epitaph of the American Empire, which is that it needs to change its attitude and face up to the fact that gasoline costs a lot more than people are willing to pay. It is this very unrealistic attitude that has led the government to court the voting public through a series of subsidies, legislation, and controls that, in turn, are counteracted by acts of decontrol and repeal. This back and forth of legislation has been fostered by the abovementioned 'shock and trace' response to oil prices.



He opens the book by reminding the reader that the average American verges on the belief that it is a basic right to have gas on tap at a price he or she will accept. Graetz, then, sets out on the perilous and polluting journey that oil takes from Gharwar to one of America's 100,000 gas stations.

Graetz diligently sets out the problems, policies, and poli-

tics of energy in America. He covers a vast range of topics including the debates, legislature, and deregulation of various energy industries, such as coal, nuclear, and natural gas. He also gives good coverage of the Cap and Trade debates, as well as discussing oil disasters such as the Gulf spill.

A constant theme throughout the book is how dependency on foreign oil has led to a compromised foreign policy and has changed national security practise. These compromises do not auger well for future generations. If anything, Graetz argues it has made the U.S. a dangerous place for youth as the dollars given over to Middle East nations for oil have empowered those nations and, in some cases, educated a radical anti-American populous.

He further argues that the biggest problems come from Congressional priorities that favour geographic considerations above technological and economic prospects. This problem is exacerbated by an excessive optimism about technological developments, which in reality are not given sufficient time nor funding for development, a situation that, in turn, leads to a process of haste and waste.

Graetz offers solutions relating to institutional changes and the notion of earmarking and extending budgeting timelines. He is critical of Congressional committee structures that he suggests would be better served by independent analysts and experts.

The book is essential reading for young enthusiasts who believe they have the solution for future energy security. In the past many a worthy project has been put forward only to be later savaged due to some conven-

ient loophole or drawback of legislation as a result of either industry or constituents' unwillingness to change.

In conclusion, this book has much to offer, and many lessons can be learnt. I would suggest the lessons could apply to any First World Nation or Developing Nation that does not want to go down the same path of inadvertent dependency.

Better Off Dead: The Evolution of the Zombie as Post-Human

by Deborah Christie, Sarah Juliet Lauro (eds.)

Fordham University Press,
2011, 304 pp.

ISBN: 978-0823234479

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There are a couple of things, arguably true, that we can say about zombies. One is "The living, reeking dead are amongst us now". The other: "We are all zombies". Clearly the latter would entail the former. Or would it? If we are all zombies, what is a zombie to us? Would we know that we were zombies? Could we stand the smell? What is the difference, if any, between humans and zombies? One might also ask: "What is it like to be a Zombie?". The standard philosophical response is "There is nothing it is like to be a zombie", which deserves to be set to a tune from *Monty Python's Flying Circus*.

The zombie is a transgression. It is not really the living dead nor the dead resurrected, but rather both: alive *and* dead, or if you like, true *and* false, 1 *and* 0. If

things, à la Derrida, come with their opposites, then the Zombie is even a transgression to that, for there can be no opposite to 'both alive and dead' unless it be 'neither alive nor dead', which makes my brain hurt. It must be stressed: The true zombie is both fully alive and fully dead, *pace* Hollywood. It is both human and... 'nothing there'.

The above, of course, is entirely about the 'philosophical zombie', or *p*-zombie. This is a construct, originally due to David Chalmers, which, in a vulgarly simplified form, asserts that if you can imagine a being *like us in every way*, impossible to distinguish from us by any test at all, yet it's a Zombie...if you can imagine this, then you must perforce believe in something rather like a soul. This gets people like Daniel Dennet hopping mad, and I don't blame him.

But the *p*-zombie is a rich source of intrigue and speculation, and goes (of course) to questions of consciousness, and I would argue artificial intelligence, too. I use it a lot in my performance and art work. Who has not been accused by a loved one of being a zombie? Who has not felt the lizard brain taking over after a hard night's mulled wine? What if I don't really feel emotions? I mean, not *REALLY*? And is it not plausibly argued that we are merely led to believe, by the 'inner zombie' in each of us, that we are in control, whereas it's the thing inside, to which we are unconscious, that decides to press the button or steal the book, informing us only a few milliseconds or even seconds later, so that we can pretend it was our choice? Readiness potentials can be reliably reserved in action before we know we want to do X. In other words, what if, underneath it all, I am just a zombie? (And in fact, tim-

orous reader, I am; so I must declare an interest.)

But we had better examine what we mean by the term before we apply it to philosophical or neurological states or problems, and 'zombie' has existed since at least 1819 in the English language and is related to *nzambi*—god, and *zumbi*—fetish, in the West African language Kongo. The book under review is a splendid primer to the cultural senses of zombie with examples of zombie intrusion into all aspects of culture, media, and society. It covers the gamut of zombie phenomena from radio broadcasts to books, and early film to recent TV in a number of individually written chapters dealing with Haitian Identity and Zombification (how to make your own zombie, don't try this at home), Undead Radio, the Zombie as Other and zombies in performance art, postmodern cinema, literature and so on, though oddly next to no mention of the zombie in video games and apps. There are nearly 40 pages of useful notes, a good index and a fine bibliography as well as a filmography.

In case this sounds a bit dry, it is saved from being too academic by lots of brain-watering examples:

"...your face!

My coffin was a poor one. Worms and maggots worked quickly...

No!

The dead are dead they told me...

Stay back!

The dead can't walk they told me

No closer!

The dead can't talk they told me

Stay back!

And yet I walk, I talk...

Back!"

('Scoop', US radio drama, Dec. 8 1942)

This is one side of the zombie phenomenon. The book wisely makes no attempt to address the philosophical aspects of zombie *per se* for which the reader might delve into a tome such as *Zombies and Consciousness* (R. Kirk, Oxford: Clarendon Press, 2007). Together, the two texts would equip one at least to approach the rich area of zombie studies. A search for the pair 'zombie + consciousness' in English over the last 80 years shows an almost exponential rise.

If *Better Off Dead* does not persuade you to get hold of a few DVDs of early zombie horror, or a book on how to survive the inevitable zombie invasion of your town or brain, then you have no inkling of the fact that what started in Haiti, continued in Hollywood, and finished as a philosophers' nightmare is going to get bigger and bigger, for we are all post-human now. I mean, just look at us. Or if you can't bear that, then look at those identical to us in every possible respect...except that they are zombies, who only pretend to have emotions, to feel pain or joy, to enjoy the colour and taste of a fine red wine, to make art or love. This is vital stuff: and as a British football manager said in another context, it isn't a matter of life and death, it's more important than that. ■

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