IN MEMORIAM:
MARThA BLASSNIGG,
08 SEPTEMBER 1969–
27 SEPTEMBER 2015
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Martha Blassnigg, Associate Editor of Leonardo Reviews since 2006 and a long-time member of the Reviews Panel, died suddenly on 27 September 2015. Martha worked alongside the project’s delivery team, concentrating on its intellectual infrastructure to ensure that we were at least a little ahead of the curve. She was crucial to the thinking of the editorial team, and I know from the emails that I received as the sad news spread that she touched many of our constituency. For this reason, as someone who had the privilege to work closely with her for more than a decade, I would like to share a reflection on Martha.

In the mid-1990s Martha and I worked in the same small department of Film Studies at the University of Amsterdam and we lived in the same district a few canals away from each other. Although we must have passed each other from time to time, somehow we did not meet until 2003 when I returned to Amsterdam to give a paper at the Netherlands Film Museum. In that paper I suggested that some of the unanswered questions around the amazing popularity of the Cinématographe might dissolve if we remembered that at the turn of the nineteenth century Spiritualism was a profound and ubiquitous influence on the very groups of people who attended the screenings, made their desires heard to the exhibitors and shaped the technological form. After the paper Martha came up to share her work on a Ph.D. proposal that she was seeking funding for, and we have collaborated ever since.

When I first met Martha she had just completed a project in which she interviewed a number of clairvoyants in order to give conscious shape to the concept of an angel—something that for most academics sat between kitsch and fantasy. However, in this work she gave such intellectual substance to the discussions of those who spoke with her that their visions had dignity and authority. In the same way she captured the concept of the technological imaginary at Transtechology Research at Plymouth University in ways that attracted the minds of researchers who were looking for new paradigms, and through that group worked on dozens of projects, including Leonardo Reviews and LJRQ. We published joint papers and shared a large research grant that allowed us to work with people that she valued at the EYE Film Institute, the Institute for Sound and Vision and the Angewandte in Vienna. She also worked independently on projects, such as the anthology Light Image and Imagination, in collaboration with Gustave Deutsch and Hannah Schimek. At the time of her death we were working with a large group of researchers from the cognitive sciences, the arts and the humanities on creativity and cognitive innovation. We also set up a small laboratory project to revisit the psychological experiments that were important to media in the late 19th century, and we were working with hospitals and the Dental School at Plymouth to build a new center dealing with health and creativity. We also established a network of researchers from across many disciplines, including Roger Malina, to work on methodological issues—in particular those that involve questions about transdisciplinarity and academic collaboration.

It seems today as I write this that the answers to many of our questions about academic collaboration were hidden in plain sight. Martha was a natural collaborator—or perhaps, more precisely, she made it very easy for others to collaborate with her. At this distance it is clear to me that this was not simply a consequence of her intellectual qualities and her natural compassion for the world around her, but rather was the legacy of her refusal to acknowledge the dichotomy between matter and spirit as an irrefutable given. For her this refusal was a gift of personal freedom and intellectual grace; the irrevocable continuity of time, memory and perception.

permeated her work as a scholar, teacher, thinker and colleague. I know that many of us hope that we can take this gift forward in our shared futures as we continue the projects that we started with her.

Over the past decade I often wondered how it was possible that, despite our co-location in Amsterdam, we somehow did not meet until after I had left. I can only imagine that I was simply not looking in the right direction. As a constructivist historian of cinema I was very clear that what we see depends on where we stand. It may seem obvious now, but those of us fortunate enough to work with Martha have also learned that it is also important to have one’s senses open to the world in all its fullness in order to let the light shine in.

MICHAEL PUNT
20 SEPTEMBER 2015 [1]

Reference
1 Michael Punt’s full remembrance of Martha Blassnigg, of which this text is an excerpt, can be found at <www.leonardo.info/ldr.html>.

BOOKS

AN INTRODUCTION TO THE SOCIAL AND POLITICAL PHILOSOPHY OF BERTOLT BRECHT: REVOLUTION AND AESTHETICS


Reviewed by Rob Harle. Email: <harle@robharle.com>.
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This book is meticulously researched, very well written and, I believe, an important addition to the literature on both Bertolt Brecht specifically and Marxist socialist literature generally.

The book is divided into eight chapters as follows: 1: Introduction. 2: Brecht’s Ethics of Praxis. 3: Consciousness, Cognition and the Altering of Socio-Temporal Order. 4: Eidetic Reduction and Contradiction. 5: Rethinking Brecht’s Split Character: Dialectics, Social Ontology and Literary Technique.

6: Brecht’s Dialectics of Enlightenment. 7: Primary and Secondary Contradictions. 8: Conclusion.

These are followed by an extensive bibliography, comprehensive indexes and a Brechtian chronology.

Squiers has successfully reconstructed Brechtian thought into a “single theoretical framework.” This task involved the analysis of the relationship of art, politics and philosophy. As Squiers shows, these three disciplines are inextricably intertwined throughout Brecht’s project. The results of the research could best be described as “a Marxist revolutionary aesthetic” (p. 139).

Brecht’s main purpose in his literary and artistic works, especially his “epic theatre,” was not to provide light-hearted entertainment but to change the Weltanschauung of the proletariat—that is,

Brecht’s ethical position was found in his philosophy of praxis. This position was to change the worldview of the proletariat and help set the conditions necessary for the end of social antagonisms and universal human emancipation.

In Brecht’s words, this ‘road leads over capitalism’s dead body, but . . . the road is a good one’ (p. 53).

This demise of capitalism being “a good one” highlights just how obsessed Brecht was in changing the thinking of the masses. This book brings out the depth and extent of Brecht’s missionary zeal, which to my mind borders on a holier-than-thou, evangelistic approach. This revelation was not, I believe, a direct intention of Squiers’s research; however, he does acknowledge this aspect of Brecht’s mission, for example, when he says,

Brecht is confident that one objective truth can be ascertained and that he has done this (as anyone can) through material dialectics. His cocksure assertions like: 1) dialectics are “the only possible aid to orientation.” 2) before the discovery of dialectics “the world could not be explained” (p. 143).

Perhaps this aspect of Brecht’s obsessive missionary zeal could be explored in detail in further research, as it is a vitally important component of his overall project.

Brecht believed that the proletariat were myopic in their understanding of the way the bourgeois values suppressed them, held them down and exploited them. His epic theater “constituted a specific philosophy of praxis, which was intent on converting the epistemic center of the working class to the material dialectical Weltanschauung” (p. 52). The main problem with this was that Brecht believed his work would result in the “absolute” truth being revealed—just as misguidedly as any fundamentalist religious fanatic! There is no absolute truth!

Reading this book transported me nostalgically back to my university studies of Marxism and philosophy & history of ideas. This made me wonder just how relevant this book is in today’s global society of neoliberalism, unregulated capitalism and consumerism—that is, who now cares about Marxism and challenging bourgeois superiority? I suggest: very few. Unfortunately this challenge is now more important than ever because the destruction of the planet, not just exploitation of workers, is at stake. Who are the bourgeoisie now? Who are the workers? China—and Brecht found a mentor and inspiration in the works and philosophy of Mao Tse-Tung—is perhaps still communist by name, but its wealthy billionaire class are buying properties and businesses all over the world. The most important aspect of Squiers’s research and this resultant book is to expand the somewhat narrow existing scholarship that concentrates on the aesthetic analysis of Brecht’s works, which neglects or deals only superficially with his major contribution as a social and political thinker in his own right. I’m not sure if Squier’s lofty claim that Brecht is the “Missing Link in Western Discourse,” that which connects philosophy to literature to common sense, is correct, but that is something that each reader will have to decide for himself or herself.
As Squiers says himself, “This work has been ambitious in scope [but] it constitutes only the beginning of an analysis of Brecht’s social and political philosophy” (p. 142). As I previously mentioned, who cares about this area of philosophy? I can only hope that perhaps this book may re-open, in a sense, the whole socialist/political debate across a number of disparate, though relevant, disciplines. Apart from being important (essential) reading for political and critical theorists, this book will be truly inspirational for all those involved in creative areas whose praxis has an activist underpinning.

AFTER PHRENOLOGY: NEURAL REUSE AND THE INTERACTIVE BRAIN


Reviewed by Amy Ione, the Diatrope Institute, Berkeley, CA. Email: <ione@diatrope.com>.
doi:10.1162/LEON_r_01169

After Phrenology by Michael L. Anderson is a unique and thought-provoking contribution to the current debate on how cognition interfaces with the environment and how we can move scientific studies of the brain forward. His theory of “neural reuse” is a proposal for how we may reframe the debate and fills in some of the gaps that exist now when we communicate about the mind, the brain and the environment. The basic idea is that, rather than seeing localized areas of brain activity as the way to define brain functionality, we should investigate the neural circuitry combinations that are employed to perform complex functions. Included in this notion is recognizing that our ways of doing things are both active and environmentally connected. For Anderson, “the Modern, Modular, cognitivist assumptions that have guided research during most of the last 50 years of cognitive neuroscience have not been borne out by the data this research produced” (pp. 301–302), and thus this book is a call for a new kind of approach—neural reuse. He additionally offers a theoretical framework that claims to show how this design offers an evolutionarily informed framework, one that has the capacity to both explain brain functions and recognize our embeddedness in our environments.

Anderson’s theoretical effort centers around the following concepts: (1) individual regions of the brain are functionally diverse and differentiated; (2) there is frequent functional overlap between different brain networks; (3) the brain is fundamentally action oriented and specializes in managing the organism’s interactions with the world; and (4) the brain achieves its functions by assembling the right functional coalitions between both neural and extraneural partners, supporting interaction with external artifacts—including symbolic ones—for cognitive ends. In making his points, Anderson asserts that contemporary cognitive neuroscience’s core view is that the brain is an informational processing device and studies too often rely on the notion of localization.

I suppose time will tell if “neural reuse” can aid in focusing discussions more on the use of local regions of the brain for multiple tasks across domains. Evidence Anderson points to includes examples like Broca’s area, which is fairly well established as a language region despite the frequency with which it is activated in nonlanguage tasks. Since seeing neural reuse as a fundamental feature of the functional architecture of the brain would allow us to rethink how we speak of the architecture, the categories used and even the principles of brain evolution and development, this kind of framework would, according to Anderson, better convey that Broca’s area is not only a language region. Admittedly, at the end, I was never really clear as to why he calls his viewpoint “neural reuse,” although it seems the concept is intended to convey functional overlap.

The best sections of the book are at the beginning, where Anderson lays out the evidence showing that individual regions of the brain are functionally diverse and are used and reused in many different tasks across cognitive domains. His first major point is that achieving functional specificity is a matter of assembling the right coalition of neural partners to accomplish the task in question. With this underpinning, he argues that this kind of functional structure makes evolutionary sense in terms of the efficient use of metabolically expensive and relatively scarce neural resources. Following this overview, Anderson turns to the functional development of the brain. Rather than positioning himself in terms of a more traditional functional specialization approach, he develops an argument for interactive differentiation as the relevant operational concept controlling development.

Overall the book argues that the brain is best understood as an action controller, responsible for managing the values of salient organism-environment relationships (p. xxii). Thus, the multidimensional neural dispositions should be understood as the brain’s differential propensities to influence the organism’s response to the various features or affordances in its environment. In other words, each brain region is involved in multiple tasks, and coherent function is a matter of establishing the appropriate neural partnerships. Anderson
is quite focused on showing how the architectural theory works on language, because he sees it as such a powerful cultural tool. In addition, one of the book’s strongest sections is the appendix, where Anderson outlines 23 open questions. This appendix is excellent on its own terms, and I am personally receptive to theories that point out their own limitations.

I really wanted to conclude that this book was breakthrough material, but I’m not entirely convinced. Although After Phrenology brings in many contemporary scientific publications, the end product is primarily a philosophical argument that reminded this reviewer of how difficult it is to explain the brain, the mind and the fullness of our lived experience in tandem. As I read, I increasingly thought to myself that it was strange Anderson did not mention consciousness, because the tenor of the book seemed to focus on consciousness-type conundrums. He explained this omission about a hundred pages in:

When neuroscientists start bandishing the “c” word, there are two predictable reactions: increased public interest and attention and increased scientific scrutiny and criticism. . . . Or, as one prominent neuroscientist put it to me recently, “It is such a fad. I kind of hate it” (p. 109).

Even if he doesn’t express the ideas in terms of the “c” word, the philosophical underpinnings align with the symbolic/interpretive concerns of consciousness theorists. Anderson is trying to wrestle with the brain’s intrinsic behavior in terms of the mind and its environment using as a point of entry “faculty psychology” — admittedly a term I was only vaguely familiar with before opening this book. Whereas the extensive citations of scientific studies make it appear the ideas have a firm evidentiary foundation, his bewildering reliance on characterizing localization in faculty psychology terms places the ideas within a trajectory that dates back to Thomas Aquinas and medieval scholasticism. While it is also said that faculty psychology influenced Franz Joseph Gall’s (1758–1828) phrenology, a pre-Darwinian idea, I am not convinced that faculty psychology has similarly influenced clinical and experimental neuroscience today or historically. I’m not even convinced that faculty psychology had a broad impact on psychology in the late 19th century. Thus, I find Anderson’s taxonomy for this study ill conceived, leading to the conclusion that one major problem with the book is its title. Anderson’s efforts to ground the interesting ideas about neural reuse within this kind of framework seemed off the mark and took credibility away from his efforts to move the contemporary theoretical discussion forward. A second problem was that this grounding didn’t seem to include an accurate grasp of the contextual vocabularies for the historical views he wants to cast aside.

The problem in the way Anderson presents the story is that he doesn’t seem to know much about the experimental trajectory. He mentions the importance of Broca, who made significant contributions in setting up the localization agenda. Then, after introducing Broca’s work, Anderson tells us that faculty psychology has a long history:

As is well known, functional localization in the eighteenth and nineteenth centuries was heavily influenced by faculty psychology (Reid 2002), leading to the notion that individual capacities such as parental love or verbal memory might be supported by distinct, relatively circumscribed regions of the brain (p. 3).

I’ve never seen faculty psychology mentioned in any of the books I’ve read on the history of the neurosciences, nor do I recall reading about Thomas Reid, so I was baffled.

I now know that Reid (1710–1796), a Scottish philosopher and a critic of Hume, wrote his book Essays on the Intellectual Powers of Man, the book Anderson cites, in 1785, before Broca was born. It is also known, as mentioned above, that faculty psychology was connected with scholasticism and other medieval philosophies and influenced Gall’s ideas. The larger point in terms of After Phrenology is that my understanding of the contextual information that led to localization theories differs from the way Anderson frames the history. I know of Gall’s localization ideas, while thinking of localization investigations, in terms of 19th-century researchers like John Hughlings Jackson (cerebral dominance), Eduard Hitzig and Gustav Fritsch (the motor cortex), David Ferrier (stimulation and lesion studies) and others who made compelling contributions to the localized areas of the brain story after Gall’s case for localization was cast aside. There were also people like Jean Pierre Fourens (1794–1867), who opposed localization yet is often given credit for experiments that showed divisions and functions in areas of the brain. Since Anderson seems to place all the localization work (as well as imaging work today) under the phrenology umbrella—even as he points out that people were skeptical of phrenology—I was left with the question, How exactly does he think we got from there to here?

Anderson links it with the neuron doctrine, the concept that the nervous system is made up of discrete individual cells, a discovery that is generally aligned with the neuroanatomical work of Santiago Ramón y Cajal, although the name itself was coined in 1891 by Heinrich Wilhelm Gottfried Waldeyer-Hartz (1856–1921). I am inclined to think that whether or not Ramón y Cajal supported functionalism, it is not a good supporting frame for Anderson’s neural reuse theory, since Ramón y Cajal was a neuroanatomist and structuralist and his neuroanatomical studies were based on what the evidence showed him. Indeed, positioning Ramón y Cajal is quite complicated. In 1906, when Camillo Golgi and Ramón y Cajal shared the Nobel Prize in Physiology or Medicine “in recognition of their work on the structure of the nervous system,” Golgi so strongly criticized the idea that each neuron is an independent cell that does not “anastomose” with surrounding cells.
that Cajal called the occasion of their shared prize “a cruel irony of fate [to] pair, like Siamese twins united by the shoulders, scientific adversaries of such contrasting character!”

[1] Anderson does mention William James and the divergent histories within the various approaches to psychology. He also mentions many 20th-century thinkers whose approaches are compatible with active and environmental approaches. For example, he integrates the ideas of John Dewey (1859–1952) and J.J. Gibson (1904–1979). As someone who is particularly fond of Gibson’s ideas about affordances and his ecological approach, and quite aware that both Dewey and Gibson worked decades before neuroimaging and after phrenology, these sections reminded of the scientists who have accused me of being out of date or behind the times when I have mentioned the ideas of these thinkers. In other words, I agree that their ideas seem to offer a good basis for assembling the right coalition of neural partners to accomplish the task in question.

In summary, Anderson wants us to focus on the idea that the brain is a collection, is fundamentally action oriented, and specializes in managing the organism’s interactions with the world. This focus makes sense to me particularly since I have increasingly found myself referring to brain imaging as the new phrenology, despite my initial enthusiasm for this kind of study. Early in the 21st century I was excited about the way scans, for example, allowed me to offer a visual analogy that seemed to explain that the brains of a specialist and a novice function differently. My enthusiasm dimmed as I watched scientists espouse theories that went far beyond what the data showed.

As scientists began to support their theoretical musings by citing similar musings of their scientific colleagues, and popular culture further trivialized the results, I kept seeing the aura of phrenology when imaging studies were presented. As I read Anderson’s thoughtful study, and saw the liberties he took by ignoring contextual realities, I was disappointed that he didn’t hit the nail on the head in a way that conforms more to my sense of the terrain. I was also once again reminded of how hard it is to move our minds in new directions.

That said, Anderson’s neural reuse program is an effort to reframe how we look at brain relationships, and thus I applaud it. Like the neuronal recycling hypothesis proposed by Stanislas Dehaene and ideas about brain plasticity, it is important to keep considering alternatives since we all know that we don’t have all the answers. While I often found this book perplexing, it does open an avenue for further communication. Indeed, as I read I found myself frequently thinking “yes and no.” Sometimes, when I said yes, it was because I agreed with the goal behind the ideas. Yet, as I tried to convince myself that the ideas were strikingly original and exciting, I also kept thinking that the material seemed skewed at times or was suggesting we add in ideas that are already a part of the debates (as I know them!). In the end, it was difficult to embrace the theoretical result to the degree I wanted to when I began the book. Anderson, to his credit, seems open to hearing disagreements and finding ways to work through conflicting ideas. Like him, I hope more of us will begin to ask if imaging data is now being used at times like phrenology and, if so, how we change this.

Reference


BIG DATA, LITTLE DATA, NO DATA: SCHOLARSHIP IN THE NETWORKED WORLD


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Big Data, Little Data is an interdisciplinary information/data studies theoretical compendium profiled as a comprehensive source for understanding the status and importance of data in different sciences and disciplines and for introducing and comparing the use of different data methods and tools, along with the scenario of their change in the networked society. The author introduces major theories of data collection, classification, analysis and releasing, with critical analysis of each strategy. The major focus of the research falls on definition of data scholarship and academic (fair) practices of using data, recording provenances and data approval release methods, as well as metadata creation in sciences, social sciences and humanities, with special regard to newer platforms. Aside from production, the research also refers to post-production of data, in terms of curating, sharing and reusing and different types of data collections, such as archives, repositories, etc.

The central concept of the study, as noted, is “data scholarship,” formed around the year 2000 as a special research field working with data only. Special focus throughout the book is given to sharing practices, especially online sharing. Different platforms are taken into account, along with their limitations—such as data embargos (time-limited proprietary
periods after completion of research, which persist even when the research was publicly funded, as for example in astronomy)—but also problems of data reuse and plagiarism. The ethics of data is analyzed separately, in the concluding chapter.

The book is well organized, in clear units of different disciplines, pointing at divergences of implementation of data in different branches, for example, astronomy and archaeology. The organization of subchapters and subdivisions is analytical and tactical, and so easily memorable. The predominant method used is the systematic deduction, providing scientific evidence for commonsense insights, making them even clearer in self-evidence. Although not a central point of research, different types of border academic practices, often expressed in jargon (for example, “salami slicing,” or “radioactive data”), make the reading more connected to real life.

What makes this book important is its elementary explanatory style, making the reading accessible to scholars of various disciplines and easily understood by students who are only about to start working with data material, either in academia or even business. It is an interesting and well-written compendium of already known things found in one place. To illustrate the clarity and thoroughness of this research, one example serves well: The bibliographic reference list counts 70 pages of referred literature.

This reading may be of enormous value to interdisciplinary scholars seeking to test or adapt different data methods, but also for students, who need to be introduced to them. I would recommend this book unre-ervedly, for its clarity, well-organized arguments and thorough approach, as a university handbook in the area. It is more than sufficient to provide a familiarity with the status, practices and procedures concerning any type of data in different research areas.

THE EMERGENCE OF VIDEO PROCESSING TOOLS, VOLS. 1 AND 2

Reviewed by Ellen Pearlman, School of Creative Media, Hong Kong City University, Visiting Scholar Parsons/New School University, New York. Email: <ellenluminescence@gmail.com>.

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The Emergence of Video Processing Tools is an exhaustive, thorough, encyclopedic, Rashomon-like survey of the moment of inception of video processing tools. The two-volume set weighs in at a whopping 736 pages, including index and additional color pages, as well as lists of lists and enormous amounts of reproductions of original documents originally typed on carbon paper. It is a heroic undertaking, and the copy editing alone must have taken up to a year to complete. Is it the Encyclopedia Britannica of video art’s origins or a book of critical analysis of its methods and processes? The answer is both, as its view shifts between artistic and critical thinking about technology and process and personal interviews establishing a timeline, as well as a published repository of historical documents.

Unfortunately for those who want to forge ahead through both volumes, the content, meant to be inclusive, can become repetitive, being recounted from so many diverse sources. The husband-and-wife team of Woody and Steina Vasulka, pioneers who also founded The Kitchen performance space in New York City, are mentioned repeatedly throughout both volumes, an understandable but tedious read. I suspect very few people will wade through both volumes cover to cover and instead will pick and choose their topics according to either the authors or the areas of interest, as a good number of artists’ statements and essays are included.

Pinning down the moment of inception of “image processing” is critical. Video technology was first imported from Japan to the United States with Sony’s 1965 release of the first model CV-2000 video decks. Video art was born in the midst of the cultural conflicts of the 1970s and the search for a utopian existence outside staid organizational structures. It did not belong to more traditional mediums like television, film, radio or photography. The book focuses mainly on New York, including the Experimental Television Center (ETC) in Owego, partially funded by the New York State Legislature through a New York State Council on the Arts grant, the Media/Study program in Buffalo, TV labs at public television stations around the U.S. that were partially funded by the Rockefeller Foundation, and university programs like Circle Campus in Chicago, as well as individual artists. The idea was to put video tools into the hands of actual artists to see what types of transgressions they could come up with, to take it out of the realm of abstract modernism, thus forming the beginnings of a DIY culture. Many questions are raised in the book—Why did artists make certain tools, how were they used, and were there sociopolitical and technical particulars that enhanced their development? Could such a time be repeated or was this a once-in-a-generation event?—questions relevant in today’s media-saturated startup environment.

The narrative dovetails into describing the seminal October 1966 evenings of Experiments in Art and Technology (E.A.T.) at the Armory in Manhattan, where John Cage, Robert Rauschenberg, Billy Klüver and Yvonne Rainer made “9 Evenings: Theater and Engineering” in collaboration with engineers from Bell Labs. They used closed-circuit TV, fiberoptic cameras, infrared TV, wireless FM transmitters and amplifiers and Doppler sonar devices to take movement and speech and turn it into amplified sounds and controllers for light and video. Howard Weinberg points out in his essay that the first
virtual reality projects.

aspects, which gave way to today's
generative modular and nonlinear
interactive real-time participatory,
tool. They also discuss process-based
complex, the antithesis of an activist's
roots in the military industrial
computer-based technologies have
clearly define the transition from
broadcast's one-to-many hierarchy
use of the actual technology has now
was being introduced for the general
for large-scale restructuring of the
mass communication system from
a one-way central distribution to a
two-way point-to-point user-
controlled system. A second keynote
discussed the problems of technologi-
cal art and wondered just how far an
uncomprehending public could be
pushed in understanding the use of
tools they themselves had very little
knowledge about. Eventually there is
a drift away from the East Coast to
examine the Chicago Group, consist-
ing of Dan Sandin, Tom DeFanti and
Phil Morton, who made the analog
image processor and the Pantomation,
type of early motion capture or
notational device. The compendium
concludes with an essay

Sherry Miller Hocking defines
video as an "art of space time," unlike
film, which is essentially photo-
graphed stills. Film is viewed through
reflected light, but video requires
gazing directly into the light source
itself. Video art is encoded images
de point-to-point codecs of impulses
that oscillate through time and
voltages. The voltage control, so
essential in defining video, origi-
nally derived from audio synthesis
and electronic music. Technological
innovation was able to move forward
by using a combination of controlled
waveform signals of frequency, ampli-
itude or phase. Mona Jimenez's essay
on public sector funding shows the
importance of regional support in
the development of the video scene
in the West Coast San Francisco Bay
Area, the Midwest in Chicago and
the East Coast—both New York state
and Boston. In Boston, WGBH public
television fostered Peter Campus,
William Wegman and Ross Barron.
It also hosted Paik as the first Rock-
efeller Foundation artist-in-residence,
followed by others including Stan
VanDerBeek. These stimulus funds
further opened up entire new areas
for arts and technology, including
cooperatives for video production
and alternative content for TV dis-
tribution. The history of the seminal
Paik/Abe Video Synthesizer and
the Rutt/Etra Video Synthesizer are
preserved in meticulous detail, since
use of the actual technology has now
fallen by the wayside. Early experi-
ments in motion capture by Tom
DeWitt and Phil Edelstein occurred
in 1977 at the Lab at WNET (PBS)
New York, where a dancer held a
color tag and the camera followed
nothing more complex than a chroma
key signal.

Timothy Murray's essay on the
decommodification of artworks
emphasizes a refreshing conceptu-
ial framework, starting with Yves
Klein's 1959 lecture at the Sorbonne, "The
Evolution of Art towards the Immate-
rial," where Klein used 40 minutes of
electronic sound to prove his point
about overcoming the limits of time.
IRCAM in Paris developed a pro-
gramming language for musicians,
and eventually artists, when French
composer Philippe Manoury col-
laborated with American program-
mer Miller Puckett to write a "proto
language for controlling the 4X sound
generator" that eventually became
the open source programing language
Pure Data. This era also led to the
beginning of Open Source software
as a media form, investigations of
digital processes, the emergence of
cyberfeminism, Steve Kurtz's arrest
concerning bioart and politics, and
Ricardo Dominguez's Electronic
Disturbance Theater and Floodnet, as
well as the technosexual exemplified
by the recent transgndered virtual
performances of Micha Cardenas.

John Minkowsky's essay focuses
on the Buffalo Conference of 10–13
March 1977, funded by New York
State Council on the Arts, the
National Endowment for the Arts
and the Center for Media Study at
SUNY Buffalo, as well as the Media
Study Center in Buffalo. It included
three types of participants: concep-
tual designers and theorists of art,
technology and system designer/
briders, and artists and designers
of images and sounds who made
use of these tools. This conference
took place a mere 10 years after the
invention of the Sony video PortaPak,
just as the very first home computer
was being introduced for the general
public. The keynote speeches called
for large-scale restructuring of the
mass communication system from
a one-way central distribution to
a two-way point-to-point user-
controlled system. A second keynote
discussed the problems of technologi-
cal art and wondered just how far an
uncomprehending public could be
pushed in understanding the use of
tools they themselves had very little
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a drift away from the East Coast to
examine the Chicago Group, consist-
ing of Dan Sandin, Tom DeFanti and
Phil Morton, who made the analog
image processor and the Pantomation,
type of early motion capture or
notational device. The compendium
concludes with an essay

video art exhibition was mounted in
May 1969 and titled TV as a Creative
Medium at the Howard Wise Gallery
in New York. It showed Nam June
Paik's Participation TV, Paul Ryan's
Everyman Mobius Strip, Thomas
Tadlock's Archetron, Eric Siegel's
Psychedelelevision in Color, Charlotte
Moorman's first performance of
Nam June Paik's TV Bra for Living
Sculpture and others. By 1971 Howard
Wise had shuttered his gallery; he
would go on to found the infamous
Electronic Arts Intermix. In 1972
ETC purchased the latest version
of the Paik/Abe Video synthesizer,
first developed in 1969 by electronics
engineer Shuya Abe and video-artist
pioneer Paik through funding from a
NYSCA grant. With that boost, video
processing or "image processing"
tools gained momentum, launching
new grammars, discourses and
modes of thought in video art using
1/2-inch and 3/4-inch tape, a technol-
gy so new it only allowed for one
audio track. The Vasulkas and Hollis
Frampton created a Digital Arts Lab
working on the unrealized IMAGO
computer animation software, and at
State University of New York (SUNY)
Albany, Joel Chadabe launched the
Electronic Music Studio. All of these
projects challenged the notion of
broadcast's one-to-many hierarchy
and certainly presaged the use of
Internet networks.

Christiane Paul and Jack Toolin
take great pains in their essay to
clearly define the transition from
analog to digital media art, new
media art and more specifically tools,
grouping them into categories of
software and hardware for cinema,
video, drawing, media production,
music interfaces, web platforms and
"tools for activism." This last cat-
ernity is striking, as most advances in
computer-based technologies have
their roots in the military industrial
complex, the antithesis of an activist's
tool. They also discuss process-based
interactive real-time participatory,
generative modular and nonlinear
aspects, which gave way to today's
installation, cinema and immersive
virtual reality projects.
by Mona Jimenez examining the irreplaceable part of any historical process—the archiving of fragile technologies—and its difficulties and timely necessities.

**DELETE: A DESIGN HISTORY OF COMPUTER VAPOURWARE**


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This book provides a catalogue of computing products, from mainframes to personal and mobile computers, that never made it, or were never intended to make it, to market. Fully illustrated in color, it includes many images of prototype products from the portfolios of the industrial designers who worked to design them. Despite its focus on product rather than interface design, the book sets this evidence within the wider context of the imaginary and social construction of these devices, and through a number of case studies, illustrates how vapourware technology can be understood to both illustrate and influence the construction of technologies such as the computer.

Narratives of technological obsolescence and apparent failure expand our awareness of how the meanings and uses of technologies develop and change. The “useless” Honeywell Kitchen Computer, a machine that could generate the menu for dinner, was built as a marketing tool. It was featured in the Neiman Marcus 1969 Christmas Catalogue, which would annually include fantastically ostentatious gifts as a marketing tool. The idea of a “kitchen computer” was at the time laughable but in line with Honeywell’s existing advertising strategy of depicting futuristically styled, impressionistically photographed, but impractical computers in its print advertising in order to attract customers to more usefully housed units. As Atkinson tells us, the Kitchen Computer, while presented and understood as parody, still exercised an influence on discussions within the computing industry. The then—vice president of engineering at Digital Equipment Corporation responded to the advert in a memo that listed the multiple domestic uses for computing and argued that it was time for his industry to seriously consider the domestic market for computing (p. 51).

Vapourware, then, as seen here, is a technological form whose function is to be found not in its apparent use but as a form of storytelling where any fantastic elements are hidden. Another example, IBM’s Leapfrog, ostensibly a desktop office computer, was groundbreaking for its size and form and included a detachable and portable tablet screen and pen. What it really was, however, was the result of a project to refresh IBM’s image as an innovator by creating working prototypes of a “next-paradigm” computer; the Leapfrog was a functioning piece of design fiction. During the initial phases of the Leapfrog project, the team identified the technologies that would be available years later when the machine would be ready to produce, such as flat screen technologies, and then designed around what they thought would be possible rather than what currently was, all in order to produce a product that would represent IBM in the design press and trade shows as an innovator operating at the cutting edge. As a fully working consumer product, the device was too expensive to take to market.

One might question the rationale of depicting with such care the boxes that failed to house various pieces of computing equipment, particularly in later sections; the book contains many carefully staged images of devices that were never manufactured. Chip technologies, interfaces and paradigms for interaction are perhaps more important to understanding the development of home and mobile computing. However, Atkinson’s introduction points out that by its nature vapourware must appear not only feasible but imma-

**FEDERICO FELLINI: MAKING A FILM**


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Early on, when I began reading this book, I knew I was hooked. Here was the voice of a film director whose creations I have encountered through the years several times over, whether in movie theaters or now, as it is available, on a computer screen (the latter being something that Fellini would be horrified by). As his films enchanted me, at times to the point of entering their world completely as if they held within them something I missed in reality, something I needed, so this book enchants. It is an invitation into the world of Federico Fellini written by the same, and finally available in English in a complete, well-translated form. Italo Calvino, a friend of Fellini’s, introduces it, and
Fellini’s collaborator, Liliana Betti, concludes it.

Between these two doors is Fellini, or as much as he wishes to reveal. And he is generous in this regard. There is his youth, growing up in that coastal Adriatic town of Rimini, his poor efforts to succeed at school, his penchant for drawing caricatures inspired perhaps by his many eccentric neighbors and townsfolk, his adolescence, his work as a screenwriter for Roberto Rossellini and then, finally, a little against his will and almost by chance, walking onto the set as a director who made, in the end, from 1950 to 1990, some 23 films, a good number of which gained international renown and awards.

For those of a certain age, whose experience of film filters through Fellini, and whose expectations and tastes for and in film owe something to Fellini, this book is a must. For those who know Fellini as a director and whose expectations and tastes for and in film owe something to Fellini, this book is a must. For those who know Fellini as a director from a previous period but who have enjoyed his vision played out on a screen and for whatever personal reason found something unique, an entertainment that struck poignant note, or his journey through his adopted coastal Adriatic town very much like Rimini.

His obsession with faces and delight in characters is all here, as is the influence of Hollywood films of the 1930s. Italy’s Fascist years and those post-war play their part in his work as a young screenwriter then developing as a director, in the subtle turns and sudden opportunities that opened up for him in those years when neorealism was gaining a foothold, which enabled Italian film to attract critical and popular attention (at least in the developed Western world). His delicate and demanding way of working with actors, depending on who the actor was, and his relationships with an industry he used but also held at bay in order to preserve the independence he prized, and which we sought and found in him, grow quite clear. How Fellini went about creating I vitelloni (1953), La strada (1954), La dolce vita (1960), Giulietta degli spiriti (Juliet of the Spirits, 1965), Fellini-Satyricon (1969), Il Casanova di Federico Fellini (the Casanova of Federico Fellini, 1976) or his journey through his adopted Roma (1972), his marvelous documentary I clowns (The Clowns), and other films he talks about provides a portrait of a process that Fellini kept open and sincere—or, again, as much as he was able to depict in words what began as an obscure need and then, through various transformations, engaged producers, a cast and crew that enlivened his choice of set or location, where invention and discovery prevailed.

In this book you will meet a man who made films and helped to shape the art of filmmaking in the second half of the 20th century. And if, like me, you break into laughter at more than a few places, then that alone will make the read worthy of your time.

Of course, there are the films, seen new or anew, and all of those strangely intriguing, alluring, whimsical, sexy, tender, odd, sometimes wildly bizarre, other times common people who composed the brilliant, inner commedia of this director, refashioned on celluloid for us to wonder with or about.

Fellini’s Making a Film is also about how film gave Fellini a chance to make, remake and lose himself within film, ever in pursuit of surprise, that moment or meeting we did not expect to take place in just this way. Except here, in these pages, it does, as well as on those screens where his films and art live.

**DIGITAL SHIFT: THE CULTURAL LOGIC OF PUNCTUATION**


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In the history of writing, punctuation has not always been present. One might say it is a typical, although not exclusive, feature of print culture, and as such it is not unthinkable that it will disappear again in the always-newer forms of machine reading and writing that are currently taking over the role and function of traditional print. This linear, historical analysis of punctuation is, however, not the primary scope of this fascinating new study, which approaches punctuation from a cultural, quasi-philosophical point of view. The idea behind the book is very simple, but far reaching, while offering a completely new take on this vital dimension of text: The way we punctuate (or not) reveals a hidden cultural logic that exceeds the mere domain of writing and printing and touches upon long-term shifts in the relationships between sign, communication and meaning. Typographical marks, of which punctuation signs are one of the most interesting categories, can therefore be seen as short cuts to cultural
Scheible does much more than making this kind of general claim, however. After a brilliant and very detailed introduction in which the author gives an overview of the existing literature on punctuation and presents the major theoretical underpinnings of his cultural reading, *Digital Shift* proposes a powerful analysis of the major changes that have occurred since the generalization of digital culture and illustrates these changes with the help of three exemplary signs: the *period* (a traditional sign, whose function however is now changing), the *parenthesis* (an equally classic sign, whose traditionally spare use has been replaced by a much more active and diverse use in recent history), and the *hashtag* (a sign that can be considered radically new, even if as a form it already existed before).

(Between brackets: Each of these readings is neatly discussed in a separate chapter, and one feels throughout this exceptionally well-structured and well-thought book a kind of already-nostalgic fear of the loss what traditional punctuation actually stood for: the perfect instrument for all those, readers as well as writers, in want of a tool to enhance, make visible and perhaps produce the logical structure of a larger whole.) In the chapter on the period, Scheible observes that in digital culture this punctuation mark is no longer (only) used to signify to end of a sentence, but that different uses tend to come to the fore, such as the one we observe in email addresses (first name + period + family name, for instance) or in domain names (noun + period + com, edu, net, etc.).

This change is not a detail: It signifies the shift from a semantic use of the period (and of punctuation as a whole) to a syntactic use. Typography ceases to underline the logical structure of the meaning of a sentence, a paragraph, a text and instead displays the way in which the strings of letters and words in electronic environments have to be structured in order to be recognizable for the encoding and decoding machines behind and below our texts. The period becomes a dot, and that is something completely else.

In the chapter on the parenthesis, Scheible not only examines the increasing presence of a typographical sign that was not really appreciated in traditional typography, for it was seen as something that interrupted or deviated the logical structure of the sentence; he also scrutinizes the stakes of its prominence in modern typography, where it often appears as a sign per se, i.e. without any “content” inside. *Digital Shift* argues that the sudden manifestation of the parenthesis can be understood in light of a larger crisis of all forms of monolithic and orthodox thinking that are now challenged by the open and more participatory aspects of the Internet and digital culture, making room for what is now moving from the outside to the inside, as if the boundaries between the dominant sentence and its margins were no longer there.

In the chapter on the hashtag, which sign Scheible notes has become the contemporary equivalent of the typical postmodern typographical mark, namely the quotation marks (as a sign of irony and distance), *Digital Shift* emphasizes the fact that this sign illustrates the mutation of a symbol (namely the “number sign”) into a typographical sign (the first meaning of the hashtag is no longer “number sign”; the hashtag refers instead to the way in which digital signs are related to each other when we start combining messages from different sources). More generally speaking, the changes studied by Scheible disclose a fundamental transformation of what punctuation is, or more precisely, what it actually does. Rather than structuring the meaning of independent sentences, texts and meanings, typography is now a way of organizing the relationship between textual occurrences and underlying digital codes as well as digital archives. The notion of meaning is then no longer taken care of by punctuation but is left to the agency of who is combining textual material on the screen. This “who” can be a person or a machine or rather both, since the machine is now writing for us (think of the spell-checker) and we are writing for the machine (think of the ways in which we have to correct the autocorrection that is part of any writing software today).

In these processes, the very difference of the verbal and the visual is put under strong pressure—not only because language as well as images are both converted into the same 0/1 digital logic but also because of the fact that punctuation marks tend to appear in both domains, where they behave in similar ways. In light of this change, it should not come as a surprise, but it is certainly something worth praise, that Scheible’s argumentation relies throughout the whole book on a double corpus: Print matter and punctuation are analyzed in print and machine text, but also in filmic examples: for instance: the period/dot at the end of the famous Spike Jonze film *Adaptation*, which *Digital Shift* reads in a very clever analysis as an aftereffect of the dot-com crisis; the inverted parentheses in the publicity poster for Miranda July’s *Me and You and Everyone We Know*, which Scheible approaches in relationship with feminism and queer culture; Sander Plug and Lernet Engellbert’s *I Love Alaska*, a deeply critical and complex reuse of one...
anonymous “case” of the user search histories leaked by AOL.

Typography changes, but according to Jeff Scheible, it does not suffice to describe its historical changes in the form and function of typographical marks and systems. As the title of the book makes clear, something more and something else has happened in digital culture: The signs are still there, and new signs are appearing, a sudden shift (and the author is of course referring to the way the keyboard’s shift function can change the “result” of a key) has dramatically modified their role and status, and this change helps understand the larger changes that digital culture has produced as well: changes of meaning, of structure, of sign systems, of agency. Theory, Scheible argues, is not capable of stopping or softening or changing these changes but is an absolute necessity if one tries to understand how we are changed by our media.

CULTURAL TECHNIQUES: GRIDS, FILTERS, DOORS, AND OTHER ARTICULATIONS OF THE REAL


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Bernhard Siegert’s Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real, a collection of papers, lectures and articles written between 2001 and 2011, explores underlying frames of hermeneutic reference that permeate the study of semantics, broadly conceived as practices, figurations, codes, sounds and institutional sign systems. These include relationships between man and machine; postwar media analysis and critical theory; expanded “anthropotechnic” studies; new media paradigms embedded in such forms of writing as calculus, time measurement and legal procedures; operative chains and micronetworks of technologies such as counting, imagemaking, noise production; and other distinctions between nature and culture. The book’s value lies primarily in its perception of meaningful semiotic nodes that extend beyond individual disciplinary foci over time into the social fabric of disparate cultures. These are selections that in the aggregate reveal interwoven threads of signifiers, nuclei that may potentially interrelate in some yet-to-be-defined network of Ur-forms, superimposed in the manner of collage, or paradoxically constitute irrecoverable basal conditions of devolution.

Siegert’s 10 essays examine subjects that include the sign systems of contemporary communication theory and specific ways that typographic, telephonic and computer-generated media filter the symbolic from the real; anthropological reflections on sacred and profane symbology such as the Last Supper as a paradigm for Christian-occidental cultural distinctions; the mimetic (parroted) replication of sounds as a metaphor for communicatory rupture; bureaucratic records of migration to the New World whose certifications of identity are based on endlessly reproductive, frequently illegitimate testimony; representational, topographic, cartographic, 3D and speculative grids as coordinates of subjugation, colonization and globalization; seafaring, tribal superstition, ritual and the anthropocentric gaze; classical principles of disegno compared with non-historical approaches to symbolic world orders derived from drafting, projection and scaling paradigms; a media genealogy of the trompe-l’œil in 17th-century Dutch still life painting as an outgrowth of medieval manuscript illumination, whose frameworks may be perceived as instruments of reflexivity; and the materiality of symbolic forms represented in Renaissance altarpieces as poststructural gateways to hallucinatory effects of contemporary electronic technology.

As webs of electronic circuitry, Siegert’s often-brilliant succession of interlocking images connects remote reaches of time, place and history. He bounds for example from a discussion of Michel Serres’s The Parasite (1980), a model of communication theory that challenges cognitive logistics to fragmentary 16th-century Ottoman inscriptions indicative of subjugation to disrupted noise channels in Kafka’s “Pontus Dream” to the interrupted computer-generated text of “The Monologue of Terry Jo,” a 1968 radio broadcast that presented Claude Shannon’s mathematical theory of communication as an approximation of language, followed by an essay on Lewis Carroll’s “Jabberwocky” as an inversion of logocentric carriers. Vaulting from 15th-century depictions of the Last Supper to Dionysiac ritual and the cannibalistic taboos of Jewish dietary laws to the tableware of Norbert Elias’s The Civilizing Process, he develops a line of inquiry that traces contamination of the symbolic to culminate in a horrific bloodbath in Thomas Pynchon’s story “Mortality and Mercy in Vienna.” Such touchstones exhibit an extraordinary breadth of learning grounded in history and art history, literature and literary theory, philology, philosophy, communication studies and, in some instances, engineering. Resonant of Paolo Rossi’s Clavis universalis and Ernst Cassirer’s Philosophy of Sym-
bolic Forms, the expansive scope of this collection girds a set of referents meant as central embodiments of cultural identity, constitutive of a history of ideas.

Anomalous amid the author’s analyses of largely dystopic systems is an essay concerning the paradigm of naval architecture, “Waterlines: Striated and Smooth Spaces as Techniques of Ship Design.” As a central thematic, Siegert cites Joseph Furttenbach’s Architettura navalis of 1629, which compares the ship to human endeavor as “such a defiant and fearful thing as the human heart . . . for it dares, upon the wild and terrible element of the formidable sea, to tame it with a wooden, if mightily fortified structure” [1]. He then invokes Ulysses in Dante’s Inferno (Canto 26) in an existential appeal to “follow the sun,” not to live as brutes, but to consider what it means to be human by seeking virtue and knowledge. Siegert goes on to mark out the history of naval design as a transition from craftsmanship (whereby the partially completed vessel was used as an instrument of its own design) to draftsmanship by means of mathematical calculations, geometric configurations and cosmic correspondences, procedures that included mezzaluna or whole-molding methodologies to realize curvatures and master frames. Among 15th-century Portuguese shipbuilders, master shipwrights “recited aloud the essential details of their projects in verse” indicative of the seamless joinery of oral and material culture (152). By designs of ships on paper in the later 16th century, a master shipwright becomes identified as architect. English Royal Master Shipwright Mathew Baker’s drawing of a master shipwright in his office may have been based on a woodcut by Dürer, The Draftsman of the Lute (1525), which in turn references Leon Battista Alberti’s treatise on disegno. These correspondences extend to Tudor arches and the nave architecture of late Gothic churches in Britain: translations of the sacred into the traditional. Waterlines running along the hull resemble isometric lines used to map the topography of sea bottoms, with the ship’s other abstract contour lines analogous to water marks left by tides along the beach. It is a study of coherence, cultural transmission and organic recrudescence amid chronicles of disruption.

Siegert relies heavily on temporal binaries of Latinate terminology drawn from such figures as Vasari, Leonardo, Kemp and others: concetto, invenzione, circumscriptio, compositio and poststructural constructs to be found in the writings of Foucault, Lacan, Adorno, Derrida and Deleuze, indicative of a humanistic/posthumanistic purview. His approach often mimics graphic operations employed in the production of linear structures, trajectories, conduits and formations, while deepwater semantics that include the study of such signifiers as grids, filters, doors and hinges run the risk at times of thin-film analysis that leaves interrogations of intrinsic meaning to individual disciplines. His engagement with the very post-structural appropriation of signifiers “unmoored” from the meanings and references he endeavors to critique tends to accentuate difference over likeness, particularly through abrupt or shifting juxtapositions. This causes one to ask whether the purpose of concatenating anachronistic sign systems is to recover truths that have been lost but that may yet retain universal value; to expose cross-fertilization or cultural transmission; or to delineate distinct conditions of irreversible difference. If the function is comparative, have striations of historical and semiotic contingency been sufficiently established, as in the study of iconology, or has a signifier been repurposed to compel and at times embellish (through classicizing cornices) theories of cultural demise that may be spoken in the borrowed langue of poststructuralism? Cassirer, citing Bertrand Russell’s Principia Mathematica states,

An extension is an incomplete symbol, the use of which takes on meaning only through its relation to an intension. What holds the class together . . . is the circumstance that all the members united in it are thought of as variables of a determinate propositional function [2].

Siegert’s propositional function, the “reconceptualization of the posthuman” by way of a more critical understanding of the distinction between man and machine, derives from a controversial underlying premise: the deconstruction of occidental humanism as a system of meaning production through its cybernetic or “media-system” affinities.

Siegert’s Introduction takes pains to distinguish between “culture” and “media,” interrelated categories germane to the humanities that vigorously intersect areas of mass media and communication studies, philosophy and linguistics. Distinct from mass communication technologies and content analysis, German media theory, whose roots lie in the humanities and cultural studies, especially literature, explores questions originating in Critical Theory, cognitivism, systems theory and Foucauldian discourse, analyses that deal with the content, history and effects of mediated “texts.” At the forefront of such studies are figures such as Friedrich Kittler and Niklas Luhmann writing in Freiburg in the 1980s. Geoffrey Winthrop-Young has written extensively in recent years on the subjects of German Media Theory (as media-theoretical paradigms), cultural techniques and Cultural Studies to greatly elucidate burgeoning areas of humanistic scholarship, squarely countenanced by Fordham University’s publication series “Meaning Systems,” which explores penetrations of consciousness and communication. The series includes wide-ranging inter- and transdisciplinary systems discourses from bio-semiotics to enactive cognitive science that connect the life of the mind and society with their natural and technological environments. Siegert’s Cultural Techniques presents an important catalyst for debates.
occurring at the juncture of German media theory and American post-cybernetic discourse. In citing Alberti’s veil (velum) from the treatise *De pictura*, Siegert posits the *perspectiva naturalis* as the ordering principle of a grid whose technological counterparts extend to 20th-century screen printing, neuronal signal processing, copperplate engraving, physiology, perception studies and textiles. He is crucially aware that with the velum as both seafarer’s sail and material *masque* of the human imaginary, the racer looks for spinnakers to be as bonded as they are diaphanous.

**References**


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**WHY GREATNESS CANNOT BE PLANNED: THE MYTH OF THE OBJECTIVE**


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If you ever wondered what creativity is, this book will ease your curiosity about it. *Why Greatness Cannot Be Planned* argues that in order to fulfill ambitious goals, we must give up aiming for specific objectives. Instead, we should open ourselves up to an unexpected, more fascinating and progressive undirected exploration of new possibilities. Stanley and Lehman, researchers in artificial intelligence, argue that because innovation involves complex stepping-stones that cannot always be anticipated, we should focus on exploring new possibilities—regardless of how these perform according to preconceived standards (objectives). This ensures new creations, some of which will be highly valuable. The view advocated in the book is so obvious and inconspicuous that it passes unnoticed, but realizing it is enlightening. In the words of the authors: “All of us can transform the present into the future. None can transform the future into the present.”

It is a provoking read, focused on a rationale that at first sounds simplistic and even counterintuitive but is well known to artists. That is, how the free exploration of themes eventually hits the creative jackpot. The authors first focus on a couple of computational models of their own which explore the “novelty search strategy.” One of these models, picbreeder [1], is a game in which one or several images are picked and somehow combined to produce an offspring population of new images. The process can be iterated ad infinitum. The authors explain why it is impossible in this game to breed a specific preconceived image. In other words, you cannot decide beforehand whether you want to breed an image of, say, an elephant. Instead, images are bred without aiming for any particular design, and consequently, truly enthralling pics will be discovered, such as alien faces, skull cars, etc. I tried picbreeder aiming to evolve a flower (a rather simple albeit pre-set objective). I avoided novelty, i.e. getting distracted by any other images that would catch my attention. Yet after more than two hundred clicks, I quit because, having been unable to reach my objective, I got bored. This toy model certainly illustrates the central point of the book.

This novelty search strategy is explained by invoking a metaphor: a treasure hunter who does not seek for something in particular (he cannot know what treasures he will find). His virtue lies in skillfully collecting various valuables (stepping-stones) by searching in different places. They give the example that making a TV could not have been a realistic objective for cavemen, since the stepping-stones to TV’s are not TV-like objects. Instead, first electricity had to be discovered, cathode tubes invented and so on. Similarly, I could not possibly have “picbred” a flower, because the stepping-stones from the initial pics were not flower-like.

After treatment of the toy models, several chapters discuss why focusing on objectives can be deceiving (as with me “picbreeding” a flower) or even disastrous. There are strong and direct critiques on controversial issues such as education, the functionality of the scientific community and others. These critiques are valid and necessary. They explain how focusing on indicators (strictly speaking, objectives) can lead to misguided results. This happens when, instead of trying to improve the systems themselves, policies target improvement of indicators. The outcome is often manifested in strategies that increase these indicators but allow the problems to become worse. An extreme example that they propose is to breed “intelligent bacteria” by applying an IQ test to the microorganisms. However ludicrous it may sound, this problem bespeaks a deep truth, as the stepping-stones to intelligence are not intelligence-like and cannot be assessed through objectives such as increasing IQ. Intelligence could arise only through non-directed exploration, implemented by biological evolution.

Along these lines, a complete
chapter is dedicated to discussing why education fails and how schools and colleges could be much better off by abandoning scoring through indices that rate their performance. Another chapter they discuss in detail plays on the “rituals” of scientific functioning. (If you are a taxpayer, you should peep into this and demystify how science works!). These social apparatuses [2] have their own ways to measure objectives; thus, in the authors’ own words: “The focus is always on the ultimate destination rather than on interestingness or novelty. . . . So it can’t be a treasure hunter” (their emphasis). Similar cases are made for technological innovation (e.g. the TV example). I personally found these ideas to be largely one sided and exaggerated from a very simple computational toy model to big issues. Therefore, the book proposes “solutions” to many issues based on the notions of novelty search, but I regard these to be a bit simplistic. However, to be fair, proposing solutions to social problems is beyond the scope of the book.

The last two chapters rethink two fascinating subjects. The first is a reinterpretation of the theory of evolution in terms of the novelty search process. This is very welcome, as the theory of evolution largely assumes objective optimization. The authors take the chance to clarify some popular misconceptions of evolutionary theory.

The second study case addresses the field of artificial intelligence. AI basically designs algorithms that are “smart” according to a handful of test problems arrived at by a consensus of the research community. Paraphrasing the authors, research in AI should focus not so much on algorithms that perform better but rather on algorithms that lead to consideration for new algorithms.

It is unclear whether the myth of the objective extends as a metaphor of which the big problems in life, science and society represent a true example. Since one cannot prove a negative, it is hard to dispute failed attempts at innovation. Furthermore, due to the fact that there are always stepping-stones, be they biological, technological, artistic, scientific, social, etc., it is hard to argue against the myth of the objective. Irrespective of that, I believe that they are largely right. Moreover, the views advocated in the book can be very useful for understanding a great deal of what happens around us.

The writing style of the book is slightly dry and formal, so at first read it is not particularly catchy and entertaining. However, due to the short length of the book, it does not become tedious. Overall, the piece is clearly written, and the message is delivered very well, clearly demonstrating its value. An interesting fact is that this book is a product of such serendipity, a clear demonstration that the non-objective search itself leads to interesting outcomes! I personally liked the book, as it made me think and question several aspects of my own research in evolutionary biology, of my artistic practice and of my life and career. Although it certainly did not distract me from pursuing my personal ambitions (this dispelling is anyhow not the point), it did provide me with a new perspective from which to look through.

References

1  See <http://picbreeder.org>.

WORLD PROJECTS:
GLOBAL INFORMATION BEFORE WORLD WAR I


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Markus Krajewski’s book, originally published in 2006 and immediately perceived as an outstanding contribution to the now well-established field of media archeology, is much more than a study of globalization before the current era of total globalization (as one would say “total war”)—in this case the two first decades of the 20th century. For if the subtitle of the book is slightly deceiving (Krajewski not only addresses the prewar years, he also studies the impact of World War I—hence my allusion to total warfare—and its immediate aftermath), the two words of the title, “World” and “Project,” give a perfect summary of the author’s work. On the one hand, the book is a study of the ubiquity, so to speak, of the global in this period. Krajewski mainly focuses on Germany, where the noun “world” functions as a prefix to virtually anything else, and World Projects is above all an attempt not just to observe and describe but also to describe in a medial framework the necessity and inevitability of this globalizing movement, which goes much deeper than its often-quoted political, economic and ideological needs and motivations (they are of course the basic impetus of this turn-of-the-century globalization, but not the only ones). On the other hand, Krajewski strongly insists on the specific role of a new type of globalization, no longer initiated by 19th-century nation-states but by a new kind of heavily networked and networking actor, namely the “projector,” i.e. the individual who proposes new plans
to link the local and the global and who tries to get them implemented with the help of private capital.

The most important contribution by Krajewski to the history of globalization and media is definitely the notion of “project,” which helps him establish an essential relationship between both. It is, of course, common knowledge that media follows globalization follows media, in an endless circle: no globalization without media, no media without globalization. World Projects takes this cliché as its starting point, obviously, but succeeds in re-reading it in fascinating ways. In the opening chapter, which is both a perfect synthesis of globalization theory and a strong programmatic text for the kind of project work the author is disclosing, Krajewski initiates his research by scrutinizing some particularities of the gradual normalization and standardization of time and space during the 19th century. He thereby emphasizes the multimedia character of all these channels (i.e. the fact that in order to be efficient, channels have to complete and complement each other: a road and a telegraph, for instance, or a railroad and a postal system) as well as the networked character of these channels (i.e. the fact that each medium channel is also related to other media channels, so that the network can become a meshwork linking the local to the global in a very material way, step by step). The spatio-temporal unification of the world, more or less achieved at the end of the 19th century, is not an endpoint, however, for it produces two (interrelated) side effects that will prove the trigger of all projects. On the one hand, “boredom,” an existential metaphor borrowed from Heidegger: Since the multichannel meshwork does not always work as it should, the system produces new forms of emptiness and gaps that the projectors will aim to delete by proposing supplementary types of standardization. On the other hand, the very readability of the newly unified world, which constitutes an invitation to exert always tighter and stronger control, while making room for the emergence of a new category of social and economic actor, the projector: The one who sees more than others the possibilities offered by the not-yet-completed transformation of the world into one global system.

Krajewski’s book develops three major case studies, which each highlight not only a historical figure and the specific domain or domains in which he has been active (I will come back to the gendered dimension of the project-making business) but also the cultural logic that one may find behind these various types. The examples chosen are: 1) Wilhem Ostwald, the promoter of a universal language (he was a key figure in the defense and eventual transformation of Esperanto), of a universal currency (he was an advocate of the gold standard), and, among many other things, of a universal paper format (he gave an important impulse to the system that we still use today, at least in Europe); 2) Franz Maria Feldhaus, who elaborated a world history of technology that relied heavily on the recording of “facts” via a refined index card system; 3) Walther Rathenau, the one-time president of AEG, who, during the War, and as an answer to the blockade of Germany and the country’s industry in order to make it self-sufficient in war times (a system that will be immediately taken as a model by the new Soviet Union). The differences between these three figures are tremendous. The nature and scope of domains they tried to manage did not share many properties.

In addition, the methodology of all these projectors was also completely different (for Krajewski, Oswald represents induction: He launches an idea and, thanks to his belief in the universal power of “energetics” he takes for granted that this idea will grow in an organic way; Feldhaus symbolizes infinitesimal calculus, which will try to find the perfect coincidence between one fact and one index card; and Rathenau illustrates reduction, since he had to reinvent a total network in an environment that separated Germany from the rest of the world). Finally, the social and economic status of these characters was beyond comparison (there is not much in common for instance between Rathenau’s upper class background and Feldhaus’s poor and adventurous youth and his more than problematic relationship with the scientific and political establishment, even in the pre-Nazi years). Nevertheless, in spite of all these disparities, all three of these “projectors” are fundamentally the same. In this regard, Krajewski stresses two characteristics.

First of all, projectors are not project “undertakers”: They do not simply implement a feasible idea that is just waiting for its realization; they are dreamers, visionaries, but not of a utopian kind, and their method relies on a particular division of labor. “One could divide the process of projection into three functional positions: planning, execution, and financing” (p. 87). If the projector is alone in charge of the planning, he will not be able to implement his idea without financing (and Krajewski insists at great length on the impossibility of perpetuating in modern times the no-longer-existing nation-state support system: The projector is not a tenured public agent but someone who is permanently looking for money—a highly problematic issue, since it is never clear who may profit from the projector’s idea; it is certainly not the case that the first beneficiary of the economic value of the project is the projector himself) and without using a team of collaborators, no projector would be able to implement his idea (these collaborators are often women, either poorly paid and exploited or totally unpaid and ruthlessly exploited, as tragically visible in the case of Feldhaus, an extreme example of patriarchy that we can now add to Kittler’s analysis of the role of women in the mechanization of writing).

Second, projectors are also “parasites,” according to the terminology...
coined by Michel Serres, whose thinking is influential throughout the whole book. Projectors are both included and excluded: They are part of the larger system they plan to reinforce and change, yet at the same time they are also mavericks (Krajewski also uses words such as marginal, amateur or dilettante). They are those who use for themselves the flaws of the system as it exists at a given moment, true, yet not without profit for the system in question. First they use it, then they give it back in a new form. This explains why so many projectors have been forgotten or may seem “losers.” Most of them do not have the backing and inside knowledge of the system to institutionalize what they are doing, and their position as mavericks and underdogs does not, of course, temper the stubbornness, ambition and not infrequent megalomania of their character, while making them very vulnerable, for instance, to plagiarism. However, more than losers, they are “catalysts.” They transform and accelerate a process that would not be possible without them, although the final state of this process no longer contains any trace of their activity. In that sense, the study of the pre–World War I years may offer an excellent blueprint for a better understanding of the cultural changes of today. For all this, Krajewski is a wonderful guide, and his book a must-read.

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