Edited by Eric Kluitenberg

BØK of imaginary Media

excavating the dream of the ultimate communication medium

debalie NAi Publishers

This publication is the result of 'An Archeology of Imaginary Media', a festival that took place at De Balie in Amsterdam in February 2004. The Festival was realized with the financial support of the Mondriaan Foundation, the VSB Fonds and the Amsterdam Fund for the Arts.

AMSTERDAMS FONDS VOOR DE KUNST · VSBfonds · M

Editor: Eric Kluitenberg
Translation German–English: Nicholas Grindell (Zielinski)
Text editing: D'Laine Camp
Timeline editors: Wanda Strauven, Sven Gerritsen, Rene Glas (Mediastudies, University of Amsterdam)
DVD design: Rena Tobias (De Balie Amsterdam), illustrations, text and music on et lumière compilation, slideshow: Peter Blegvad
Design: TOC, BRM (Felix Lenssen), Kunst Bedrijf, Rotterdam
Printing and lithography: Drukkerij De Kruis, Belgie
Paper: Munken Print 70 g/m²
Project coordination: Barbara van Kooij, NAi Publishers
Publisher: Erik van Weler, NAi Publishers, Rotterdam

Images from cover: Operation Iraqi Freedom, March 2003, press conference on the liberation of Pfc. Jessica Lynch, Baghdad. Filmstrip: Saving Jessica Lynch (dir. Peter Markle) 2003, back cover: commercial of the Dutch telephone company KPN for UMTS image telephony (2002)

We would like to thank
Lucas Ferro (production and film program for an Archeology of Imaginary Media), Carel Alphenaar (dramaturgic advice On Imaginary Media), Peter van Bloot (Cultureel film program 2005), Minke Bosch (de Balie) and Peter Sep (editorial assistance)

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Available in North, South and Central America through D.A.P./Distributed Art Publishers Inc., 155 Sixth Avenue, 2nd Floor, New York, NY 10013-1507, Tel 212 627 1999, Fax 212 627 9484

Available in the United Kingdom and Ireland through Art Data, 12 Bell Industrial Estate, 50 Cunnington Street, London W4 5HB, Tel +44 (0) 20 8994 6094, Fax +44 (0) 20 8742 2319

Printed and bound in Belgium

ISBN 90-5662-536-X / 978-90-5662-536-9

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.B66
2006

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ANCIENT GREECE

HEPHAESTOS, GREEK GOD OF SMITHS AND METAL-WORKERS AND MYTHOLOGICAL FORESATHER OF CYBERNETICS, MAKES VARIOUS ROBOTS INCLUDING THE STEEL MAN OF TALOS

Second Introduction to an Archaeology of Imaginary Media

Erik Kluitenberg

notes p 26

'B – Pardon, monsieur. What've you got behind that screen?
A – Imaginary Media, mademoiselle.
B – Cheeping like a nest of bats. May I see?
A – Then they wouldn't be imaginary.
B – But I hear them…
A – So?
B – So how imaginary can they be if…
B – You're right, seeing is believing. Or maybe touching is.
[Tries to reach behind folding screen, blocked by A.]
A – Sorry. No touching either.'

Excerpt from: *On Imaginary Media*, by Peter Blegvad (2004)

CIRCA 360 B.C

Second Introduction to an Archaeology of Imaginary Media

Like communities, all media are partly real and partly imagined.2 Without either actual or imaginary characteristics, media cannot function. More than mere 'extensions of man', media – especially communications media – are endowed with a nearly sacred capacity for qualitative transformation of human relationships. Many of the limitations of everyday life, especially the trappings of interpersonal communication, are to be alleviated by technological apparatuses that promise seamless and immediate connection. However, as an adjunct to communication, like human relationships themselves, the machines are vulnerable and frail, inadequate, failing to achieve tasks set out for them by their makers and users.

In the archaeology of imaginary media we have tried to 'excavate' mankind's dreams of the ultimate communication medium. These archaeological explorations focus on the imaginations of media that have been expressed in stories, drawings, prints, films, songs, advertisements, or quasi-philosophical imaginaries. It deals not so much with realized media as it does with potential or possible media: dreamed media, fantasized media: visions of how human communication can be reshaped by means of machines.

When tracing the lineages of imaginary media, one of the recurrent ideas uncovered is that somehow these machines would be able to compensate for the inherent flaws and deficiencies of interpersonal communication. The devices then become compensatory machines. They become sites onto which various types of irrational desires are projected. It would seem rather obvious that the machines in

themselves cannot live up to the promise that they would somehow, as if by magic (as a true 'deus ex machina'!), be able to resolve the age old problems of human communication and relationships. Through this pre-programmed failure, imaginary media also become machines of frustration. When considering the panorama of the failed hopes of machinic imagination, a feeling lingers that technology is all about desire, frustration, deficiency, and hope of salvation – terms that sound predominantly religious . . .

It must be made clear at the outset of this book that the aim of this project is not to produce a one-sided critique of technologically inspired media imaginaries. The aim, rather, is to understand how the imaginary qualities of media affect their actual course of development. This understanding should make it possible to retain a certain utopian potential of communications media without stepping into the pitfalls of overly eager media imaginations, or the cynical political or economic agendas that may lie buried beneath the fertile soils of media-speculation.

Central to the archaeology of imaginary media in the end are not the machines, but the human aspirations that more often than not are left unresolved by the machines they produce. Imaginary media are, however, more than a metaphor. They speak to and weave in and out of the lineages of actual media. Media imaginations may give rise (or birth) to actual media, even when their final realization falls short of initial expectations. Media that were once imaginary may at some point become true. Imaginary media may also be sources of inspiration, in which case their effects might very well be felt and made manifest outside of the field of media itself. They then become part of the realm of ideas, or more precisely that of myth. Imaginary media in their pure

FIRST CENTURY B.C.

state are pataphysical constructs, belonging to the realm of imaginary solutions. They can, however, at times also be embodied objects to which all kinds of imaginary qualities are ascribed. In either case they are more than metaphors, more than mere transporters of signification.

Community

In his study on the origin and spread of nationalism, Benedict Anderson develops a similar approach to the analysis of what constitutes the notion of a nation and he calls it 'an imagined political community'. Anderson explains: 'It is imagined because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion.'[1] Nations and communities are, however, never purely imaginary. The very fact that a group of people subscribes to a broadly similar definition of 'their' community that binds them together into any particular social grouping, already makes those communities in many ways 'real', or actual. It also requires no sophisticated philosophical argument to ascertain that nation states do actually exist. Anderson points out, however, that most communities (in fact almost any conceivable form of community) need an imaginary component to sustain them. His argument is laid out brilliantly simple when he writes that 'all communities larger than primordial villages of face-to-face contact (and perhaps even these) are imagined.' Indeed, the simple fact that in practically any existing community most of its members never see or meet all of each other accounts for the fact that they cannot but imagine a set of shared characteristics that binds them into the same group. He continues: 'Communities are to be distinguished, not by their falsity/genuineness, but by the style in which they are imagined.' In the absence of any direct possibility for empirical verification, the members of communities can only imagine the

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ARABIC AUTHOR AL-JAZARI ILLUSTRATES COMPLEX MECHANICAL CONSTRUCTS IN HIS STUDY OF TECHNOLOGICAL PROGRESS, AUTOMATA.

characteristics they share with other members of their community (that is the 'style' in which they imagine themselves as members of that community). It is these imagined characteristics that make them distinct from others who are not part of the same community, others who are thought not to share the same characteristics.

Community identity is strengthened by communicating shared characteristics (the style of imagination) among the members of the community. Because every new medium introduces a new scale to human affairs, the purpose of evolving generations of media machines is to extend these definitions of identity to ever growing constituencies. More often than not, media and communities double each other's imaginaries; an imaginary communion is shared via mediating machineries that are believed to be able to transfer more than 'mere' information; feelings rather than signals; meaning rather than data; satisfaction rather than sounds, words, images; identity rather than codification of social life . . . As what is shared (the imagination of community) is equally imaginary as the mechanism employed for sharing it (imaginations of what media machines are able to share in the first place) the substance of the process is never put to the test. What then *is* transferred (mediated) in such processes of exchange, need not have anything to do with what is *perceived* to have been exchanged.

Mythology

Imaginary media are a form of mythology. As with many of the other mythologies of everyday life, they do not appear self-evidently mythological on first sight, or even after a closer second reading. Roland Barthes disclosed much of the nature of such everyday myths many years ago.[4] In his analysis he understands myth as a second-order semiological system. Myths are signs whose original meaning has been erased and onto

which new second order significations have been superimposed. The original meaning of the sign becomes a mere signifier for the new mythologized readings of the object at hand. The myths, however, go to lengths to present themselves as a natural image. In their new deliberately naturalized (but nonetheless distorted) status they deny their own constructedness and the alienated histories of the objects they absorb. It is therefore no surprise that in many daily situations imaginary media are rarely recognized as such. It follows that the dividing line between imaginary and actual media is often porous and ambiguous.

Myths exist for a reason. The construction of a particular myth can be highly deliberate, and it usually is. Myths serve mainly political or ideological purposes. At times they can also serve economic agendas. The myths that turned the emergence of networked digital media in the 1990s into a branch of imaginary media were primarily created for financial gains. The rationale of the 1990s 'DotCom' and 'New Economy' imaginary media mythologies was mostly unrelated to the technology itself. The myths of the new networked digital media were effectively used to inflate market expectations and stock prices of new media start-ups. The most accomplished market players pushed stock-market prices from IPO to peak levels in record time. Stocks were then sold off just before the unavoidable bust, delivering spectacular gains. The actual performativity of the companies and their products involved was simply irrelevant. For the speculation scheme to work, expectations needed to be built, and to achieve this it was most useful to let the media imagination run amok.

Media Archaeology

To investigate the complex mythologies of imaginary media we chose an 'archaeological' approach. Firstly in reference to Michel Foucault's *'Archaeology of Knowledge'*. From the beginning the project also positioned itself in reference to an emerging field

DIVINE ORDER. THE CLOCK TRANSLATES THE DIVINE ORDER INTO LANGUAGE THAT THE ORDINARY MAN CAN UNDERSTAND, PARTICULARLY BY INDICATING WHEN IT IS TIME TO PRAY.

of study called 'Media Archaeology'. For some ten years, media archaeology has been developing as an interesting branch of media theory and history. It has also become quite influential in critical thinking about new media technologies. Theorists involved in this new research area are not so much taking a traditional historical, nor a specifically thematic approach to writing the history and the development of media. Instead, they choose to document the lineages of the media machines themselves. Two famous protagonists of this new approach to media studies, Siegfried Zielinski and Erkki Huhtamo, each define their media archaeological approach in slightly different terms:

Erkki Huhtamo:

> *I would like to make a few preliminary remarks about an approach I call 'media archaeology'. While I share with (other) historians an interest in synthetic multi-perspective cultural approach and historical discourse analysis, I see the aims of media archeology somewhat diVerently. I would like to propose it as a way of studying such recurring cyclical phenomena which (re)appear and disappear and reappear over and over again in media history and somehow seem to transcend specific historical contexts.*[5]

Siegfried Zielinski:

> *I shall now launch a few probes into the strata of stories that we can conceive of as the history of the media in order to pick up signals from the butterfly eVect, in a few localities at least, regarding both: the hardware and the software of the audio-visual. I name this approach media archaeology, which in a pragmatic perspective means to dig out secret paths in history, which might help us to find our way into the future . . .*[6]

The fascinating thing uncovered by Zielinski, Huhtamo, and others in their machinic excavations was that when you start to probe the multilayered

LATE FOURTEENTH CENTURY

IN CANTERBURY TALES: [illegible]

FOR FRANKLIN'S TALE: [illegible]

strata of media machineries, what you find is the occurrence, disappearance, and recurrence of a series of media imaginaries that transcend not only their specific historical context, but also the technological construction and determination of the media machines. For our archaeology of imaginary media we asked these theorists, writers, artists, filmmakers to shift their focus entirely from the actual machines towards the visions, the imaginations of media.

While Erkki Huhtamo's description of the 'media archaeological method' sounds almost descriptive, Siegfried Zielinski introduces a further aspiration in the final sentence of the quote above: 'to dig out secret paths in history, which might help us to find our way into the future.' During his lecture in De Balie he emphasized this element more strongly. Zielinski advocates seeing these archaeological explorations as part of a larger effort to retain a certain utopian potential for contemporary and future media cultures. Indeed, this point should be emphasized further at the outset of this book: imaginary media as a theoretical construct should not be read as a nihilistic denial of media culture. Quite the opposite. One of the important aims of the whole project has been to understand the recurrent imaginations around technological communication media and their fallibility, so as to be better poised to find less hazardous roads into the future: a future that will for any foreseeable length of time be littered with high-technological communication media.

A Paleontological Perspective

In the beginning of his essay on Athanasius Kircher, Siegfried Zielinski points out that he shares a paleontological view of media

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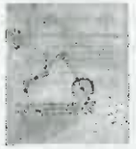

INSPIRED BY THE WRITINGS OF ANCIENT GREECE, LEONARDO DA VINCI DESIGNS THE FIRST ANDROID.

development with Bruce Sterling. Two aspects of Zielinski's paleontological perspective are especially important. First that he recognizes no 'beginning', no 'final layer of bedrock', beyond which his media archaeological excavations cannot dig deeper. In every sedimentary layer of media history, further traces of antecedent deposits can be discovered. His approach furthermore suggests the refusal of any determinate or necessary course of future development of media. Secondly, Zielinski understands his media archaeological work as an 'anarchaeology' of the media. It serves to counter current tendencies at standardization and universalization of media technology and media culture to emphasize instead the wealth of varieties of bygone eras, from which the individual genealogies of media can be uncovered.

Close in spirit to Zielinski's work is Bruce Sterling's 'Dead Media Project'.[7] In this project, Sterling collects failed media technologies. Dead media concern actual media that have somehow broken off their line of development, have been aborted, or left behind. Dead media constitute lineages of media technology that stopped developing at some point in time. They might have developed further if conditions had been more favourable for them. Sterling is thus sketching, inversely, potential or possible media histories that might have happened, or could still happen, but that have thus far been left unrealized.

Dead media are not imaginary at all, they are actual, realized media, failed perhaps, or forgotten, but still de facto existent.[8] However, dead media imply imaginary media histories when the possible futures that these aborted media lineages might have brought about are considered. The imaginary media implied by dead media are the media machineries that could have emerged if the now dead medium would have been developed further, but never did. In that sense every dead medium suggests an imaginary space of possibility that, as yet, has not been actualized.

Sometimes such possible but a priori aborted media futures are filled in retroactively by revisiting the potential of the broken lineages of media development. The Vinyl Video project of artist Gebhard Zengmüller is a hilarious example of such a revisited dead medium. In his case he developed a method to encode low resolution video signals into a vinyl record that can be played back with a converted home record

player on a television screen.[9] What would it have meant if this technology would have been developed further? Would we have seen a new video-music genre emerge, something that incorporates elements of the dj/vj culture (which is already half vinyl after all)? And how would audio/video scratching techniques be transformed by this integration of music and image in a medium that proved such an expressive tool for the break-dance/scratch generation?[10]

Also, Zielinski himself has pointed to Sterling's Dead Media Project as a station in the trajectory of an anarchaeology of the media, for instance in his book *Archäologie der Medien* of 2002, which is currently being translated and will be published by MIT Press.

Field Research into the Archaeology of Interactivity and Stereoscomania

In 1995, I had the exceptional pleasure of engaging in one of the curious habits of the Finnish media scholar, theoretician and curator Erkki Huhtamo quoted earlier: A field research in antiquariat shops in the medieval old city of Tallinn, Estonia, in an attempt to uncover old media machines from the Soviet era. Huhtamo is a collector and excessive documenter. That afternoon in Tallinn, however, we were not very productive. We found some old gramophones and radios, but nothing truly surprising, no unidentified media machines.

At the time, Huhtamo was deeply immersed in what he called the 'Archaeology of Interactivity'. He collected an impressive series of advertisements, sketches, drawings and various forms of historical imaginations about man/machine interfaces and machinic communication devices, including hilariously bizarre prints of eighteenth- and

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GIAMBATTISTA DELLA PORTA USES A COMPLEX ARRANGEMENT OF MIRRORS TO ANTICIPATE THE EFFECT THAT IS CURRENTLY PRODUCED BY HOLOGRAPHIC IMAGES

nineteenth-century video-phones, and proto-virtual reality devices, as well as countless examples of pre-electronic man/machine interfaces – not to mention actual media machines of various kinds.

In 1999, Huhtamo presented a snapshot of his collection in an impromptu talk at De Balie, and it struck me that so many of the images he presented seemed infused by recurrent and nearly identical 'narratives' of how machines could support or replace human interaction. By seeing this eternal recurrence of the same ideas, most left unrealized by the actual results of media development, it seemed as if the narration of media technology had a more profound impact on the development of media history than the actual realization of the machines. This could at one level be considered as a form of cultural prefiguration, a proto-technology that exists strictly on a conceptual level, which then enables the emergence of a particular media technology and its application. However, as so many of these wonderful visions of technologically enabled interaction are left unrealized, despite the expenditure of great effort, it may also be interpreted as a symbol of desperation (a form of 'sublimation' if you care for such terms).

In our project we challenged Huhtamo to think more deeply about this narration of media, almost at the expense of the actual machines. It has resulted in a wonderful new study into the complex of Stereoscomania and 'Peep Media'. Huhtamo traces manifestations of the culture of peeping from the past five hundred years. Discarding possible objections that the act of peeping should be considered pre- (or infra-) cultural, Huhtamo decidedly frames what he calls the 'topos of peeping' as a culturally determined construct. He then goes on to question how and why peep media emerged, and how they developed over time from one context to another. The stereoscope in its various guises, often as a medium for 'adult entertainment', plays an important role in this trajectory. Huhtamo's study is by far the lengthiest in this book. As it is breaking significant new ground for the study of media culture we decided to include his study unabridged.

'Heavy Encounter': The Third Body

Klaus Theweleit, the German writer, literary scholar and cultural theorist gave an enigmatic talk at the Imaginary Media event at De Balie. It would be fair to say that Theweleit stretched the field of analysis conceptually the farthest by suggesting an in-between in the mingling of our bodies with technology, through which this unidentified theoretical object 'Imaginary Media', of which he also had no precise idea what it meant, could possibly be constituted. Theweleit designated this in-between as a 'third body', something in-between our physical bodies and the extensions of our bodies we create.[11]

Theweleit referred to a sentence in the last book of Marshall McLuhan, co-authored by his brother Eric McLuhan: *Laws of Media. The New Science*. On the last page of the book they write: 'The goal of science and the arts, and of education for the next generation must be to decipher, not the genetic code, but the perceptual code.'[12] Deciphering the perceptual code then is also the central object of any study of media, following the McLuhan brothers. Theweleit went on to assert that sound is the universal medium of perception. The first form of perception is hearing, the baby in the womb of its mother, as it grows, its first sensations of the outside world, are established through sound. Sound waves that are able to pass through human tissue. Later, sound becomes the primary medium through which mother and child retain contact in the first period after birth.

Theweleit is inspired by accounts of the psychoanalyst Donald Winnicot, who describes a curious experience of one of his patients: The man felt that during one of the sessions he fell from the analyst's couch and rolled into the middle of the room, however without physically

moving. The analyst and the client met through a medium, a third body, in the middle of the room. Theweleit proceeds to ask from this what actually is psycho-analysis?

Theweleit:

> *It is the meeting of the body of the analyst and the analyssant in a greased space, in order to become a new body, a third body. In this mediating space the patient finds or reinvents himself, constructs himself in a manner different from what he/she was before.*[13]

Returning to the universal medium of sound, the third body appears in an unexpected place: in the recording of sound. There is strange discovery one can make when hearing old records after many years, Theweleit asserts. The records stored more than just the music. 'They give you something back that was not on them when you heard them first. They recorded your emotions as the records were playing; in an invisible in-between body. The body between the music and you: You meet the music, and the music meets you in a heavy encounter with the third body.'

This encounter with the in-between third body in music is something that many musicians will relate to as well from their professional experience. One of the most articulate in this regard has been the guitarist Robert Fripp, who noticed in 1981 that something needed to be reversed in his understanding of playing music (his professional music career started with a first record release as early as 1968). In fact, what he came to understand as an essential principle of the practice of the musician was that it is not so much the musician who is playing the music, but instead, it is 'the music playing the

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musician'. In his notes on a Guitar Craft course in Argentina of 1996, Fripp reiterates this principle:

> *The apprentice musician plays music. When music plays the musician, the invisible side of the craft has presented itself. Then, the apprentice sees directly for themself what is actually and really involved. A performance of music becomes the act of music, in which process and content are inseparable.*[1]

Here the interaction of the musician with the music is mediated by an invisible in-between, what Fripp calls 'the invisible side of the craft', which seems highly similar to Theweleit's concept of the third body.

It is important not to understand this concept of the third body in a mystical sense, and this is certainly not how Theweleit delineated the concept in his talk. What is essential to the concept is that the specific experience, in our example of the emotions tied to a recording, the experience made when you first listened to the music, or when it first made a strong impression, is something that can only be recovered by listening to that particular recording again. The emotion, the recovered experience, is not visibly stored on the recording; it looks, feels, and handles the same as before. Neither is it a memory to be recalled at will by the listener. Without listening to the recording, the original experience remains inaccessible. But upon listening to the record, the emotions are suddenly readily available, they seem to exist only in this in-between, this third body that emerges out of the interaction of the listener and the record. Such experiences, Theweleit holds, are symptomatic for the intermingling of our body with technology. And it is probably here that the locus of imagination vis-à-vis our technological environments lies.

Intermission from Blegvad's On Imaginary Media, 'Moodia':

'She – *Anything drugs can do, imaginary media can do.*
He – *Imagine mood altering or mood enhancing media.*
She – *Imagine Moodia.*
He – *Moodia is silent, but it moves you like music. Wireless stimulation of neural paths.*

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LEIBNIZ COMES UP WITH THE IDEA FOR A 'MECHANICAL REASONER', A MECHANICAL SYSTEM THAT MAKES LOGICAL DECISIONS WITHOUT THE AID OF THE HUMAN BRAIN.

She – *There are settings for awe, self-pity, anxiety, reverie, nostalgia.*
He – *The effect is instant which gives it the advantage over music which requires duration for its effects to be felt.*'

Politics of Imaginary Media

'She – *Most people use Moodia as an anti-depressant, but naturally the technology is abused, hopped-up, perverted.*
He – *The military develops horrible mood weapons. Moodias are modified to provoke rebellion, rage, etc.*'

As indicated earlier in this introduction, a variety of interests and agendas may hide behind the deliberate construction of media mythologies; or purposeful imaginary media. Although not part of the original programme, we decided to include a recent essay by Richard Barbrook in this book as it highlights yet another dimension of imaginary media: their function as political instruments. In the essay 'New York Prophecies', Barbrook revisits the New York World Fair of 1964, which he visited with his mother as a little boy. The fair and his visit happened at the height of the cold war and in the midst of a desperate struggle for supremacy by the two superpowers of that time, the United States and the Soviet Union.

Barbrook investigates the convergence of three technological narratives, played out prominently and triumphantly in the New York World Fair of 1964, but obviously also elsewhere in society, to project an image of dominance onto the world. These narratives managed to capture the popular imagination at that time, and to some extent they still do. Barbrook focuses on three particularly interesting representatives: Free or nearly free electrical energy via nuclear technology; space travel by means of rocket propelled systems; and artificial intelligence by means of computing systems. He then locates these three technological meta-narratives in a cold war political context to show how the strategic interests that fuelled the development of these respective technologies were effectively kept out of sight by these meta-

narratives, while they simultaneously served to boost public support for the enormous expenditures made on their behalf.

The retranslation of the cold war technological mythologies into the hidden strategic agenda can roughly be summarised as follows: Free electricity by means of nuclear technology translates into the construction of plants to produce raw materials for atomic bombs; space travel by means of rocket propelled ships translates as the creation of ballistic missiles for the delivery of nuclear weapons; and the development of artificial intelligence translates as the construction of missile control and guidance systems, leading to semi-autonomous weapon systems. Most of these concerns are on-going areas of military research and development, also today.

Imaginary Media and the Cinematic Imagination

The contributions by John Akomfrah, Edwin Carels, Timothy Druckrey and Zoe Beloff share a cinematographic approach to the theme of imaginary media. For a long time cinema has obviously been a dominant medium to define the popular media imagination, and thus it provides us with a rich historical repository from which to examine the aesthetics of imaginary media. John Akomfrah, a filmmaker based in London, is represented here through an 'imaginary conversation' on Afrofuturism and the *Mothership* narrative, based on the notes of his talk and subsequent discussion in De Balie, as well as the documentary film *Last Angle of History*, which he realized on the subject in 1995. Akomfrah traced in his research and in the film some of the artistic and political themes and trends that come together in the genre of Afrofuturism (which could be roughly summarized as 'black science fiction' and black futurist music). What is fascinating in his 'archaeology' of Afrofuturism is that the approach and

TRAVELS. 'THE MOST IGNORANT PERSON, AT A REASONABLE CHARGE, AND WITH A LITTLE BODILY LABOUR, MIGHT WRITE BOOKS IN PHILOSOPHY, POETRY, POLITICS, LAWS, MATHEMATICS, AND THEOLOGY, WITHOUT THE LEAST ASSISTANCE FROM GENIUS OR STUDY

method Akomfrah followed when researching and putting together the film are more or less identical to similar studies carried out in the field of media archaeology and media arts proper. However, as he follows through the set of references and the artists he managed to uncover, he ends up in an entirely different territory.

The 'black' focus of the investigation reveals a series of transformations that reflect the problematic history of black culture within Western society. Obviously, this history is implicated by the legacy of colonialism and the displacement of slave trade. This displacement almost necessarily makes the new nation for the black population in the west, an alien nation. Within the frame of black science fiction and black futurist music, but also within activist black culture, a series of fascinating attempts have been made to overcome the alienation of this 'alien nation' by means of a set of technological meta-narratives. *The Mothership* or *Mother Wheel* motive is clearly the most powerful of these. A black exodus into space here becomes a promise of a final possibility to overcome displacement and alienation through a new existence in outer space.

The Belgian writer, critic and curator Edwin Carels has been developing a close examination of the pre-history of cinema and early forms of animation machines (such as the fantascope and the fantasmascope), where he discovers a remarkable recurrence of the iconography of death and resurrection. These pre-cinematic techniques are closely aligned with a deep popular fascination with spiritist and occult themes. The new techniques of the moving image become ways of bringing to life the diseased and the otherworldly. They managed to captivate the popular imagination through theatrical public displays and dramatic entertainment shows. The idea of resurrection and the undead is in fact already contained in the etymological root 'animatio', which signifies 'to bring to life' or 'to instil with life'.

1738

Filmmaker Zoe Beloff builds further on this theme by exploring the (often queer) aesthetics of spiritist media and ectoplasmic emanations as they were recorded on photographic records at the end of the nineteenth and beginning of the twentieth century. Beloff is fascinated by the women who were acting as medium for these emanations of the otherworldly or the 'afterlife': the departed. In her films she consciously wants to bring these inspiring and disturbing women back to life and manifest their presence once again. Beloff makes films, but also more complex installation works. Probably her favourite medium is stereoscopic film and projection, which detaches her images from the flat surface of the screen and transfers them into the physical space of the viewer. It is another attempt to bring the domain of the imaginary and the quasi-documentary fictions of her cinematic works one step closer to the actual existence of the observer here and now.

Timothy Druckrey, finally, completes our journey into the realm of imaginary media by examining the works of a number of media artists who build in different ways upon a cinematic tradition. They realize within their work new definitions of previously unknown media and mediatic forms that are brought into existence there. Emblematic for this is the work of the artist Julien Maire. He constructs intricate media machineries (micro-mechanic animation machines contained within customized glass slides). He employs them in public showings that seem to reinvigorate the traditions of the occult pre-cinematic moving image shows that

1774

AMONG THE CREATIONS OF SWISS INVENTOR PIERRE-JACQUES DROZ ARE A MECHANICAL LETTER WRITER AND A PIANO-PLAYING FEMALE ANDROID. HIS 'LADY MUSICIAN' PLAYS FIVE TUNES, LOOKING AT HER FINGERS AS SHE PLAYS. SHE ALSO APPEARS TO BREATHE IN TIME WITH THE MUSIC. THE AIM WAS TO CREATE THE ILLUSION OF EMOTION.

Edwin Carels refers to in his essay. According to Druckrey the 'proto-cinematic micro-machines' that Maire is using 'both evoke and outdistance the illusions of the phantasmagoric projectionists of the pre-cinema.'

Druckrey discerns an interplay between illusion and a certain visibility of the technological interface, intensified in particular in Maire's work by his direct interventions in the performance of his work, which oscillates between the staged illusions of the cinematographic imaginary and the self-awareness of the viewer when these illusions are consciously broken. The fascinating ingenuity of this work highlights the complex relationships between the imagination and the actual realization of the media imaginary. It seems a befitting ending note for now, for our preliminary forays into the domain of imaginary media, of which, obviously, we all still have no truly clear idea of what it is about, or as Theweleit mused in his presentation, 'what may be in it . . .'.

Let's see . . .

notes pp. 7–25

1. The first introduction was written for the *Imaginary Media Reader* (February, 2004) and can be found on-line at www.debalie.nl/archaeology

2. The word 'media' means many things, here we refer primarily to communications media.

3. Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London and New York: Verso, 1991), 6.

4. Roland Barthes, *Mythologies* (Paris: Editions du Seuil, 1957).

5. Erkki Huhtamo, 'From Kaleidoscomaniac to Cybernerd – Towards an Archeology of the Media', in: Timothy Druckrey, *Electronic Culture – Technology and Visual Representation* (New York: Aperture, 1996), 296–303.

6. Siegfried Zielinski, *Media Archaeology*, originally published by C-theory, November 1996 – www.ctheory.net

7. www.deadmedia.org

8. In German we might call them 'Real Existierende Medien'.

9. See also the Vinyl Video website: www.vinylvideo.com

10. Immersive Virtual Reality might be considered such a recurrent, yet unrealized mediatic desire.

11. For reasons entirely beyond control of either Thewelet himself or the editors, it was impossible to include his contribution in the book, which is why a summary of his argument is provided here.

12. Marshall and Eric McLuhan, *Laws of Media: The New Science* (Toronto: University of Toronto Press, 1988).

13. Paraphrasing from the talk. Thewelet's presentation can be found on-line in full length as a streaming video document in the dossier Media Archaeology on the De Balie website: www.debalie.nl/archaeology

14. Course Notes, Guitar Craft Course November 1, 1996, San Jose Seminary, Gandara, Argentina, released by R. Fripp on the list serve Elephant Talk, February 11, 1997.

'The theology of electricity differs only in nuance from the metaphysics of telecommunication as established in the worldwide media discourse following the digitization and telematization of communications relations in the 1990s'

1798

PHANTASMAGORIST ETIENNE-GASPARD ROBERTSON SUCCEEDS IN SUMMONING UP THE DEAD IN A CLOUD OF SMOKE USING PORTRAITS AND OTHER KEEPSAKES BELONGING TO THE LOVED ONES OF MEMBERS OF THE AUDIENCE

Modelling Media for Ignatius Loyola

A Case Study on Athanasius Kircher's World of Apparatus between the Imaginary and the Real

Siegfried Zielinski

notes p. 54

One of the things we learned from Peter Blegvad's didactic stage piece at De Balie in Amsterdam was this: the relationship between what is imagined and what in fact exists, between (mere) fantasy and (actual) reality is fluid, unstable. Especially when we set foot on the slippery terrain of the media, these relations can no longer be clearly distinguished in ontological terms. We are dealing with readings on a scale of priorities where the needle sometimes swings more to one side, sometimes to the other. The shadowy Hadean world

of advanced media technologies is a true twilight zone. This is what makes them so seductive, as well as regularly driving to despair those whose job it is to define them.

In spite of this, I think it makes sense to propose a provisional classification of the object of our desire – to act as a prosthesis, to help us get our bearings. Like the imaginary philosophical ladder in Ludwig Wittgenstein's *Tractatus*, it can be thrown away as soon as sufficient light has been shed on the matters in question.

Seen in terms of an anarchaeology – which for me increasingly represents an appeal for a Variantology' of media – three groups of phenomena can be distinguished within the category of 'imaginary media':

Untimely media / apparatus / machines. Media devised and designed either much too late or much too early, realized in technical and media practice either centuries before or centuries after being invented.

Conceptual media / apparatus / machines. Artefacts that were only ever sketched as models or drafted as concrete ideas on paper, but never actually built.

Impossible media / apparatus / machines. Imaginary media in the true sense, by which I mean hermetic and hermeneutic machines, that is machines that signify something, but where the initial design or sketch makes clear that they cannot actually be built, and whose implied meanings nonetheless have an impact on the factual world of media.

In my lecture, I leapt back and forth in history and geography in order to present disparate examples of all three groups: from Pseudo-Euclid's mirror of illusions in the translation literature of the twelfth century, invented no later than the first century AD and built no later than the seventeenth; to Ramon Lull's thirteenth-century system for communicating biblical expertise, and on to Walter Benjamin's Parlamonium (1933), with which the inhabitants of the moon, more accustomed to hearing the music of the spheres, were meant to be able to convert the often irksome noise of human speech into harmonious sounds. In this written version, I have decided to concentrate on one of the main figures of such an archaeology of media, Athanasius Kircher (1602-1680), but I would like to point out that I do not see him as the point of departure for a genealogy of real and imaginary media. The

palaeontological view of media development – a view I share with Bruce Sterling – can accept no layer of bedrock beyond which no further downwards exploration is possible when searching for the new in the old. Within the context of a deep time of the media, even Athanasius Kircher is a relatively late figure, albeit an outstanding one:

– because, working close to the seat of power, he both developed key concepts for the subsequent dominant media culture and supplied examples for all three groups of imaginary media;

– and because his published works bring together such heterogeneous fields as optics, acoustics, cryptology, magnetism and combinatorial analysis.

He collected what other natural philosophers, engineers and scientifically-minded theologians before him and in his own time had experimented with and developed, written down and propagated. He copied, interpreted, revaluated and supplemented. In optics, this applies above all to the work of Giovanni Battista della Porta (1535-1615) and Jean François Niceron (1613–1646); in musicology that of Robert Fludd (1574-1637) and Marin Mersenne (1588-1648); in combinatorics, cryptography and steganography that of Ramon Llull (1235/36-1316) and Johannes Trithemius (1462-1516); in magnetism, that of della Porta, William Gilbert (1540-1603) and Rudolphus Coclenius (Rudolf Göckel). And these are just a few of those who researched and published in the relevant fields immediately prior to Kircher's work. Like them, Kircher could build on the compendia of the Arab opticians and astronomers around 1000 AD or the work of the Polish ophthalmologist Witelo (ca.1220-1275) and Roger Bacon (ca.1214-ca.1294), as well as the Pythagorean and oriental theories of harmony, the legendary writings of Hermes Trismegistus, and Hero of Alexandria's first-century mechanical puppet theatres.

The texts of some of these outstanding precursors were on the Catholic Church's Index of Prohibited Books or discriminated against to such a degree as to make them practically impossible to obtain. By dealing with them critically in his prestigious position as director of the Jesuit Collegium Romanum, he rendered their more tolerable aspects socially acceptable. By quoting, transforming and translating them (and often by simply stealing ideas), he was thus responsible for the reappearance, at

1656

An example of how music can be composed with the help of Kircher's *Musurgia Universalis* and the data bits for musical fragments it contains (Kircher, *Musurgia Universalis*, 1650).

least in fragmentary form, of material from the extensive oeuvre of the Neapolitan della Porta, whose research had been subject to constant suspicion and censorship by the Inquisition. Other examples include Trithemius' texts on cryptology, which regained currency in elite scholarly discourse, and the ideas of the English hermetic mathematician John Dee on hieroglyphics, which might not otherwise have reached a Catholic audience. Kircher's greatest achievement is to have made the findings of his precursors and immediate contemporaries better known through his busy publishing activities, stripping them of their sometimes exuberant magical dimensions, transforming some of them into working artefacts and generalizing them to obtain media models which in important respects are still valid today. Kircher popularized natural philosophy on a large scale and in so doing accepted a certain loss of depth.

In wide-ranging fields of knowledge, closely combining theology and natural philosophy, Kircher worked through all the facets of a truly central idea: the world as we experience it is anything but peaceful – it consists of a dissonant multiplicity, fraught with contradictions and tensions. Like religion, all experiments with nature and all the arts have the principle aim of bringing about peace and harmony, of taking the heterological diversity of phenomena and fabricating a *dissonant concord* or a *concordant dissonance*, as Kircher states in his Baroque music theory *Musurgia universalis* (1650). *Ars Magna lucis et umbrae* (1645 / 46) pursues the same idea in optics. In *Mundus subterranea* (1665), everything on earth is determined and controlled from underground by a 'central phenomenon', the power of fire, upon which Kircher builds a 'centrosophia' of the element that played such a key role for Empedocles. He was especially impressed and inspired by a passage by ship from Messina to Naples in the year 1636, during which

1883

IN LE VINGTIÈME SIÈCLE, *ALBERT ROBIDA DESCRIBES AND ILLUSTRATES THE PRINCIPLE OF THE* TÉLÉPHONOSCOPE. *THIS AUDIOVISUAL TELEPHONE MAKES IT POSSIBLE TO RECEIVE LIVE BROADCASTS FROM ACROSS THE GLOBE.*

all three of southern Italy's volcanoes – Etna, Stromboli and Vesuvius – were active, making the sea boil and repeatedly causing stretches of coast between the volcanoes to crumble.

In the following, I concentrate on three paradigms of current media theory and practice for which Kircher and the Jesuit Order of the seventeenth century are of particular importance. Unlike in my monographic texts on the deep time of the media, I refer to them here using concepts from contemporary discourse. In this brief summary of the lecture, it is not possible to develop all points in such a way as to make the links between them speak to the reader for themselves. To achieve this, I must accept the charge of having historicized the material.

Telematics: Networked Knowledge

At Kircher's time, 'Loyola's bees' (as Yasmin Haskell calls the highly educated and intellectually hyperactive members of the Jesuit Order in her study on their didactic poems in Latin)[3] did not work alone as isolated teachers, missionaries and researchers. Instead, they were linked by a far-reaching network of correspondence, missions and teaching institutions. The Jesuit College in Rome functioned as a communications centre for the worldwide exchange of natural-philosophical, cultural and religious knowledge. It was the central collecting point for the discoveries, observations and writings of missionaries in Latin America, East Asia and Europe. Their findings and reports were evaluated and redistributed as teaching materials. It is known, for example, that Kircher based his book *China Illustrata* (1767) entirely on information supplied by travelling fellow Jesuits and not on personal experience.

1889

Within Kircher's oeuvre, the idea of fully interlinking heterogeneous material is most explicit in his study of a phenomenon in nature and physics which in technical terms was to exert a decisive influence on the development of modern transport and communications: the power of magnetism. The first book to be published by Kircher was *Magnes sive de arte magnetica* (1641). By analogy to fire, he understood magnetism as a hidden power holding the world together in its depths, an elementary force of nature whose effects are felt everywhere, in the greater cosmic order (the movements of planets and stars) as in the smallest forms of animal and plant life, as well as in love between the poles of the sexes. Around 1800, in the work of the Romantic physico-chemist and founder of electrochemistry Johann Wilhelm Ritter, this idea still appears as a leitmotif: 'Thus, all power has its origin in polarity.'[4] For Kircher, this all-connecting energy was symbolized by the image of a chain, linking animate and inanimate phenomena, as well as the individual scientific disciplines: *nexus unionemque*. Besides its associations with positive forms of attachment, the Latin noun *nexus* can also mean entanglement, guilt, bondage. The Latin word stem *nex* relates to violent death, murder and execution. Linking was a matter of power, like this strange, invisible force of nature that attracts and repels, ignites, destroys (as in the form of lightning).

The *Cymbalum Electricum* in Marcolari's didactic poem *Electricorum* (Rome 1760), which is considered to be the first electrically operated musical instrument, after the example of the *Clavecin Electrique* (1759) by Jean Baptiste de la Borde.

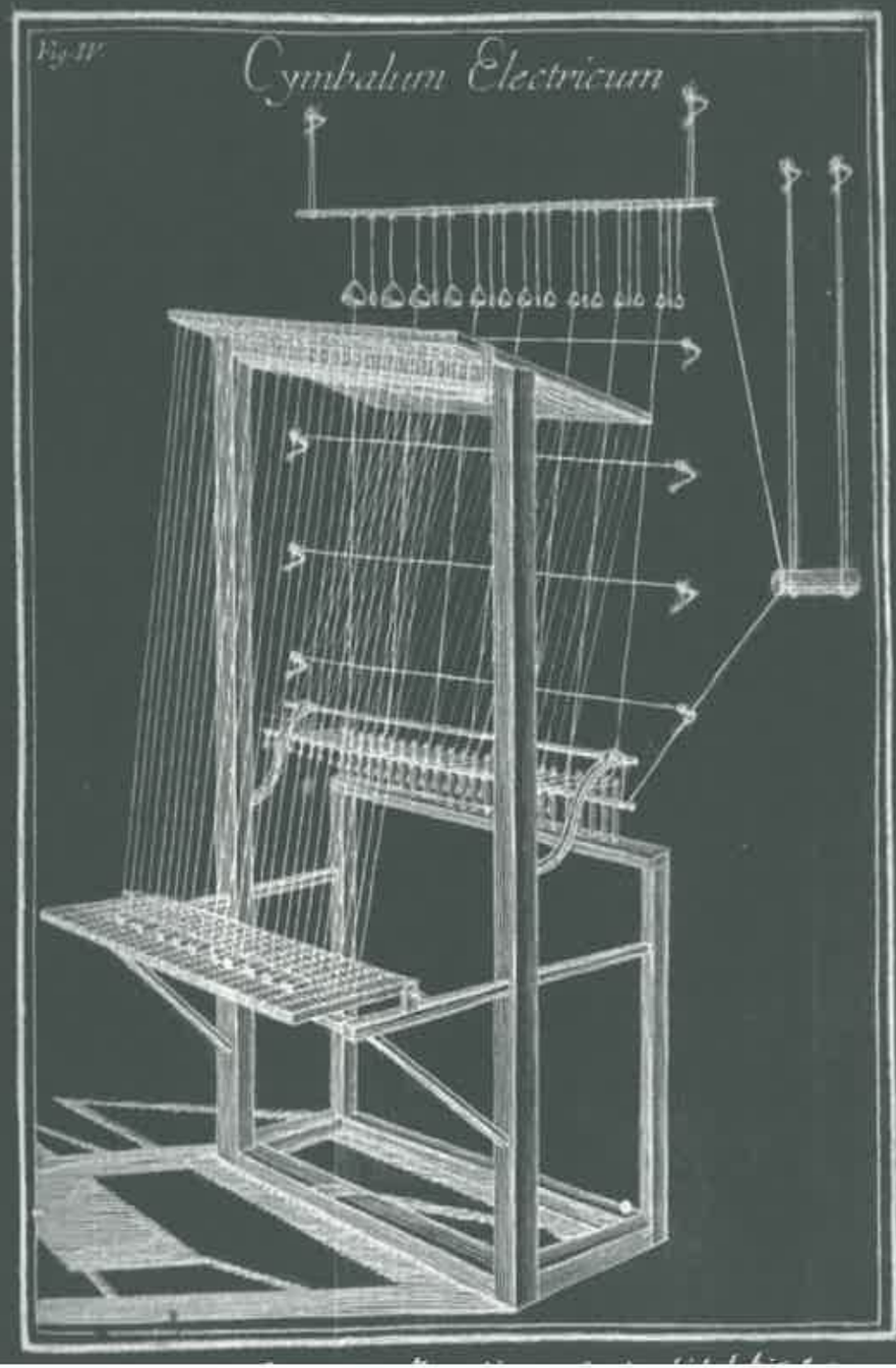
For Kircher himself, the potential connective power of magnetism had a clearly positive connotation, associated with attraction, with love. In his view, it was theologico-utopian in essence. Kircher was not interested in shaking up the Catholic system of knowledge as controlled by the Vatican. His notion of magnetism as a fluid running through the entire world was based on the idea of an almighty *pulsator* (a term coined by the English Rosicrucian Robert Fludd), a Magnet God who sets things vibrating and has total control over the relations of 'consortium & dissidium,

CHRONICLE'. A NEWSPAPER THAT IS READ TO SUBSCRIBERS OVER THE TELEPHONE. A 'PHONOGRAPH' CAN ALSO BE USED TO RECORD THE NEWS IF THE LISTENER IS NOT AT HOME.

coming together & splitting apart', a dualism thus described by Rudolf Goeckel in 1609. But Kircher was not unaware of the explosive potential of his view of magnetism as an all-connecting force. In the foreword to his 1641 work, he wrote: 'We are studying the cohesion of the entire universe and all physical things contained therein in a new and unique way. He who possesses the key to this method should know that the door to a knowledge of all hidden things, indeed to the genuine truth sought after by philosophers known as *magic* and to the secrets of this true philosophy . . . stands open before him.'[5]

In the eighteenth century, there emerged a full-fledged theology of electricity heavily influenced by Kircher: a religiously based and as such radically imaginary view of nature. The Württemberg pietist Friedrich Christoph Oetinger and his student Johann Ludwig Fricker, Prokop Divi_ from Helvikovice in Bohemia, and the Englishman John Freke were less restrained than Kircher had been a century earlier. As declared *physico-theologians*, they were working on nothing less than recasting the concept of God and nature, or, to be more precise, of God *in* nature. Their texts were not published in lavish folios and were sometimes censored, rendering access to them difficult in every respect.[6]

In keeping with the Jesuit tradition, the electric theologians of the eighteenth century attempted to conceive of theology and natural science in a common context. They associated the discovery of electricity and of magnetic and galvanic phenomena with the idea of the omnipresence of God in the world and, as a consequence of this new notion of God, with a new understanding of the relationship between 'body and soul, spirit and matter, life and material'. Both replacing and extending the medieval metaphysics of light, they devised a new vision of the divine: '[M]agnetism and electricity appear as the most obvious representation of the hidden presence of the divine force in the world and all things, as the hidden source of life, movement and warmth that permeates the entire universe.' What Kircher only hinted at, the theologians of electricity followed through with varying degrees of radicalism: 'The idea of a 'Magnet God' is . . . replaced by the magnetic force of nature. The depersonalization of the notion of God encourages . . . a practical equating of the divine spirit as the *vis magnetica dei* with the all-pervading spiritual power of nature.'[7]



1890

THOMAS EDISON PROPOSES AN EXPERIMENT WHEREBY THE SUN'S RAYS ARE TRANSFORMED IN TO SOUND.

This theology of electricity differs only in nuance from the metaphysics of telecommunication as established in the worldwide media discourse following the digitization and telematization of communications relations in the 1990s. But even in the eighteenth century, it was already being related to media artefacts. One of the most brilliant texts of this period is a poem in Latin hexameters entitled *Electricorum* (1767). Its author was Giuseppe Maria Mazzolari (1712-1786), who published it in six volumes under the pseudonym Josephus Marianus Parthenius. He was a professor of rhetoric at the Jesuit College and *Electricorum* was a one-off venture into the world of technology and natural science. Over 280 pages long and with dense footnotes on the international state of research into magnetic and electrical phenomena at the time, it includes an image of a bizarre electrically driven cymbalon, as well as a sketch and description of a 'machina electrica' which turns out to be a primitive generator. The discharge of electric sparks over long distances is posited as a means of communication between geographically separated persons,[8] requiring both parties to agree on a code by which the electrical sparks stand for letters of the alphabet.

Machina Magnetica Cryptologica
Kircher, (from: *Magnes sive De Arte Magnetica*, Rome,

This device for sending written messages over long distances was developed at the Collegium Romanum by the physicist and philosopher Giuseppe Bozzoli and demonstrated in experiments during his lectures. It functioned on the basis of key fundamental inventions in physics, like the Leiden jar for the storage and slight amplification of frictional electricity, primitive electrical conductors, and, on the receiving end, the discharge plates named after Benjamin Franklin (1706-1790). Over 100 years earlier, however, in his book *Magnes*, Kircher had proposed a magnetic telegraph, which he referred to as a *machina magnetica cryptologica*. In this case, the letters of the alphabet to be communicated are displayed by magnetic needles like those of a compass. Kirchner's version did not feature a connecting

function, but he was aware that the position of the needles could be influenced in a controlled way by certain materials, enabling a remote magnetic effect. William Gilbert had written about this in 1600 in his famous book on magnetism. And the Mazzolari / Bozzoli machine shares with Kircher its stated utopian purpose. In both cases, it is explicitly stated that the apparatus is designed to aid communication between friends who are far apart. Yasmin Haskell draws attention to the major role played by friendship in the didactic poetry of the Jesuits.[9] It is also an important motif in della Porta's cryptological studies from the second half of the sixteenth century. He repeatedly reserves the term friend for people dear to him who find themselves out of sight in inaccessible places, for instance in prison.

In the history of media, the tradition of an economy of friendship has given rise to perhaps the most impressive imaginary machines in the narrow sense of the term (those in our third group). In a letter to Rudolf II, della Porta proposed a bizarre telegraphic procedure, which is a fine illustration of this, precisely because of its impracticability. It is described in connection with the power of magnetism to work over long distances. In *Magia Naturalis* (1558, 1589) della Porta had described how the needles of two compasses can influence each other at a distance and be used to send messages to a friend who is far away or even in prison. In his example for the Emperor in Prague, della Porta describes telecommunication that is based on blood-brotherhood. I shall not go into his meticulous recipe for the *sympathicum*, a special ointment that is essential to this experiment, but simply cite the mode of this long-distance communication. Take 'two new knives and smear the salve from the point to the handle. . . . The friends must have wounds on the same part of the body, for example, on the lower part of the arm. The wounds must be kept fresh and bloody . . . above the wound, two circles must be drawn, a greater and a smaller, proportionate to the size of the wound. Around this, the letters of the alphabet are written in exactly the same order and manner, size and scale. If you desire to speak with your friend, you must hold the knife over the circle and pierce the selected letter with its point . . . your friend will feel the same piercing pain on his wound . . . I prick the V and he feels it, then I prick the A and he feels it, and so forth, with each separate letter. However, the knives must be

1894

IN HIS BOOK **LA FIN DU MONDE**, *FRENCH ASTRONOMER CLAUDE FLAMMARION FANTASIZES ABOUT A MULTI-SENSORIAL TELEPHONOSCOPE THAT ALLOWS YOU NOT ONLY TO HEAR AND SEE, BUT ALSO TO SMELL AND FEEL ONE ANOTHER.*

smeared each with the blood of the other, mine with his and his with my blood . . . Now after all the letters have been assembled, he will know the thoughts of your mind.'[10] A concept of exchange in the true spirit of Empedocles, generated by the connective power of sympathy, the notion of total compatibility between sender and recipient bodies, and the transfer of their local energies. In this case, instead of shadowing the real, the possible actually challenges it. Even separation, 'the alpha and omega of the spectacle'[11] of telecommunication, is called into question.

Effect Engines: Media Artefacts as Mechanisms of Perception

Insofar as the early natural philosophers of antiquity dealt with the peculiar effects of materials capable of reflecting objects or faces, their interest was not primarily on the question of the relationship between truth and untruth in reflections and their perception. For thinkers who saw all that exists as consisting of more or less fine blends of the basic elements, including images perceived and the mind perceiving them, this question simply didn't arise. Only after doubt over the uniform properties of the physical world and the psyche of animate and inanimate matter began gnawing its way into philosophy, after Socrates and his student Plato and even more after Aristotle, did the question of the truth or falsehood of something perceived with the senses insinuate itself between nature, artefacts and perceiving subjects. Now, the latter could also be deceived, take things the wrong way. As a result, reality was split into one that relied for its existence on a medium and another that existed independently of any medium.

At this point, a problem arose which in the modern era was to become a fundamental problem, both in theory concerning media and in artistic

practice using sophisticated media technologies: while working with such technologies to create effects and illusions, one also wishes the resulting illusions to remain noticeably and understandably recognizable as technical products. In the Apparatus Theory of cinema that emerged in the late 1960s and early '70s, above all in France, this procedure, which can be understood essentially as a test of truth, was referred to as the *reality test*. To pass the test successfully, the spectators and listeners must be capable of existing in two realities at the same time, inhabiting parallel worlds, the one specially created for the cinema and the one that continues to exist outside of the cinema – although the latter changed and will continue to change with every new film produced and projected, becoming a reality more and more charged with the imaginary. (In this context, Vilem Flusser was fond of pointing out that the German word for reality, *Wirklichkeit*, bears within it the meaning of an effect, a contrived impression.)

Kircher's world of apparatus devoted to producing optical illusions is lavishly illustrated in the folios of *The Great Art of Light and Shadow* (*Ars magna lucis et umbrae*), first published in 1645–1646 in Rome and then in an extended and even more sumptuous edition in 1671 by Jansson van Waesberge in Amsterdam, where many of the bold ideas of the seventeenth century appeared in magnificent books. This *Ars magna* is filled with a rich array of suggestions and sketches for the construction of devices that could be used to create and project artificial images. They all obey a central rule of Jesuit conversion strategy following on from the doctrine of spiritual exercises laid down by the Order's founder Ignatius Loyola. In a period where scientific methods played such a ubiquitous role, the direct physical ordeals and self-chastisement vehemently advocated by Loyola during the Order's founding phase were replaced as the principle route by visual shocks, surprises and overpowering with special effects – almost three centuries before Walter Benjamin pointed to such phenomena in the tactical arsenal of Dadaist image-makers as a training ground for the movies, using the old-fashioned German word *Chock*.[12]

One outstanding product of Kircher's fertile technical imagination was the 'polymontral catoptric theatre' that stood in the museum at the Collegium Romanum as a piece of media furniture. When opened, it was

a cabinet whose upper surface functioned as a stage. This was surrounded on all sides by moveable walls that acted as windows into an endless visual realm – for these hinged flaps were covered entirely with mirrors set at different angles. The illustration in the *Ars magna* of 1671 shows over 70 individual mirrors. Kircher is said to have improved on the object several times and increased the number of mirrors. The closed lower part of the cabinet contained the objects that performed on the stage of this theatre of mirrors: a model tree, for example, flowers, books, human figures or even live animals. By a lever mechanism, they were lifted out onto the mirrored surface, and a crank attached at the side could be used to make inanimate things move. Kinetic objects such as puppets or one of Kircher's hydraulically animated sculptures could also be installed on the stage. Depending on the position of the mirrors, they could, for example, be multiplied into infinity, inverted or stretched horizontally by moving the upper flap. But the many and varied optical effects of mirroring were not enough for Kircher. He therefore suggested that the action on the stage of the cabinet should be accompanied by specially created sounds or music. The 'polymontral catoptric theatre' should be understood as an audiovisual theatre designed to have a thoroughly disorienting effect on the viewer.

For the 1671 edition of *Ars magna lucis et umbrae*, Kircher had two engravings made of scenarios for the use of the *laterna magica*. These illustrations are not technically correct; as shown in the drawings they would either not work or be impossible to build: he places the transparent image strips to be projected in front of the lens instead of between lens and light source; and if two convex lenses are used as described in the text, then the projected version of the original image, if correctly positioned, should appear upside down. But these errors can safely be attributed to the illustrators. Kircher himself had used the device both for lectures and in theatrical practice, and both editions of his *Ars magna* discuss a host of applications for the projection of images in darkened rooms. Most important here is the way his description of the lantern's 'thaumaturgical construction'[13] communicates the full power such a device can deliver for the creation of artificial illusions. The *laterna magica* combines the *camera obscura* and the catoptric theatre in a single medium that is suited to the presentation of 'satirical

1900 – 1905

scenes' and 'tragic dramas'[14] – an early development from multi-media to mono-media theatre. The dark chamber becomes a space for the creation of illusions, sealed off from external reality; the projection apparatus is installed in a closed cabin, out of the viewer's sight. The two motifs shown, the terrifying Grim Reaper and the female figure in the blazing flames of purgatory, give an idea of how powerful an instrument for the projection of *signifiers of the imaginary* is being outlined here.

Kircher, *Tabula Combinatoria* (belonging to Machina Magnesia Sciopolacica, Rome, 1641)

But the most succinct expression of Kircher's media concept is found in his apparatus for the allegorical metamorphosis of the reflected portrait of a human viewer into that of a donkey, a lion and six other creatures. In his fantastic studies on Mannerism, the art historian René Gustav Hoeke called this device a *metaphor drum*. Right down to the conceptual details, this set-up, which was also installed during Kircher's lifetime at the Museo Kircheriano in Rome, barely differs from modern-day walk-in installations featuring video or 'interactive' computer pieces. The visitor enters an almost dark room. Only an opening high up on one wall lets in sunlight that falls like a natural projection beam onto a mirror attached to the opposite wall at a 45-degree angle. A person standing at exactly the position marked on the floor will initially see his or her own portrait. The mirror element, however, can be tilted according to the precise geometrical instructions of 'Pseudo-Euclid'[15] in such a way that images of another object can be reflected in it, in this case an eight-sided drum that remains invisible to the viewer. For the rotation of the drum, Kircher provided for the two alternatives that are familiar to us from the genealogy of the cinema: either it is operated by a crank that can be seen protruding from the cabin in which the drum is hidden, that is from inside the projection room, or it is turned by an unseen hand outside the darkened room via a transfer mechanism. The

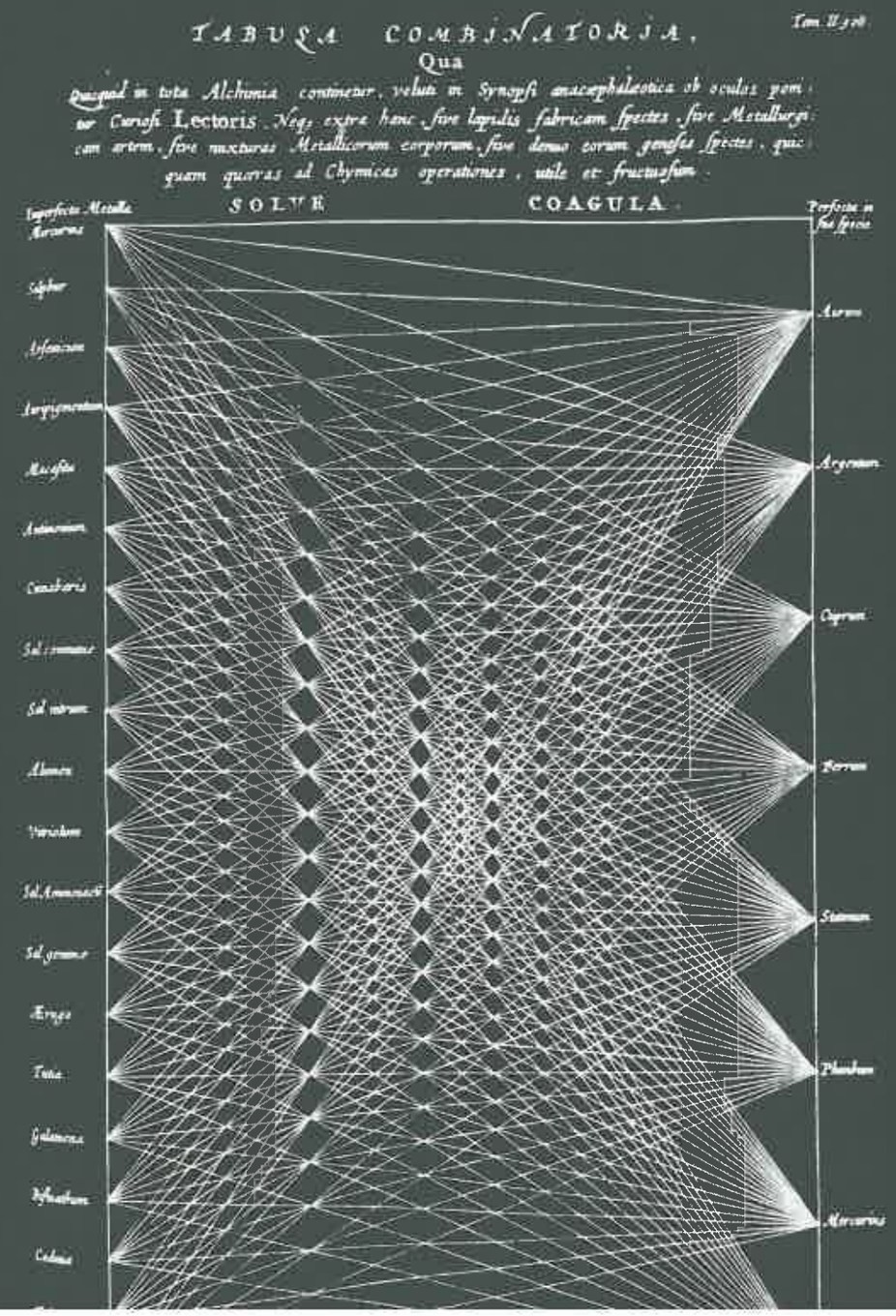
1901

THE CATALOGUE FOR THE SEARS, ROEBUCK & CO. DEPARTMENT STORE IN CHICAGO REPORTS THAT AN ELECTRIC BELT CAN SOLVE SEXUAL POTENCY PROBLEMS IN MEN, EVEN IF THEY SUFFER FROM STRESS.

first version might even enable visitors to control the image machine themselves, neutralizing the overpowering effect or preventing it entirely and going against the stated interest of the inventor.[16] The aim was to astonish the person inside the installation to the point of shock. The importance attributed by Kircher to the effect of being surprised by images from a hidden source is illustrated by his inclusion in the wall with the window of a spy-hole for a second voyeuristic viewer, who could secretly watch as the drama with the mirror and the visitor's amazement at the perceived metamorphoses unfolded inside.

Kirchers concept for the transmission and amplification of sound in spiralling media ('channels'), which he liked to use for his acoustic eaves-dropping and amplification machinery (from: *Phonurgia Universalis*, German edition, 1684, 51).

With technical artefacts of this kind, Kircher created a tradition of visual apparatus which over subsequent centuries proved extremely effective and became the dominant model of production in the culture industry. Based on the concept of religious conversion via shock tactics, media machines were designed as enigmatic *black boxes*, built in such a way that their principle mechanisms remained a mystery to the user. The world projected was not meant to be recognizable as an artifice. The desired effect was primarily to surprise and persuade, and not to let either imagination or reason get carried away. In technical terms, the concept was sophisticated for Kircher's time, but aesthetically speaking it was an antiquity. It followed the advice in Aristotle's *Poetics*, according to which 'the proper purgation of . . . emotions is effected through pity and fear'.[17] Only thus can evil be instrumentalized as a God-given or devilish quantity.



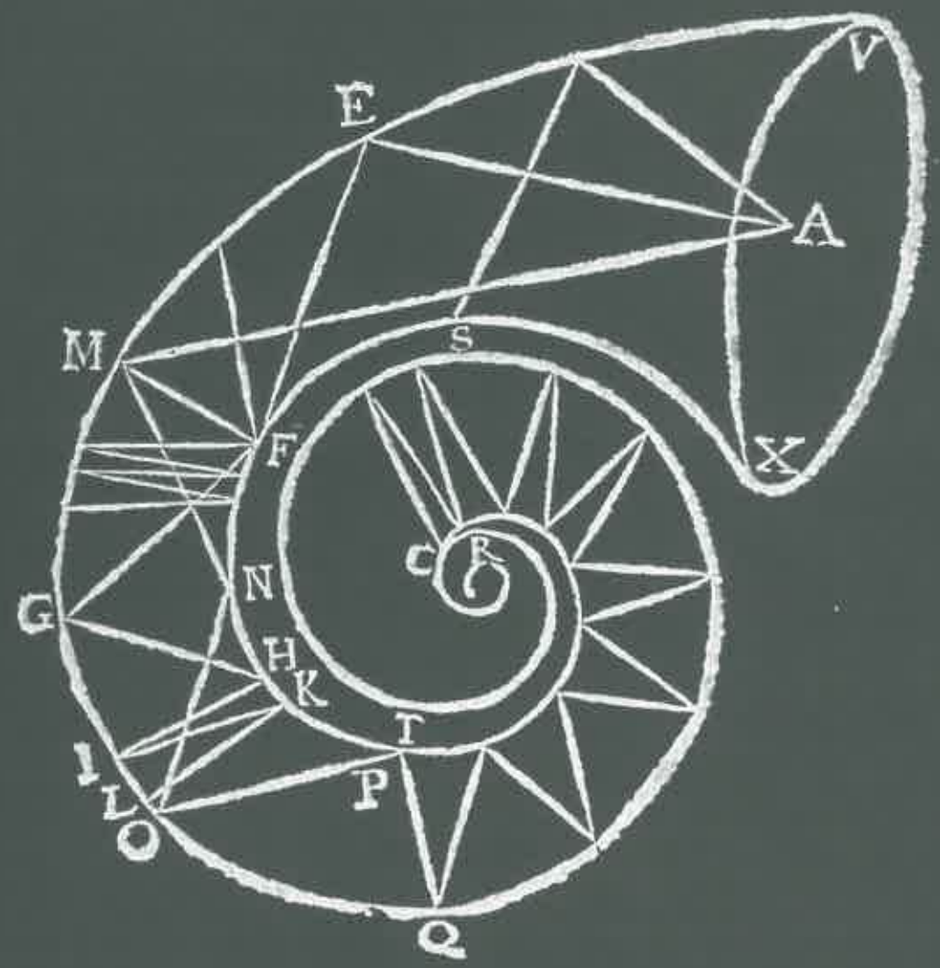
Channelling and Sequencing

Kircher's view of music is marked by a similar discrepancy. In essence, it is based on the theory of harmony as cultivated since antiquity, including the assumption of a correspondence between macro- and microcosmic relations and their reflection in the proportions of whole numbers to one another. Ideas of this kind were developed simultaneously in China at the time of Confucius and in ancient Greece by the school of Pythagoras, who makes frequent and prominent appearances in the lavish illustrations of Kircher's *Musurgia universalis* (1650). The same numerical relations that determined the distances of planets from the central fire of the earth, and of individual bodily organs from the solar node of the *anima mundi*, the locus of the soul, were thought to apply to the discrete notes of the diatonic scale and vice versa. Part of this theory of harmony was the idea of the healing power of music, which had already played a key role in the work of the Paracelsian and Rosicrucian Robert Fludd, whose history of the micro- and macrocosm was criticized by Kircher. In the same way that visual shocks were supposed to have a cleansing effect on the soul, harmonious musical sequences were thought to have a positive and regulatory influence on the listener's emotional state.

From today's perspective, however, Kircher's approach is only interesting once he moves beyond this pathetic worldview to the many-facetted variantology of media artefacts and systems contained in his studies on acoustics, his designs for acoustic and musical apparatus, and his technical elaborations on the idea of music as *'numerus sonorus'*, or 'sonic algebra', as formulated before him by Marin Mersenne in his *Harmonie universelle* (1636-1637).[18] Here I concentrate on just two subject areas from his *Ars magna consoni et dissoni* and *Phonurgia nova* that I consider particularly relevant to an archaeological study of media.

Kircher devoted special attention to the possibilities and practice of

Kirchers representation of the long-range acoustic transmission in spiral-shaped channels



Kircher's Vorstellung von der Ausbreitung und Verstärkung des Schalles in gewundenen Medien ("Kanälen"), die er mit Vorliebe für seine akustischen Abhör- und Verbreitungsanlagen benutzte. ("Phonurgia universalis", dtsch. Fassung 1684, p. 51)

1902

IN ALFRED JARRY'S NOVEL LE SURMÂLE, *ENGINEER ARTHUR GOUCH DESIGNS A LOVE MACHINE TO CONNECT UP TO A SEXUALLY INSATIABLE SUPERMAN AND CREATE ELECTRODYNAMIC ORGASMS. THE LOVE MACHINE FALLS VICTIM TO THE OPERATION WHEN SHE FALLS IN LOVE WITH THE SUPERMAN.*

transmitting sounds of all kinds. Following his analyses of the geometry and transmission of sound, he studied a wealth of different materials and voluminous structures with regard to their ability to transport sound as effectively and as far as possible. For long-range acoustic transmission he favoured spiral-shaped channels (*canales*). The considerable technical misunderstandings on Kircher's part, resulting from his belief that sound moved in straight lines like light and that acoustic reflections had similarly amplifying qualities to that of mirrors in optics, are of little consequence when weighed against the innovative power of the media models he developed in the process. They cover a broad range, from aggressive uses of sound and complex acoustic theatricals, through to concepts for long-distance transmission of music for an anonymous audience that constitute a genuine mass-media set-up.

The key idea here was that the place where a sound is produced must not be identical with the place where it is perceived. Kircher clearly used the entrance hall of his museum in Rome as a testing site for impressive demonstrations of this notion. Along the side walls there were metal heads mounted on pillars that performed simple kinetic functions. When they opened their mouths, visitors could hear voices without being able to see the speakers. The sounds were transmitted through long tubes from another room in a remote part of the museum. Reversing this principle, Kircher designed a bizarre *Panacousticon*[19] that worked like a modern bugging system. Funnels built into the walls and ceilings of a building were designed to capture everything said by those present and carry them to the ear of a hidden listener via a complex system of channels.

Audio-spatial architectures of this kind are part of a discourse of political power. They fit into the tradition of media hardware as technologies of control, honed and perfected over the centuries, and most recently manifested as systems for satellite monitoring of telephone and Internet traffic. But Kircher already conceived of them in the functional ambivalence between patronization, orientation and

Athanasius Kircher's *Organum Mathematicum* in a model from 1663, by Kaspar David Schott, a collaborator of the Jesuits, displayed in 1668 in his book by the same title. Left in the images is a theory like but with applications for the mathematical box, from music to cryptography and astronomy to arithmetic. The menu options were continuously adapted by Kircher and Schott in the different versions of this didactic machine.

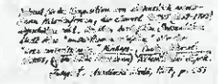
entertainment that characterizes modern mass media. Chapter X of his *Phonurgia nova* features the first *technasma*, a sketch of a house that looks like a recording studio. In an acoustically closed room, a quartet plays. Above the musicians, a large listening funnel is set into the ceiling, the tapering end of which passes out through the wall. Theoretically, the length of this channel could be varied at will. In this way, music can supposedly be made audible to people several miles from where it is being played, without them knowing where the sounds are coming from.[20]

Kircher was not only an enthusiastic researcher, but also an ambitious teacher. Many of the technical artefacts designed and built by himself or by others under his instructions had a primarily didactic value. They were intended to help educated laypersons or amateurs (people who love their subject) to gain practical experience in complex matters of knowledge and cultural activities. With the help of apparatus that was relatively simple to operate, the aim was to generalize or, as we would say today, popularize the knowledge and skills of experts, naturally at the price of reduced complexity or degrees of difficulty. This guiding principle is expressed in Kircher's oeuvre by a group of constructs that were developed for different applications but which display striking similarities in their construction and mode of functioning. They consist of boxes made of wood or thick cardboard which act as a case for a more or less specialized information system. Individual pieces of information are stored on thin rods, also made of wood or paper, on which data from the field in question is written and which stand or hang vertically in the boxes. A horizontal system of classification acts like a menu, ensuring

1908

INSPIRED BY EDOUARD BELIN'S TELEPHOTOGRAPHIC MACHINE, WHICH ALLOWS PHOTOS TO BE TELEXED OR FAXED OVER DISTANCE, GEORGES MÉLIÈS DEMONSTRATES A TELEXCINEMATOGRAPHIC DEVICE IN LA PHOTOGRAPHIE ÉLECTRIQUE À DISTANCE. *SUBJECTS ARE PHOTOGRAPHED AND THEIR 'LIVING PORTRAIT' IS REPRODUCED WIRELESSLY ON A PROJECTION SCREEN, INDICATING THEIR TRUE NATURE.*

Athanasius Kircher's *arca* for creating compositions in a musical setting for four voices, as it was actually produced around 1650. The size of the box is comparable to that of two cigarette packs and was clearly meant as a mobile device, lightweight and available for use anywhere.



Automat for the composition of stochastically variable melodic forms, ascribed to Samuel Pepys (1639-1703). Written on data files, this *Musarithmica Mirifica* appears strikingly similar to the *Arca Musarithmica* of Kircher. (source: Tihamér Nemes, *Kibernetikai Gépek* (Cybernetic Machines), Budapest: Akadémiai Kiadó, 1967, 257).

that the rods can be correctly identified and handled in accordance with the information system. The dimensions and weight of these devices were not large. They fitted easily onto a desk (like the *Organum mathematicum* that facilitated certain calculatory procedures and which also contained a section for music), and Kircher even built some for mobile use, as in the case of the *Arca steganographica*, the box for the coding and decoding of secret written messages that he constructed around 1650 and which is described in detail in his *Polygraphia nova* (1663).

The *Arca musarithmica or musurgica* looks similarly unspectacular and was developed at around the same time as the steganographic box. In the place of words – to be assembled into meaningful units by using the secret key – this device is designed to help the user compose simple pieces of music for four voices. Due to Kircher's vague description and confusing use of terms even in Book VIII of *Musurgia universalis* (*Musurgia mirifica*, page 185ff), the exact functioning of the music box and the musical quality that resulted from its use are matters of controversy in the literature on musical history, where highly contradictory accounts are to be found. In places, the divergences are so extreme as to give the impression that quite different devices are being described.[21] For this reason, we should briefly take a closer look here:

The opulent illustration of the *arcae musurgicae novum inventum* (new

1909

Arca Musurgica, Kircher's 'Box for rhythmic sequences of music', 1650, the device that he intended as an aid to amateurs to compose their own simple music pieces from pre-given musical phrases.

invention of a box for music makers / for the art of music) is misleading. From the description of the *arcae*, we know that it is a small box, a 'container whose length (height) and depth are the same, with both measuring a hand's breadth' (page 185), with the width of the box defined by Kircher as just 'half a hand's breadth'. Understanding is hampered by the absence from the illustration of the three equal-sized compartments into which, according to the description, the box is divided and which are attributed different compositional functions: 1) rhythmical combinations of song material from 'certain polysyllabic segments' (as shown by the example *Cantate domino* . . . page 186ff); 2) Compositions in several verses and their variously combinable metric structures; 3) Composition of 'elaborate and flowery songs' according to a 'rhetorical art of music' (page189ff). An example from the second compartment for 'lyrical music', which is further subdivided into six smaller compartments, with a theoretically unlimited number of columns, should make clear how difficult it is to arrive at any concrete usage and how Kircher himself contributes to the confusion. Having previously explained how to assemble 'any desired song material into six Anacreontic strophes', he continues: 'All other uniform polystrophic metres are assembled in the same way. But if the text material is not uniform, i.e. assembled from several parts, then the columns should be removed from the cells labelled with the corresponding metre. Let us take an example to illustrate the matter [the following six metres are inserted into the text as a list :

1. *Hendecasyllables*
2. *Anacreontic metre*
3. *Archilochean iamb*
4. *Euripidean iamb*
5. *Alcmanic iamb*
6. *Adonic metre*

If, then, someone is composing a piece with several strophes, where the first strophe is in Phaleucian hendecasyllables, the second Anacreontic, the third Archilochean, the fourth Euripedean, the fifth Alcmanic and the sixth Adonic, he should proceed as follows: Of all the various closed compartments, open the cover labelled 'for hendecasyllables', then the cover labelled 'for Anacreontic metres', thirdly the cover for Archilochean iambs, fourthly the cover for Euripedean iambs, fifthly the cover for Alcmanic iambs and sixthly and finally, the one for Adonic metre. Then remove from each of these compartments, in the same order in which they were opened, a single column and lay them carefully side by side as before. The columns arranged in this way can be freely combined at will and any horizontal line of bars can be selected for the desired song material. Once the bars have been chosen, one can begin composing the song in precisely the same way as described in the previous section, and the desired result is achieved.'[22]

Once again, however, for an interpretation in terms of an archaeology of media, we are most interested in the essence of this design: predefined musical, poetic and rhetorical models, or, to be more precise, their formal representation within the apparatus, can be used to assemble variable harmonious compositions. The individual *patterns*, as we would say today, only have to form a theoretical match, that is they must be combinable with one another. This is the principle of the *sequencer*, which is used in electronic music to store sound sequences in order to make them available for further processing, for example, by an instrument like a synthesizer or by computer composition programs. At the end of Chapter 3 ('On the use of the *Arcae musurgicae*'), Kircher formulates his conclusion, rapturously aware of the far-reaching consequences of his invention: 'This example makes clear the endless amount of possible combinations that can be obtained from different arrangements of the five columns. There are surely as many as if an angel had begun devising combinations at the dawn of time and continued uninterrupted until the present day.' (page 188)

1910

Summary

The role and significance of Athanasius Kircher for an archaeology of (imaginary) media can be summarized in five points:

1. Kircher's media world oscillates between realistic concepts on the one hand and an endless superabundance of imaginary material. The former are strongly embedded in the Jesuit strategy of conversion, and thus in the structures of Catholic power, while the surplus material goes beyond this framework and points towards media functions that might develop in an antagonistic relation to power – as games, as communication, as art.

2. Kircher believed in the emancipatory, pacifying power of communication, and this notion was a crucial factor in the excess of imaginary products created during his development of technical artefacts. For him, it was an attractive path to harmonization: if the real world threatened to fall apart in wars, conflicting political interests and competing religious concepts, then it had to be unified and held together all the more energetically at the level of symbols, languages, the arts and their potential interrelations. For the Jesuit Kircher, media had a fundamentally utopian potential.

3. Kircher shared with his contemporaries an affinity for the spectacular and the theatrical. His *theatrum mundi* or rather, his world as theatre, with its overflowing arsenal of machines, effects and designs for creating illusions and emotional shock are distanced from Hollywood only in terms of history and geography, if one understands the Californian cradle of the studio system of cinema as a metaphor for a media strategy of technology as the embodiment of emotions, dreams and nightmares, the possibility of standardizing emotional orientations and compensations.

4. Kircher's media practice was genuinely *interdiscursive*. In his media models, he combined not only different forms of expression, but also

1911

THE CARTOON 'WE'LL ALL BE HAPPY THEN', PUBLISHED IN LIFE MAGAZINE, ILLUSTRATES FUTURE MEDIA CONVERGENCE. THE SCI-FI DEVICE IS CALLED THE 'OBSERVISCOPE'.

different disciplines and forms of knowledge. As a , Kircher was the personification of a universal machine.

5. In Kircher's view, knowledge, art and technology belonged together. In a world ruled by the discipline of mathematics, it was possible to generate languages, to calculate and fabricate images, and to break down and reassemble musical structures. From today's point of view, his media models are an appeal to us to see the world of tears and laughter and that of calculation and combination not as opposites, but as two poles which under ideal conditions can support and complement each other.

1912

LA DECOUVERTE DU DOCTEUR MITCHOFF [illegible] DEMONSTRATIVE [illegible] DES OPERATIONS [illegible] DU MEURTRE [illegible] A [illegible] PROJECTION

notes pp. 55–57

1. The deeper I descend through the layers of past media development, the clearer it becomes to me that the main purpose of this archaeological work is to counter current tendencies towards standardization and universalization in the interest of a uniform global market with the rich variety of variants offered by bygone eras. If archaeology is the principal method for this special form of historical research, then variantology is the tactic (in the Foucauldian sense) by which individual genealogies are to be unravelled from its wealth of varieties. The words variare / variant have etymological links with deviation, diversity, colourfulness and shimmering, while in musical terms they also denote the modulation from minor to major key by a change of interval.

2. For a recent critique of this, see Carlos Gilly, 'Hermetism for Tourists. Athanasius Kircher makes a museum piece out of Hermes', in: Carlos Gilly and Cis van Heertum (eds.), *Magia, Alchemy and Science 15th–18th Centuries. The Influence of Hermes Trismegistus* (Florence: Centro Di, 2002), 503. Kircher is accused of particularly severe plagiarism in his *Oedipus Aegyptiacus*, the early drafts of which are said to contain whole pages copied from John Dee's *Monas Hieroglyphica*.

3. Yasmin Annabel Haskell, *Loyola's Bees. Ideology and Industry in Jesuit Latin Didactic Poetry* (Oxford and New York: The British Academy / Oxford University Press, 2003).

4. Quoted here from the most easily available reissue of Ritter's 1810 book (Leipzig and Weimar: Kiepenheuer, 1984), 89.

5. *Magnes*, 1643, I.III., 464, translated from the German version in the outstanding dissertation by Ernst Benz from 1970. For more recent work on Kircher's concept of magnetism, see also Davide Arecco, *Il sogno di maneva. La scienza fantastica di Athanasius Kircher (1602–1680)* (Padua: Cleup Editrice, 2002), especially the chapter on 'Utopia magnetocratica', 119ff.

6. Besides Oetinger's written works, there are scattered letters from him to Prokop Divi? and Fricker, articles in encyclopaedias and entries in Catholic handbooks. As well as the dissertation by Benz, there is also a more recent one by the Italian Paola Bertucci, that focuses on eighteenth-century English authors (John Freke) and which to my knowledge has not yet been published. It contains a chapter on 'electric fire and the *Theologia Theatonum*', a label derived from the strong influence of Jacob Boehme's theosophy with its dualistic view of life energies, a view also espoused by Kircher.

7. All quotations in this paragraph from Ernst Benz, *Theologie der Elektrizität. Zur Begegnung und Auseinandersetzung von Theologie und Naturwissenschaft im 17. und 18. Jahrhundert* (Mainz and Wiesbaden: Verlag der Akademie der Wissenschaften und Literatur, 1971), pages 6, 7 and 1, in that order.

8. For a more detailed description, see Volker Aschoff's *Geschichte der Nachrichtentechnik. Beiträge von ihren Anfängen bis zum Ende des 18. Jahrhunderts* (Berlin: Springer, 1984).

[illegible]EM WITH A [illegible]NIFYING GLASS THAT [illegible]WS YOU TO READ THE [illegible]NA OF THE VICTIM [illegible] INDICATE WHO HE OR [illegible] LAST LOOKED IN THE [illegible] THANKS TO A PHENOMENON KNOWN AS 'PERSISTENCE OF VISION' THE MURDERER CAN THEN BE IDENTIFIED.

125ff.; precise translations in my *Media Archaeology* (Cambridge, Mass.: The MIT Press, 2004), 185ff, and in Haskell, *Loyola's Bees*, op. cit. (note 3), especially 203ff.

9. Haskell, *Loyola's Bees*, op. cit. (note 3), 136.

10. See chapter on della Porta and cryptography in Siegfried Zielinski, *Archäologie der Medien. Zur Tiefenzeit des technischen Hörens und Sehens* (Reinbek: Rowohlts Enzyklopädie, 2002), especially 98.

11. Debord 1978, p. 25.

12. See Walter Benjamin, *The Work of Art in the Age of Mechanical Reproduction.*

13. Kircher, *Ars magna lucis et umbrae* (Rome: H. Scheus, 1646 [1645]), contains a stenographic part at the end: *Cryptologia nova*. Extended edition: Amsterdam: Jansson van Waesberge, 1671. 768ff.

14. Ibid., 769.

15. I refer here to the treatise *De speculis*, see [Pseudo-Euclid] Axel Anthon Björnbo and Sebastian Vogl (eds.), *Alkindi, Tideus und Pseudo-Euklid. Drei optische Werke* (Leipzig: Teubner, 1912).

16. This is explicitly pointed out by Caspar David Schott in his description of the allegory machine in his *Magia optica* of 1671.

17. Aristotle: *Poetics*

18. On the relationship between Kircher and Mersenne, see Eberhard Knobloch's 'Musurgia Universalis: Unknown Combinatorial Studies in the Age of Baroque Absolutism', *History of Science*, 1979 xvii, 258–275.

19. I use this term here by analogy with the *Panopticon* developed in the eighteenth century by Jeremy Bentham as the architecture of a prison where all cells were to be visible from a central watchtower, or rather, as Michel Foucault underlines in *Discipline and Punish*, where the prisoners were meant always to have the feeling that they were being watched; a perfect arrangement for disciplinary power.

20. See this *Technasma* in: Athanasius Kircher, *Neue Hall- und Tonkunst* (Nördlingen: Arnold Heylen, 1684), 102ff.

21. See for example Ulf Scharlau, *Athanasius Kircher* (1601–1680) als *Musikschriftsteller. Ein Beitrag zur Musikanschauung des Barock* (Marburg, 1969); Knobloch, 'Musurgia Universalis', op. cit. (note 18), 265ff; the catalogue of the Kircher exhibition at the Vonderau Museum in Fulda in 2003 (50ff); or Peter Bickel, *Musiker, Musik und Musikproduktion unter dem technologischen Diktat der Musikmaschinen* diploma dissertation at Berlin Technical University, 1988 (published in book form by Sigma: Berlin 1990).

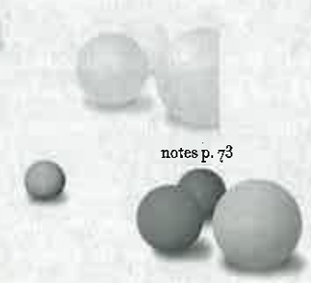
22. Kircher, *Musurgia universalis sive Ars magna consoni et dissoni in X libros digesta*, (Rome: Francesco Corbelletti, 1650), Li. VIII., Pars V., Caput IV, 188ff.

'Time, however, has abundantly favoured my analysis. In the year 2004 it is blatantly obvious that so-called new media, digital media, die much faster than any previous kind of media'

RAYMOND ROUSSEL'S NOVEL **LOCUS SOLUS** *FEATURES THE HEAD OF FRENCH REVOLUTION HERO DANTON, PRESERVED IN A BOWL FILLED WITH AQUA MICANS. A BALD CAT, TRANSFORMED INTO A BATTERY BY SWALLOWING A RED PILL, CAN BRING THE HEAD BACK TO LIFE BY SWIMMING IN THIS SPECIAL WATER.*

Media Paleontology

Bruce Sterling



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Technology affects society in two ways: by its presence, and by its absence. The twentieth century was the nineteenth century with automobiles, and without horses. People rarely pay attention to technological absences. New technologies attract a frenzied interest, while dead technologies are curiosities or embarrassments. That's because we live in a commercial society and it is hard to sell dead technologies. Dead technologies have fallen out of the revenue stream and they lie beached on the deserted shores of obsolescence. It's hard to promote and sell a technology that no longer exists. Except for the occasional hobbyist or intellectual eccentric, no one wants to retail the defunct.

I am a science fiction writer. When I first began the Dead Media Project in 1995, we were climbing the dizzy heights of the Internet Boom. My

interest in dead media was odd and even perverse, which was why science fiction writers like myself and my friend Richard Kadrey were pioneering this field of study. When Richard Kadrey and I first explained our intentions in a manifesto for dead media, many people seriously wondered if there were any forms of media that could possibly be dead.

Time, however, has abundantly favoured my analysis. In the year 2004 it is blatantly obvious that so-called new media, digital media, die much faster than any previous kind of media. Digital media are dying in such numbers and in such variety that it is impossible for anyone to keep up. They die without even stabilizing long enough to establish a settled terminology. The Information Superhighway was not about information, nor was it ever a publicly owned superhighway, and yet it's already defunct.

Some forms of media are blatantly dead. Bypassed. Superseded. Irrelevant to daily life. It's very hard to send a telegram these days, even though telegraphy was 'the Victorian Internet,' and Morse code once circled the globe.

If you are on a sinking ship, and you send out an SOS radio message in Morse code, you will drown in the twenty-first century, because nobody anywhere is listening any more. You cannot send a message by rocket mail or balloon post. Such things were invented, but they do not exist now. There are no pigeon services, ready to carry your messages strapped to their small bird legs. There is no longer any Lipken system of optical telegraphs in Holland, sending messages to clerks with telescopes, by waving huge wooden arms in semaphore signals. You cannot order any music in a cafe through a telephonic jukebox. You cannot pay for television signals over the telephone with the Zenith Phonevision. These media are dead.

It's harder for us to understand that high-tech, expensive, sophisticated, digital devices, so recently referred to in hushed tones by major news organizations, are also going fast. It's very hard and getting harder to find and use an Apple IIe, and Apple Newton, Microsoft DOS, a Commodore computer, a Sony BookMan, a RocketBook, or any kind of virtual reality system. On the Internet you can no longer use gopher or WAIS, or FDDI or a token ring network. The lifespan of the average

1920

IN SCIENTIFIC AMERICAN, *EDISON CLAIMS 'THAT IT IS POSSIBLE TO CONSTRUCT AN APPARATUS WHICH WILL BE SO DELICATE THAT IF THERE ARE PERSONALITIES IN ANOTHER EXISTENCE WHO WISH TO GET IN TOUCH WITH US . . . THIS APPARATUS WILL AT LEAST GIVE THEM A BETTER OPPORTUNITY'.*

webpage is about forty-five days. The holocaust is all around us now. We are bathing in the inferno of dead media.

The Dead Media mailing list, founded in 1995, still exists. I no longer edit it myself, but it is maintained by my colleague Steve Baldwin. Being a science fiction writer, I have some seriously arcane, palaeontological media interests. I like them weird, colourful, improbable and obscure. I even like the kind of media that don't exist at all and that I have simply made up myself, utterly imaginary, science-fictional media, like, for instance, the late twent-first-century virtual reality systems in my novel *Holy Fire*. Steve Baldwin is not a science fiction writer but a serious working journalist. He is particularly interested in issues of digital decay. This is the hard, cutting edge of dead media as a societal challenge. The preservation of digital media is an extremely difficult problem. Those of us who work in digital media are working in a torrent of unstable ones and zeros. We are building on digital sand.

My friend Jon Ippolito is the curator for digital media for the Guggenheim Museum in New York. Like many of his fellow archivists, Jon is very concerned with the subject of digital preservation issues in the art world. The situation is worsening steadily. There are no simple answers or solutions in the digital world. The computer industry has been built to be complicated, and designed to frustrate attempts at repair and maintenance.

Paper is simple. If you are an archivist who is trying to preserve a document of ink and paper, you can put the paper in a dark, dry place that is fireproof and sealed against vermin. Then you have only two serious problems, basically: the ink itself, and the paper itself. The paper can rot, or the ink can fade. Or, the ink can have some acid in it, which eats the paper, which is sadly common. Paper documents do die, but they die rather slowly and gracefully. The alphabetic symbols on the paper can be copied fairly cheaply, and without much loss of fidelity.

If you have a computer with digital data in it, you have not one problem, or two problems, but level after level after level of sophisticated instabilities. Basically, you, the lonely archivist, are trying to support and preserve an entire cybernetic post-industrial system. This enterprise was not built for the convenience of librarians. You, the museum curator, have to become the tech support for the whole

cybernetic enterprise.

And oh, what vistas of woe and decline, what fretful hauntings of threatening ghosts and phantoms. The central processor chip can fail. The operating system can fail. The language that supports the operating system may be discontinued and no longer supported. Unlike paper, which degrades rather gracefully, computers have sudden, catastrophic failures, if that central processor fails to move its electricity, due to any of many thousands of possible microscopic flaws and faults, that computer suddenly and totally stops working. Catastrophic failure means the 'blue screen of death'.

It gets worse. You may lose the subtler forms of adjunct software, such as the screen display software, the printer driver, the audio chips. The keyboard format may not work. The application may fail. The data storage formats for the application may no longer be supported. You may have different screen dimensions and different graphics formats, which fail to display for various balky, difficult, inexplicable reasons. The material you are trying to preserve may be encrypted. There may be digital rights management difficulties that forbid copying.

And the storage media itself is physically unstable. There is no archival, long-term medium for storing ones and zeros. None. It does not exist. We have yet to invent one. Long-term storage for software, fifty years, a hundred years – this is an imaginary medium. Paper tape, punch cards, reel-to-reel mag tape, cd-rom, dvds, they are all stopgap solutions and they all have serious flaws. As they grow smaller and compact, storage media also grow more delicate and fragile.

This should be a great technological scandal, a scandal on the grandiose worldwide scale of the Greenhouse Effect, but that isn't a scandal, either, and for a lot of the same reasons. We are not thinking our issues through.

We are exporting our unsustainable problems onto future generations for the sake of present-day economic advantage. But the clock of history doesn't stop ticking just because we are running twice as fast.

Some forms of dead media are quite bizarre, farfetched and unlikely, which is why I as a science fiction writer always found them so entertaining. I am not a professional scholar but only an autodidactic researcher, so my research enterprises have to be fun, or no one will

play with me. The material in media studies is excellent, however – if you read Siegfried Zielinski's presentation, you'll understand why he is aptly called the 'Dr. Caligari of Dead Media'. Dr. Caligari, I might remind you, is not just a classic fantasy film but a film in the dead silent-film format.

My colleague William Gibson and I wrote a science fiction novel, *The Difference Engine*, which is basically one long meditation on imaginary media. This novel is based on one of the great technological freaks of history, Charles Babbage's Difference Engine, a mechanical computer that was weirdly detached from the later line of electrical computation. *The Difference Engine* is a kind of imaginary epic of technological development. I am not going to summarize it for you here because it is several hundred pages long and extremely clever. I think they are still selling it at the Science Museum in London, where they have a difference engine on display. The book has stayed in print since it first appeared.

I didn't come here to convince you to read science fiction novels. I admit that I do that, but it's rather a special taste. Instead, I would like to convince you that, although it has many arcane and fantastic aspects, the subject of dead media is not fantastic or arcane. Media obsolescence is an ongoing civilizational process with broad implications that ought to be intimately familiar to almost anyone in this room.

People involved in digital culture have made our bed, and now we are lying in it. We imagined that our bed was a clean, abstract, mathematical, Euclidean, Platonic, computer-science, electronic kind of bed, but we were deceiving ourselves. The bed of digital culture is a very rumpled, dirty, makeshift, anarchic kind of bed. It smells of viruses and worms and is surrounded by vast, ever-growing heaps of our discarded trash. The sheets are owned by other people and they want us to rent the mattress by the hour. The digital media industry

1920

looks and acts a whole lot like other forms of highly polluting, poorly regulated industries. It's got robber barons, and corruption, and pollution, and rampant speculation, and, well, many other classical technical phenomena that one can easily recognize from the wildcat boom days of aviation, automobiles, railroads, and nuclear power.

We lack a good methodology with which to recognize a technology's engagement with the passage of time. We lack a proper long-term view, and our lack of insight leads us to repeat ourselves. Anyone who has seriously used computers for any length of time has found that the technological sublime is shot full of humiliation. We've all had these classic dead-media moments of shattering disillusionment and stupefying squalor. These are the moments in which we realize that the crash is here and our backups don't work. Or when we suddenly realize that our new machine can no longer retrieve and display all the mail we wrote with our old mail reader. Or that a new word processor doesn't smoothly interoperate with an old one, or that an old spreadsheet turns to garbage when we try to open it with a new office suite.

These used to be mere accidents due to computation's rapid advance. Nowadays, however, these snags have been rationalized and built into the business model. In these monopoly days, computers do not advance, except in fresh methods of digging money from the pockets of users. We have been cruelly trapped in a treadmill of so-called upgrades: a cycle designed to lure us into the system and then to demand endless payoffs for supporting infrastructure.

We have come to expect, as consumers, that the landscape of the computer industry will be full of roadblocks, potholes and barbed wire.

Dead media, our older computers, were not merely superseded by improvements, but killed off as industrial policy. It's not enough to create the new for the sake of improvement; the old must be actively annihilated. The hard bedrock of technological imperative has yielded to the erosive revenue streams of various interested parties: software monopolies, movie companies, music companies, postal and telecom monopolies, regulatory bodies, standards bodies, non-governmental groups of software activists, national governments, regional governments, non-governmental organizations, and various criminal enterprises engaged in virus-writing, or spam, or fraud.

1921

F.R. MELTON DESIGNS THE 'SPIRIT TELEPHONE', WHICH AMPLIFIES THE VOICES OF THE DECEASED AND SPIRITS PRESENT IN THE ETHER.

We fail to recognize how and why our society rewards all this behaviour. In believing a Platonic mythology of the cool clean electroworld, we have brought all this lively squalor on ourselves. We sought the Absolute, and we found only products. They are not user-friendly products, because the users are not the kings. The users are the prey. And the users are not innocent either. The users are just like the rest of us. We stared into the fibre-optic pipes and found a mirror.

People have many folk mythologies about technological development. The foremost myth is an ideology of unbroken progress. This is often called the 'Whig Theory of History'. In this Whig theory of history, every event in the past has a simple explanation. All that complicated activity in the past existed in order to create us. We, you and I, the people of the present day, are the proper measure of all things. We are the crown of creation. Our time, this time, is the best time ever. Our technologies are the best ever, because all previous efforts were halting, unworthy versions of the fine things we use ourselves. They were primitive, not yet fully developed. If certain amusing mistakes were made in the past, that are no longer present for us to use, then they were blind alleys that were best abandoned. They failed because the past was insufficiently like us, the present.

As you might guess, my own technological studies have led me to a rather different conclusion. My idea of technological development is not a Hegelian march toward the sunlit uplands of historical determinism. That's because I actually know some engineers personally, and I consider technologists to be those peculiar, vaguely congenial people who buy and read my fantasies. Given these facts on the ground, I consider technology to be a fertile, squalid orgy of invention and caprice that is always teetering on the edge of chaos. I may be a futurist, but I write what I see, dear people.

And the past is this very place, at a different time. Every historian is an imaginative author engaged in an act of retrodiction.

When it comes to media palaeontology, I favour the ideas of biological evolution developed by Steven Jay Gould.

According to Gould's ideas of 'punctuated equilibrium', our current moment in evolutionary history was never a matter of destiny. In Gould's idea of nature, there is no teleology or single divine guiding

force. Nature is not destiny. There is no predetermined so-called natural way of life. The idea of the natural is severely under question. Nature is the result of repeated contingencies.

If, for instance, the dinosaurs had never been wiped out by an asteroid, then it's very unlikely that we human beings would have ever existed in anything like our present form. The form we have inherited – bipedal, mammalian, upright, ten fingers, two opposable thumbs – it has some clear advantages, but it is not a perfect or ideal solution. It is a workable, emergent compromise, this rugged, optimal, animal body. The body is the result of many biological revolutions, shakeouts, purges, wild cards, upheavals, bottlenecks.

The same is true for the shape and functions of our artefacts, including our media artefacts. Serious technologies are shaped by forces beyond the imagination of their inventors. No rational battle plan can long survive contact with the enemy.

Here is an example. In the media world of analogue videotape, there was once a mighty struggle for survival between Sony Betamax and the VHS format. Betamax was better-engineered in almost every way, but VHS vendors were willing to sell pornography. It's a little difficult for us to understand that very human, depraved, semi-legal, prurient sexual urges can be a matter of life and death for media technologies. In real life, though, this is often the case. New media that can attract pornographers almost always survive and flourish. Pornography is a profound sign of health for a new medium.

The Internet is absolutely saturated with pornography. There was pornography in daguerreotypes. When the Magic Lantern Society of London holds its historical magic lantern exhibits there is always fierce interest in magic lantern erotica. In the Franco-Mexican war of the 1860s there was microscopic pornography created and smuggled for nineteenth-century microscopes. It doesn't matter that this might seem weird and disgusting. Handguns and torture devices are weird and disgusting, yet some of those are wonderfully well-developed.

After working in Dead Media for four years, I derived a general theory of media life and death. Why do some media live and some die? Clearly a media theorist who could answer this vital question would be in supreme command of the field. That was my own primary interest in the

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CONVOLUTIONS ON A
SCREEN.

Dead Media Project, and, after years of thought and effort, I reached a firm conclusion. I call it the Dairy Products Theory of Dead Media.

In this theory, media is understood to be a primeval human need, something like milk. Milk we always have with us: We live on it, we need it. Milk even comes out of the human body itself. It is older than the human body, much like language is older than human society, and symbolic representation was clearly used by pre-humans. The palaeontology of media is older than the human race: Neanderthals buried their dead, and pre-humans almost certainly danced, spoke, had rituals, and blazed and marked trails for themselves to migrate across the planet. Milk is old, too, and milk technology has had a long, varied, complicated history. It has wide varieties: human milk, cow milk, horse milk, goat milk, sheep milk, thousands of different cheeses, yogurts, fermented alcoholic milk, pasteurized milk, canned milk, dried milk, freeze-dried milk, milk from cloned sheep, milk from cows shot full of growth hormone. Dairy products may seem cheap and humble, but when you look at the details you find that whole industrial histories are involved.

But although milk is a constant factor in the technological history of milk, milk is never the determining factor. In a similar way, media does not rule the development of media. Like milk, media is determined by the surrounding technological and social circumstances. People handle communication the way they handle milk. They make media the way they make war: with anything at hand. People have created media out of smoke, silk, braided yarn, flowers, stone, wood, palm leaves, wax, skin, and hair. There is media for the wilderness, the tent, the home, for horseback, for cars, trains, aircraft, towns, massive urban centres. Media is a highly variegated set of specialized substances, like dairy products. It can be liquid or solid or gas, cheese, syrup or mush. It can be for immediate consumption or preserved for the long term, for the individual diarist or for the global masses. Media we always have with us. We do best and most wisely if we do not valorise it as media but look at it in a humbler, more pragmatic spirit. If we seek the absolute we will mire ourselves in the squalid, but if we study the squalid with an accepting spirit of scholarly engagement, we may discover the sublime.

In extreme social conditions, media reveals its ductile nature most clearly. There is no better example of this than the story of the siege of

1922

Paris during the Franco-Prussian War of 1871. Paris was the capital of the nineteenth century. Paris was a highly mediated city full of sophisticated technological invention, the city of Jules Verne and Albert Robida. In the Franco-Prussian War, Paris was surrounded and cut off by the best troops in Europe. The result was a tour de force of explosive media invention. It is really without parallel before or since.

The Parisians were desperate to communicate with the outside world. They tried methods of media previously unimagined. They tried sending underwater cables on a telegraph on the bed of the Seine, but the cable was found and cut. They tried putting messages into watertight metal balls and shipping them downstream with the river current. They tied messages to the collars of dogs.

Through trial, error, and ferocious Gallic ingenuity, they finally patched together a functional communication system suitable for a capital city. It involved, as integral parts, homing pigeons, gas balloons, telegraphy, postcards, money transfers, and microfilm.

On September 18, 1870, Paris was encircled by the Prussian armies. The balloonist and photographer Nadar, the father of aerial photography, urgently created a company of balloons.

Within five days, Nadar's first balloon left Montmartre, carrying 125 kilograms of paper dispatches. During the five months of the siege, 64 balloons left Paris. No balloon could return to land in Paris, because the winds were too unpredictable. Parisian balloons landed in various parts of Europe. Some balloons fell near the German lines and their pilots had to scramble for it. One balloon travelled on the winds all the way to Norway.

The Germans quickly devised special anti-aircraft balloon guns. One aeronaut told of seeing cannon balls come almost to his basket, then fall back to earth.

The Parisian balloons were made of thin cotton cloth, covered with varnish. They were inflated with the gas from streetlights. From the city of Metz, during its own siege, smaller unmanned balloons were sent out, balloons made of paper and fired with hot air.

Balloons could fly out of Paris on gas and hot air, but how to get messages back in to the besieged population?

Nadar contacted another photographer named Rene Dagron, a

1925

IN MARCEL L'HERBIER'S ART DECO FILM L'INHUMAINE, *ENGINEER EINAR NORSEN INVITES OPERA SINGER CLAIRE LESCOT TO TRAVEL IN A WIRELESS AND BODY-LESS MANNER. WHILE HER VOICE IS BEING BROADCAST RADIOPHONICALLY ACROSS THE GLOBE, SHE SEES HER LISTENERS ONE BY ONE ON A TELEVISION SCREEN.*

Frenchman who had been experimenting with microfilm and microphotography. Dagron was smuggled out of Paris inside a balloon. In the pressure of war, Dagron rapidly advanced his microfilm process. He was able to place the images of 3,000 documents onto a collodion film of fifteen square centimetres. Thanks to Dagron, the bulk of paper was abolished and the mail of Paris was practically virtualized.

Then these microscopic films were carried to Paris on the legs of carrier pigeons. The birds were smuggled out in balloons. Many birds returned to Paris – but many were shot. Some were pursued by special pigeon-hunting hawks brought by the Prussians. Of the 355 pigeons that left Paris inside balloons, only 57 pigeons safely returned. Messages were repeatedly sent to Paris until the people of Paris acknowledged their arrival. Some message packets were sent as many as thirty times. When the microfilms reached Paris, they were plucked off of the birds. Then they were projected on an enlarger, recopied and distributed. Hundreds of thousands of documents arrived by bird and microfilm, with the record being held by one heroic pigeon, which transported 18 films with 54,000 documents.

This use of microfilm as a mass postal medium is sometimes considered the first use of microfilm as a communication system, but it wasn't. Hobbyists in England were making and selling microfilm entertainments for microscopes as early as 1853. In the American Civil War, years earlier than the Franco-Prussian War, British agents spying for the Confederate states were arrested, moving from Canada into the northern USA, and carrying secret microfilm messages concealed inside buttons on their clothing. We will likely never know the true origin of microfilm as a favourite medium for spies and couriers. How *can* we know? We are not meant to know. The truth was hidden in the world of international espionage and it has been deliberately concealed from history. Spies are even more secretive than pornographers.

The story of the Paris balloon post is a heroic tale of the life and death of nations, but these newly invented forms of communication were swiftly forgotten when the war was over.

Once the siege of Paris lifted, there was no balloon post established. There was no regular pigeon post, no mass microfilming by the French postal authorities. Except for a monument to the pigeons, which was

later destroyed by the Nazis, there was very little record left of this feverish experiment in new media. It simply folded up and vanished as if the whole episode had been dreamed.

In the Dead Media Project, particularly odd and bizarre forms of dead media are prized for their 'high Cahill Factor'. I should take a moment to explain the Cahill Factor and why we connoisseurs find this of interest. You see, some historical efforts are simply so improbable in retrospect that they defy imagination. High among them was the invention of Thaddeus Cahill. The Cahill Factor is named after Cahill because his story is so thrillingly incredible, so near to legend, so intriguingly odd, and so revelatory for us moderns. Thaddeus Cahill was an American entrepreneur and inventor who was one of the unknown fathers of electronic music.

Thaddeus Cahill and his brothers constructed the Telharmonium, a massive musical instrument, plus electrical generating plant, plus musical distribution system. The Telharmonium was designed to provide electronic music to a mass audience using telephone lines. Cahill placed the first of his five US patents in 1895. He completed three Telharmonium instruments, including the commercial models in 1906 and 1911. Dazzled industrial investors sank millions of dollars into Telharmonic music services. By 1907 Cahill was successfully piping live electronic music into Manhattan restaurants.

But the Telharmonium was massive and powerful – a gigantic, multi-ton device with its own generators. It distorted telephone voice services by overwhelming switching stations, and telephone users complained. Because he was a musical whiz as well as an electrical genius, Cahill insisted on a high-tech 36-note-per-octave electronic keyboard. People and performers didn't much care for this innovation of his, though – the electronic music sounded weird.

There was a financial panic in 1907; the Telharmonium died slowly in a welter of licensing problems and business disagreements. There was an

1920s

FOLLOWING A SERIES OF EXPERIMENTS ON DYING TUBERCULOSIS PATIENTS (WHOM HE WEIGHED BEFORE AND AFTER DEATH), DR. DUNCAN MCDOUGALL CLAIMS THAT THE MISSING OUNCES COME FROM THE SOUL. DUTCH SCIENTISTS MALTA AND ZAALBERG VAN ZELST MANUFACTURE THE DYNAMISTOGRAPH, A DEVICE THAT WEIGHS THE ETHEREAL BODY, AND COME TO THE SAME CONCLUSION.

abortive comeback in 1911 that struggled all the way into 1918. The last physical vestige of the machine finally vanished in the 1950s.

The Cahill Factor is named after Cahill because his dead media story is so exemplary. It is daring in conception, colossal in scale, widely publicized, it trembles on the brink of mass acceptance, and then it vanished utterly. It is now easy to understand this adventure of Cahill's as a precursor of the dotcom bust. Who would pay for this so-called service of – music on telephones? Where is the business model? He's building a business on mere hype! Where is his common sense? Were his investors all crazy?

Until you consider ringtones for handies, that is. Cellphone ringtones, tiny scraps of music. Ringtones are one of the most successful parts of the modern cellphone business. They're certainly one of the most successful aspects of the ailing modern music business. Is the ghost of Cahill in those ringtones? Would he smile to see people's pockets and purses suddenly playing bursts of telephone music?

Did the Telharmonium die for its own inherent inadequacies – or was it killed off before its time?

Some forms of media are violently annihilated by events beyond any possible control of their designers. The most interesting of these, a truly alien parallel universe of communication and record-keeping, would be the quipu system of the Incas in Peru. The very first notes in the Dead Media Project were about the Incan quipu. Incidentally, all these notes are still available on the website www.deadmedia.org.

A quipu was not pre-literate but para-literate. Not only did it lack an alphabet, it even lacked written symbols. The quipu was a collection of cords with knots tied in them. The cords were usually made of cotton, and they were often dyed one or more colours.

There are other methods of using knotted string to make records. It is a natural idea that has occurred to many cultures. There were similar efforts in Egypt, Hawaii, Tibet, Bengal and Formosa. Besides the Incan quipu, there was Tlascaltec nepohualtzitzin, the Okinawan warazan, the Bolivian chimpu, American Indian wampum, and Zulu beadwork. But the Incan quipu was by far the most elaborate development of this media concept. This was a society without ink. The Incas were investing their entire needs for agriculture, governance, taxation, record keeping, and

1930s

literature into knotted yarn.

Quipumakers knew which end was which: quipus had a knot on one end and a loop on the other. They had vertical directions: the strings hung down or up off a central backbone. Quipus have levels. Cords attached to the main cord, there was a second level of subsidiary cords, a third level of cords off the second cords, and so on. Each cord also had a colour. Extra cord colours were created by spinning collared yarns together. So a quipu is a corded network, in three dimensions, with colour.

Nobody knows how to read quipu because the Spanish destroyed all they could find as instruments of sin. It was a cultural holocaust rather like destroying the Mayan books, the codices. The Incans were a young civilization but they were achieving surprisingly sophisticated results with quipu. The quipu were light, portable, sturdy, made of natural materials, difficult to forge . . . What might the Incas have achieved if left to their own devices? We cannot go back. We don't even quite know what we've lost by losing quipu.

A Whig historian might argue at this point that it's silly to mourn such things. Of what practical consequence is a quipu? Will anyone in the future ever feel the need for such a halting, difficult medium? Have we lost anything that could benefit us? If the loss is of no practical consequence, why fuss? We can leave dead media to the world of imaginary media, curios that may be fun to think about, or entertaining for fiction writers to write about, but which are quite properly left in the tomb. Let dead media bury the dead.

And it is a good question. One has to ask: are there dead media that were *unjustly* killed, that should rise and walk once more among us? To conclude my speech I would like to suggest a few. These are forms of media that may be revived in the future. I can almost guarantee that they will not be revived under their original names or in quite the same social context. But if history does not repeat itself, history does tend to rhyme.

In the heyday of cinema, movies were shown in large, sumptuous, cavernous movie palaces. These were not just places to watch films, but air-conditioned social centres with refreshments and uniformed ushers. They had huge screens, peculiar film formats such as Panavision and Todd-AO, and specialized sound systems. If the Motion Picture

Association of America fails to keep films from being widely pirated, I think they might well find it advantageous to return to the days of the movie palace. These events would not be called movies, and the movie palaces would not be called palaces – I envision something more like gated communities, movie malls that offer Disneyland-style thrilling entertainment, with costumed characters, tie-in souvenirs and so forth. But the point is to get the population to congregate and spend money for a single irreproducible experience.

And what if recorded music dies? My friend William Gibson speculates that there may be a seventy or eighty year window in which music was a commodity. If no one pays to listen to packaged music, what about live music in live venues, complete with star appearances and variety acts? It might be called a rave, or Lollapalooza, or Lilith Fair, but it would be vaudeville. It would be the return of vaudeville, of live entertainment by dancers and singers hoofing it from city to city. No more radio stars, movie singers, video stars. Travelling performers.

And then there is the interesting figure of the town crier. This is a man who walks through a town simply shouting the news aloud. People trust him because they are used to him. If he lies you can find him and kick him. It may seem weird to get your news direct from the lips of some trusted individual instead of from radio, television, or the Internet. But what if you know very well that radio, television and the Internet have all been debased? What if your best and most reliable news really does arrive hand to hand from people you trust? After all, that was how Vaclav Havel and his dissident friends in the Charter 77 movement had their Velvet Revolution in 1989. It was obvious that the Czechoslovakian regime media were debased and entirely detached from popular reality. The Charter 77 dissidents carried the news in shoulder bags.

John Perry Barlow is an American technical writer, and journalist, and sometime musician. He is rather famous for once saying that the invention of the Internet was an event to rank with the invention of fire. John Perry Barlow is saying some rather interesting things these days. To conclude my speech, I would like to quote you one of the things he said that recently arrived in my email. 'Some of us believe that another four years of the Bush Administration might turn America into something so oligarchical that it will make Mexico look like Sweden, so broke that the dollar will buy less than the Hungarian pengo, surveillant enough to make East Germany look like a good start, and puritanical enough to make Cotton Mather[1] feel at home.

Some of us want a president who is straight about his real reasons for sending our kids off to die and kill other kids, a government that is of, for, and by more people than will fit on the Forbes list, and a military that isn't simply a private security force for the Fortune 500.

We want to give our grandchildren something more than a crushing debt and a country too stripped of resources and opportunities to pay it off. The stakes seem high to us. . . .

But if we feel that way, and many of us do, we will have to knock on doors and persuade the folks inside to turn off their televisions and talk about what's really going on, just as we will have to turn off our computers occasionally to have such exchanges.

If we are to restore democracy in America, we will have to get out amongst 'em and engage in it. I believe our arguments are persuasive, but we have to present them in person to the people who don't already believe us.'

In other words, John Perry Barlow, of all unlikely people, is encouraging his fellow citizens to abandon mediation and show up in person to discuss the issues of the day. This is the town crier model of news. Is there anything new about it, or dead about this? Should we be surprised to see media pundits showing up as human beings? Maybe we can sit together, breathe the air we breathe, have a beer in the bar, and be human. Why not give this a try? Let's savour these brief and delightful historical moments when we are alive, when our technologies are alive, when our societies are alive.

1936

IN ON COMPUTABLE NUMBERS WITH AN APPLICATION TO THE ENTSCHEIDUNGS-PROBLEM, *ALAN TURING LAYS THE THEORETICAL BASIS FOR MODERN COMPUTER SCIENCE, WITH HIS FICTIVE TURING-MACHINE. THIS DEVICE CAN READ SYMBOLS FROM AND REPRODUCE SYMBOLS ON A LIMITLESSLY LONG STRIP OF TAPE.*

note pp. 57–72

1. Was a leading puritan minister in Boston around 1700. He wrote among others: *What Must I Do to Be Saved?*

1945

'As We May Think' [illegible]

'Millions of peepholes, as little software windows, are waiting for desirous customers twenty-four hours a day.'

EVERYTHING THE WEARER SEES AND WOULD LIKE TO RECORD. HE ALSO DESCRIBES THE VOCODER, A DEVICE THAT CAN TRANSLATE THE HUMAN VOICE INTO WRITTEN TEXT. THIS ALLOWS A RESEARCHER, FOR EXAMPLE, TO RECORD HIS FINDINGS WHILE HIS HANDS REMAIN FREE TO PERFORM OTHER TASKS.

The Pleasures of the Peephole:

An Archaeological Exploration of Peep Media

Erkki Huhtamo

notes p. 142

During the Second World War, Frederick Kiesler, an expatriate German designer and architect living in New York City, received an interesting commission: he was to design Peggy Guggenheim's 'Art of This Century' gallery (1942). As usual, Kiesler had uncommon ideas. One of them was to enclose some of the artworks in hand-operated peepshow machines. Thus André Breton's *Poème-objet 1713 (Portrait de l'acteur A.B.)* was hidden in a box with a shutter. The artwork was seen by pulling a lever which opened the shutter. Likewise, the contents of Marcel Duchamp's *Boîte-en-valise* was revealed to the visitor-turned-into-a-peeper by turning a large 'ship's wheel' interface. For almost anyone else but the Surrealists, these ideas would have seemed outrageous. The work of art was not only submitted to the manipulation of the visitor (and more

1948

indirectly to that of the designer), but also to the mechanized logic of a 'vision machine'. Where did Kiesler get his idea from? As is well known, he had already used technical apparatuses, peepholes and 'shutters' in his architectural and stage designs. The Surrealists, as well as the Dadaists before them, had also shown interest in technology, conceiving absurd 'bachelor machines', metaphorical contraptions reflecting suppressed mental processes.[3] While playing with unconscious desires and voyeuristic fantasies, the Surrealists frequently referred to popular cultural forms, despised or ignored by cultural elites.[4] The variety show, the amusement park and the penny arcade were among their inspirations. Kiesler's peepshows could thus be interpreted as free re-enactments of Mutoscopes and other mechanized peeping devices found in these places. This aspect did not escape the attention of critics, who spoke about 'a kind of artistic Coney island' or 'a penny-arcade peep show without the pennies'.[5] Exploiting both the desire to peep and the curiosity toward technology, such devices were paradoxically both highly visible and strangely invisible in culture. They were everywhere and nowhere, depending on the observers' perceptions and tastes. They were outside the canons of 'respectable' culture, although 'respectable' citizens certainly could not resist the temptation to peek into them from time to time. They were deemed either harmless or harmful, superfluous or ridiculous, but hardly worthy of 'cultured' attention.[6]

Mutoscope
International Mutoscope Reel Co. Inc., New York, USA, c.c. 1927
Erkki Huhtamo Phantasmagoria Collection, Society of Film History, Helsinki, Finland
Photo: Kari Vass/SEA

By introducing the idea of peeping into the gallery, Kiesler managed to question some widely shared assumptions. Not only were artworks subordinated to the creative intervention of the exhibition designer – as Simone de Beauvoir observed when she visited the gallery – and thus denied autonomous existence: the playful way of interacting with them engaged both the visitor's eyes and his/her hand, transgressing the 'untouchability' traditionally associated with the aesthetic object.[7] The

1948

GEORGE ORWELL'S 1984 DEALS WITH STATE CONTROL OF INFORMATION AND THE INDIVIDUAL. ONE OF THE MEANS USED IS THE 'TELESCREEN' FOUND IN EVERY HOUSEHOLD WHICH ALLOWS THE STATE TO FOLLOW CITIZENS FROM A DISTANCE

Woman Showing Pictures
travelling Indian show woman with her peep-show boxPostcard, early twentieth century, Moorh Dhur & Sons, Ambala (Printed in Germany)
Erkki Huhtamo Collection

social rituals of the gallery audience were momentarily disrupted when the peeper 'left the crowd behind' and had a private encounter with the work. Furthermore, the consumption of art was 'desecrated' by associating it with the tactile and bodily experiences familiar both from modern working life and the mechanized entertainment at amusement parks and penny arcades. Yet by comparing his box for Breton's *Poème-object* to a camera obscura, Kiesler may have intuited that his creations had an even wider resonance within visual culture. His boxes evoked the trajectory of the 'culture of peeping'.[6] Indeed, the motive – or 'topos', as I prefer to call it – of peeping runs through the history of visual media, appearing in different guises and contexts throughout the centuries, its meanings constantly changing in the process.[7] It is tempting to characterize the topos of peeping as an *idée fixe* that has played an important role in the formation of visual media, touching upon seminal issues like the constitution of media apparatuses, modes of spectatorship, and the commodification of the media experience. In spite of references by critics and theorists in various contexts, from the cultural history of eroticism to psychoanalytic film theories, the media cultural significance of peeping has received less attention than it deserves. This may have something to do with the largely negative connotations of the word within present Western culture. Peeping is deemed as something cheap, lowly and even perverse. However, for cultural analysis it is necessary to penetrate beyond such prejudiced notions, which often prove to be nothing more than projections of contemporary attitudes upon historical circumstances.

This essay excavates some manifestations of the culture of peeping from the past five hundred years.[8] The approach is decidedly culturalist. Peeping is one of those issues that psychologically inclined observers tend to consider as pre- (or infra-) cultural: belonging to the 'human

1954–1978

nature' and perhaps even to our 'animal nature'. Whether it originated from our innate curiosity towards the 'outside', from the survival instinct, or from the shock of witnessing the 'primal scene' is of no interest here. This article considers the topos of peeping as a culturally determined construct, effected by and effecting cultural forms and identity formations. There are many questions to be asked. When, how and why did 'peep media' develop?[9] How has the idea of peeping been 'built into' technical apparatuses of vision? How has it been exploited and for what purposes? How has its role changed over time? Who has utilized peep media and for what purposes? How does peeping effect the identity formation of the peeper(s)? Does peeping mean the marginalization of the body, left 'outside' while the mind roams inside the peephole? Without aiming to give definite answers to all these questions, the text discusses them in a number of historical contexts. Although peeping has occurred in countless circumstances, often with no connection to technology, the focus will be on 'mediated (and mediating) peeping' – in relation to contrivances imagined or built for the purpose, used in communicative situations and discourses. Finally, although many of the examples dealt with in this article come from the past, the purpose is also to shed light on the role of peeping in contemporary culture. It may seem that peeping plays a much smaller role in today's media culture, with its emphasis on infinite visibility, easy access and the ubiquity of media experiences. Is it really so? Peepshow boxes and Victorian stereoscopes may be things of the past, but whether the issues they raised and the experiences they offered have totally disappeared is a question worth asking. Where are the peepholes to today's culture and what do they reveal?

Peeping as Culture

'Anybody peeps' – it could be claimed that peeping is a 'low level' human activity, happening anywhere where people, curious sights and peepholes are found. However, it soon becomes evident that peeping is a much more

complex issue, intricately linked to various cultural forms. Some social and ideological situations are more likely to favour it than others. For example, it may be enhanced by social structures characterized by sharp class divisions and power relations. Thus peeping is intimately linked with surveillance. The peeper not only exercises power over the peeped; the last mentioned can be driven to internalizing one's situation, developing a sense of living under a constant peeping gaze (even when no one is looking). This turns the act of peeping into an imaginary relationship, thoroughly analysed by Michel Foucault in his well-known discussion about the Panopticon.[11] Obviously, peeping is also often related to gender. Strictly defined moral codes, like those that controlled sexual behaviour (or attempted to) in Victorian England, may strengthen the desire for peeping as a psychological outlet that some interpreters may consider a form of transgression or perversion. In patriarchal society the male is usually identified as the peeper and the female as the peeped. Yet, whether this generalization is always valid is a question worth investigating. Some recent scholarship has implied that the relationship may not have been quite as rigid as formerly thought, even within Victorian society.[12] The encounter between cultures separated by distance, habits and ethnic identities seems another propitious situation in which a 'culture of peeping' can blossom. In his fascinating autobiographical writings about Japan around the turn of the nineteenth century, Lafcadio Hearn has given us testimonies about the fondness of the Japanese for the act of peeping. Staying in a little hotel in a remote village, Hearn himself becomes the attraction and the house a kind of peepshow box: 'And there is one high window in the rear, of which the paper panes contain some holes; and I see shadows of little people climbing up to get to the holes. Presently there is an eye at every hole. When I approach the window, the peepers drop noiselessly to the ground, with little timid bursts of laughter, and run away. But they soon come back again.'[13]

Interestingly, Hearn turns peeping into a playful interactive experience by beginning to poke pears and pieces of radish through the holes, eagerly snatched by invisible hands. Although the children's curiosity was roused by the uncommon event of sighting a *gaijin*, a foreigner, in their village, Hearn writes elsewhere about the central role

'Dis donc ma femme, c'est singulier . . . je ne vois rien! . . .'
Lithograph by H. Daumier, *Le Charivari*, Paris, 1845
Erkki Huhtamo Collection

of play and insatiable curiosity toward anything visual as central elements of the Japanese way of life: 'For with ever so little money one can always obtain the pleasure of looking at things. And this has been one of the chief pleasures of the people in Japan for centuries and centuries, for the nation has passed its generations of lives in making or seeking such things. To divert one's self seems, indeed, the main purpose of Japanese existence, beginning with the opening of the baby's wondering eyes. The faces of the people have an indescribable look of patient expectancy – the air of waiting for something interesting to make its appearance.'[13]

Hearn's analysis presents the fondness of the Japanese for peeping as entirely cultural. It is intimately linked with culture, including details like the construction of the traditional house. Its central element, the movable rice paper walls (shoji), gave rise to a rich imagery about peeping. In Japanese wood-block prints (ukiyo-e) and literature (including the prominent genre of ghost stories) alike, these walls become veritable screens for spontaneous 'shadow plays', secretly observed from the other side. The context may be supernatural, comic, didactic or – as it often is – erotic. Japan's relative isolation during the Edo era (1603-1868) certainly raised curiosity towards foreign things. This was manifested, among other things, in the long-lasting success of peepshow boxes *(nozoki karakuri)* as a public attraction. These often displayed views of foreign lands. However, as Timon Screech has shown in his groundbreaking study The Lens Within the Heart: *The Western Scientific Gaze and Popular Imagery in Later Edo Japan*, the peepshow, originally a foreign (probably Dutch) import, gained a complex and distinctive discursive identity.[14] It was woven into the fabric of Japanese culture by multiple threads, many of which had nothing to do with

1964

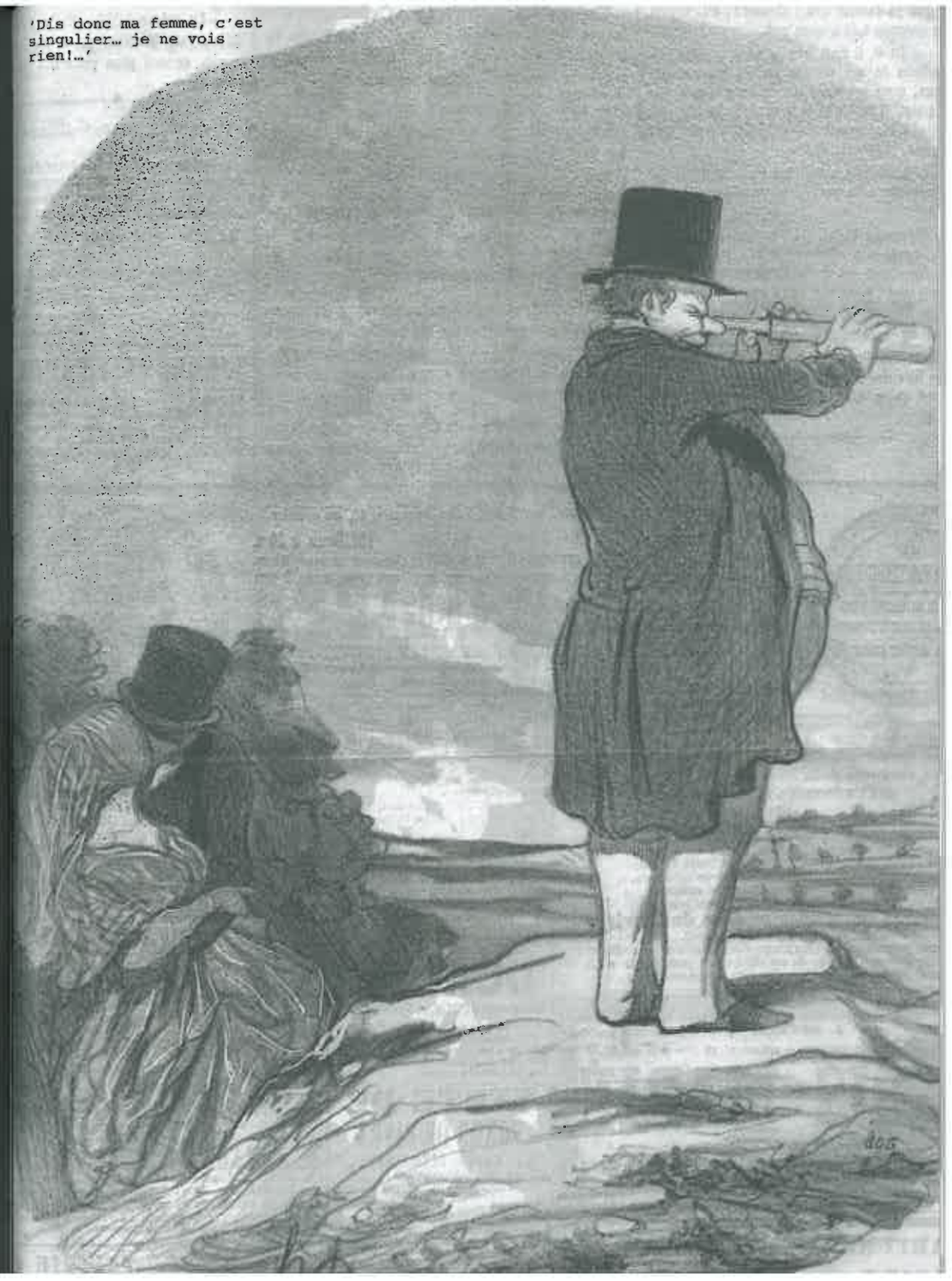
curiosity about the West. Even the Japanese peepshow boxes were given a very peculiar look – somewhat resembling diminished versions of the traditional Japanese house, with lenses mounted on their rice paper walls for peering in.[15] The peepshow became a topos encountered both in literary and visual traditions. To mention just one example, Screech talks about a book titled *Pictures Cast by the Projector of the Human Heart* by Santo Kyoden (1796). One of its illustrations shows a young courtesan with a peepshow box in her heart (projected to the outside as if by an internal magic lantern!). Here the peepshow with its rapidly changing pictures becomes a metaphor for the instability of the young woman's feelings and emotions. 'People's hearts change as fast as the autumn skies. Let all be on their guard!', Kyoden comments.[16] Peeping was also evoked in the discourses that evolved around optical instruments like the microscope and the telescope, often leading to fantasies that clearly deviated from their scientific uses.[17]

Coin-operated peep-show machines showing curiosities of nature at the Habu (snake) Museum, Naze, Amamioshima, Japan, 2004. Photo: Erkki Huhtamo

Peeping at curiosities of nature (including a lion's penis) at the Habu (snake) Museum, Naze, Amamioshima, Japan, 2004. Photo: Erkki Huhtamo

Natural Magic and Peeping

As the profuse examples in Screech's book demonstrate, peeping in Japan was situated at a constantly transforming liminal zone between science and popular culture, things foreign and domestic, mundane and fantastic, material and discursive. The curious and desirous gaze of the peeper was constantly repositioned and reconstituted in discourse by writers, illustrators and storytellers. Peeping came to occupy positions that might coexist and overlap, but never fully merge into one homogeneous form. How about the Western world that contributed the peepshow box as a seed for the Japanese mind to cultivate? In Europe the 'incubation era' of peep media extends



'Dis donc ma femme, c'est singulier… je ne vois rien!…'

from the fifteenth to the eighteenth centuries, a period of religious and political tensions, geographical expansion, emerging capitalism and radical transformations in science, worldviews and modes of perception. The emergence of peeping in relation to specific optical apparatuses had its origins in the newly stimulated curiosity towards visible reality – its observation, exploration, measurement and reproduction. Following the interpretation of the great nineteenth-century cultural historian Jakob Burckhardt, this 'curiosity' has been associated with the Renaissance. Resorting to a visual metaphor, Burckhardt saw the Renaissance as the opening of the eyes towards the outside world, after centuries of looking inward towards metaphysical realities, seen as characteristic of the Middle Ages.[18] The Renaissance placed the individual and his gaze into the centre of the newly defined secular worldview. The idea of the Renaissance as a unified phenomenon and a sharp cultural rupture is no longer accepted without qualifications (there were continuities with the cultures of the previous centuries; the Renaissance never affected all layers of culture and society simultaneously). However, certain visual innovations, particularly the invention of the mathematical (linear) perspective in fifteenth-century Italy, had an unquestionable impact on visual culture, including the practices of peeping.

The representation of three-dimensional spaces on two-dimensional surfaces by means of mathematical rules of perspective resorted to the idea of peeping to define the tip of the 'visual pyramid'. As Martin Kemp amply demonstrates in his seminal *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat*, various 'perspective machines' were conceived to aid this task.[19] Demonstrations of images created using the rules of perspective were also staged by means of peeping devices, like those devised by the

IN STANLEY KUBRICK'S **2001: A SPACE ODYSSEY,** *WE ARE INTRODUCED TO A COMPUTER CALLED HAL, THE BRAIN AND NERVOUS SYSTEM OF A SPACE SHIP. THIS FORM OF ARTIFICIAL INTELLIGENCE TURNS A COMPUTER INTO A KIND OF 'LIVING BEING', COMPLETE WITH (FICTIONAL) EMOTIONS.*

fifteenth-century theorist Leon Battista Alberti. The eye peering into a perspective apparatus has been described as cool and detached, more passionate about the correct application of the rules of transposition than about the topic represented. It is obsessive and limited, far from the all-embracing and sweeping, almost 'panoramic', visuality Burckhardt associated with the Renaissance. The same could be said about the camera obscura, an apparatus that first materialized during the sixteenth century, although it was based on a principle that was already known in ancient China. The camera obscura automatically forms an image of the outside world inside a dark chamber or a box. As Jonathan Crary has explained, in the centuries that followed it served both as a philosophical metaphor and as an actual tool for the artist.[20] Although its lens faces the world, it also frames, separates and fragments. The camera obscura may have been a tool for 'disinterested' perspectival imaging or astronomical observation, but it also became associated with surveillance and sexual voyeurism, developing into a hideaway for the unseen peeper. In the seventeenth century, new observation instruments, such as the telescope and the microscope, extended the peeper's vision into unforeseen 'depths'. Although originally conceived as purely 'philosophical' or 'mathematical' instruments, these devices began to lead discursive 'lives' that extended their original identities. In the hands of satirical writers and caricaturists, they became instruments for exploring the characteristics of nations, the idiosyncrasies of scientists, the peculiarities of politics and – last but not least – the varieties of sexuality.

Peeping also played a role in the demonstrations of 'natural magic', characterized by one of its leading exponents in the sixteenth century, Giambattista della Porta, as the 'practical part of Natural Philosophy'.[21] As the historian of science Lynn Thorndike put it, 'natural magic is the working of marvellous effects, which may seem preternatural, by a

1971

Ainu and Japanese peep-show box containing two dolls and reflecting mirrors (nineteenth century) Machiko Kusahara Collection

knowledge of occult forces in nature without resort to supernatural assistance'.[22] Cultivated in the seventeenth century by well-known Jesuit scholars such as Athanasius Kircher, Kaspar Schott and many others, natural magic was understood as a way of investigating and explaining the 'wonders' of the God-created universe, but without questioning its metaphysical basis. An important part of natural magic was 'artificial magic', the use of human-made contraptions to demonstrate various phenomena found in nature. Although it resorted to experimentation, this approach could be seen as a counterpoint to the emerging experimental science represented by figures like Galilei, Kepler and Huygens. Not only did Jesuits like Kircher organize demonstrations to prove the discoveries of the experimental scientists wrong by using the very same instruments (the air pump, for example), they tried to harmonize the Aristotelian worldview embraced by the Catholic Church with the rapidly accumulating and potentially disruptive experimental findings about the universe.[23] The 'marvels' of the universe were 'natural', not the work of the devil. They were also presented as allegorical representations of God's acts of creation. As in the Middle Ages, nature was still considered a book written by God's hand. While Della Porta posed as a 'Magus', an owner of secret knowledge, Kircher rather wanted to be seen as a kind of 'Renaissance man', a polymath who mastered all existing knowledge, explaining it in his numerous works and performing the (impossible) task of harmonizing catholic doctrine and politics, Jesuit ideology and the world of experimental science and learning. To achieve his goals, Kircher introduced and described a great variety of instruments. Many of them remained discursive (as unrealized diagrams and descriptions in the pages of his books), while others were actually built and demonstrated publicly at The Museum Kircherianum (an enormous

1979

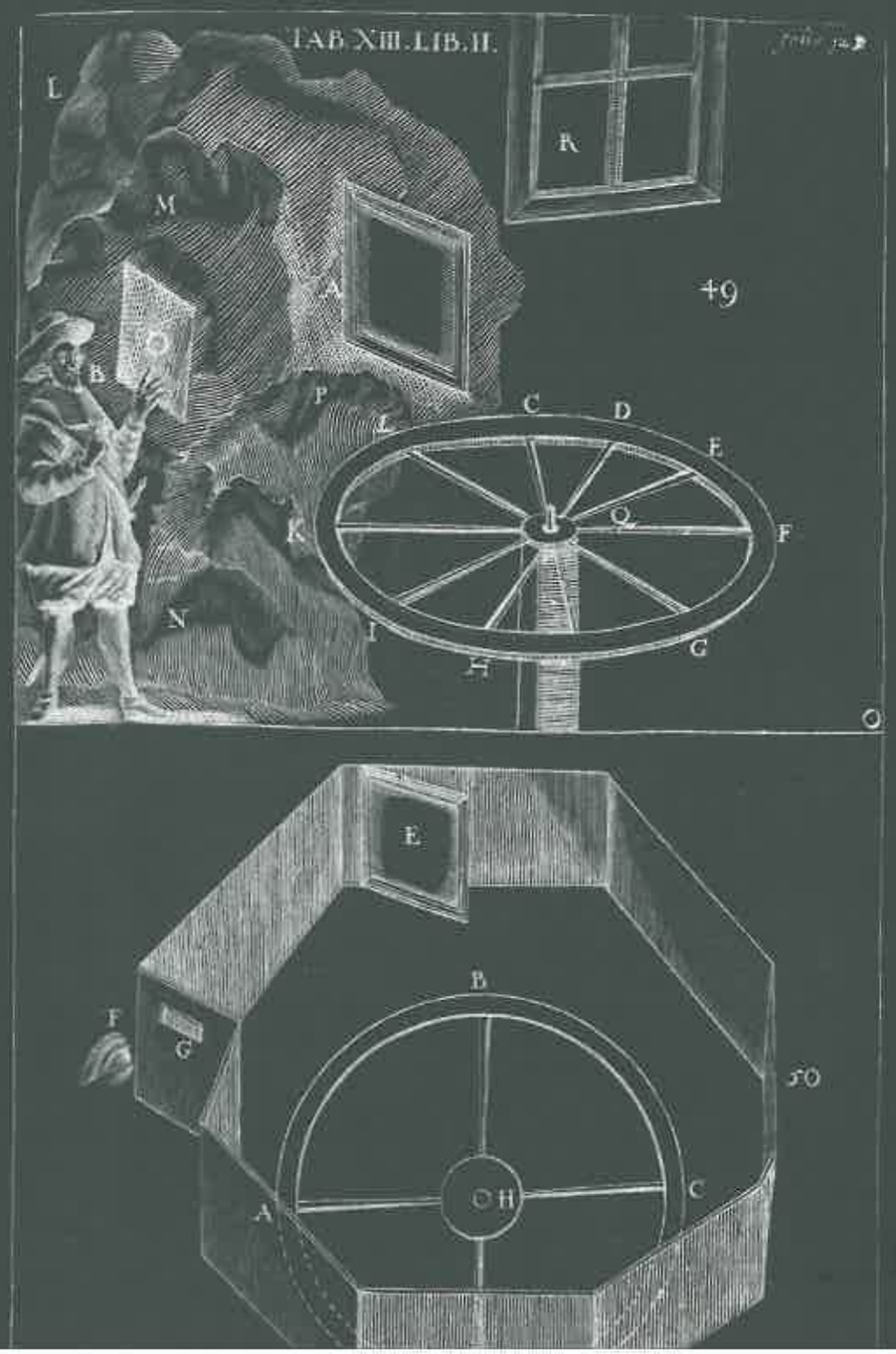
IN HIS HUMORISTIC BOOK THE HITCHHIKER'S GUIDE TO THE GALAXY DOUGLAS ADAMS WRITES ABOUT A COMPUTER CALLED DEEP THOUGHT WHO, AFTER SEVEN AND A HALF MILLION YEARS OF CALCULATING, IS ABOUT TO PROVIDE THE ANSWER TO THE GREAT QUESTION OF LIFE, THE UNIVERSE AND EVERYTHING TO THE GREAT DISMAY OF ALL THOSE GATHERED AROUND THE COMPUTER. THE ANSWER TURNS OUT TO BE VERY SIMPLE: 'FORTY-TWO'.

Mechanical peep-show box (from: Zacharias Traber, *Nervus Opticus*, Vienna: J. C. Cosmerovin, 1675), 16, figures 49 and 50

cabinet of curiosities) at the Jesuits' Collegium Romanum.

Peep boxes and other optical instruments were common features of any seventeenth- and eighteenth-century 'museum', 'physics cabinet' or 'cabinet of curiosities'. Kircher, as well as savants like Zahn, Traber and Kohlhans, described whole varieties of them. Such boxes were often associated with 'catoptric' magic, the art of reflected light. Mirrors were placed inside boxes to multiply objects, such as jewels and beads, *ad infinitum* (anticipating a nineteenth-century reinvention, Sir David Brewster's kaleidoscope). Mirrored panels were opened and closed to change the reflected views. The boxes could also contain other things, including representational scenes. In 1675, Zacharius Traber, a Jesuit from Vienna, described a box with a mirror and a horizontal rotating wheel inside.[24] Either little puppets or painted cut-out images of saints were fixed to the wheel. By rotating a crank, an endless procession began, resembling the mechanical moving automaton figures familiar from great astronomical clocks.[25] In this case, however, the peeper would not see the figures directly, but via the mirror (placed opposite the peephole). Furthermore, the moving figures were superimposed on reflected miniature 'sets', also placed inside the box. In this manner the scenes were 'virtualized' and the secret mechanism kept hidden. Some boxes were meant for a single peeper, while others, such as the 'Opticus Fortalitius', described by Johann Christoph Kohlhans in 1677, accommodated a group of viewers.[26] The 'optical fortress' was a cylindrical miniature building, with numerous tiny windows around its outer wall serving as peepholes. One of Kircher's devices was the 'parastatic microscope', possibly the very first handheld 'media machine'.[27] It consisted of two round covers, one with a peep tube attached and the other with a hole for backlight. A painted glass disc, to be rotated with one's fingers, was inserted into the

Mechanical peep-show box



1981

IN THE NOVEL GOLEM XIV, STANISLAV LEM DESCRIBES A COMPLETELY INDEPENDENT COMPUTER SYSTEM THAT WAS DEVELOPED TO SOLVE THE PROBLEMS OF MANKIND. GOLEM, HOWEVER, HAS BEEN SILENT FOR YEARS. BUT WHY? IS GOLEM THINKING? HAS THE MACHINE BROKEN DOWN? OR ARE THE PROBLEMS OF MANKIND SIMPLY INSOLUBLE?

slot between these covers. Undoubtedly to please his sponsors, Kircher demonstrated the device with an allegorical scene, the Passion of Christ shown in eight successive views, but he stated that any topic could be depicted in a similar manner. The resemblance between Kircher's device and the twentieth-century View-Master is thought-provoking, although one should resist making easy comparisons. Although both are handheld and mobile, they emerged in very different cultural contexts, which should be taken into account. This does not mean, however, that some kind of cultural continuity could not be posited.[28]

The boxes of the natural magic era were curiosities in a double sense: as curious objects and as containers for 'curious things'. How many of them were displayed and even built is a difficult question to answer. Few (if any) of these early peep boxes have been preserved.

Another type of viewing box was the 'perspective box'. Created by Dutch painters like Samuel van Hoogstraten and Carel Fabritius, several of them still exist. The perspective box was an illusionary interior scene painted on the inner walls of an enclosed box. Because distorted perspectives were used, the interior had to be viewed through a carefully positioned hole to achieve a perfect spatial illusion. Such boxes were showpieces for a limited privileged public, meant to demonstrate the painter's skills and to provide the owner's guests with startling sensations. What separated the perspective box from the subsequent popular peepshow boxes (to be discussed later) was the lack of distinction between software and hardware. The fact that the painting was inseparable from the box turned it into a unique and prestigious object. Another type of distorted perspective was the anamorphosis, an image as a riddle that only revealed its secret when viewed from a cylindrical or conical mirror or peeped at from an oblique angle. An anamorphosis could also be enclosed in a box to be peeped at through a slot, as Mario Bettini demonstrated in his *Apiaria* (1642).[29] Norman M. Klein has not hesitated to characterize such deliberately distorted views, hidden images and illusionary environments of the seventeenth century as 'special effects'.[30] They were explorations of the perspective, but filtered through the increasingly self-conscious, playful and extravagant taste of the mannerist and baroque eras. They were meant to impress and surprise the viewer. Although the overall effect may at times have been

subdued, the means for achieving it used the repertory of accumulated skills in visual spatial manipulation.

What purposes did such devices have? According to Kircher, his experiments served various goals: the 'investigation of the learned', the 'admiration of the ignorant and uncultured' and the 'relaxation of Princes and Magnates'.[30] All these varieties can be frequently encountered in accounts of popular scientific demonstrations and other public attractions during the subsequent centuries, sometimes together, sometimes separately. For Kircher, the demonstrations for the learned were an important way of proving his hypotheses and establishing his credibility as a scientist, while his reputation also relied on entertaining the noble and the powerful, who frequently visited his museum. The task of gaining the 'admiration of the ignorant and uncultured' was also a major issue for the Jesuits, engaged in a fight for the causes of the Counter Reformation and the prestige of the Catholic Church. The Jesuit missionaries frequently brought scientific devices with them to distant lands. Although they disseminated knowledge, their demonstrations also helped convince the natives of the superiority of Western Christian civilization. The idea of peeping into a box would have served Kircher's goals in different ways. In scientific demonstrations the enclosed nature of the box necessitated an explanation, and probably the revelation of the mechanism. This gave the savant an opportunity to display one's knowledge through dramatic revelations. Della Porta emphasized this when he described the ways in which he used a room-sized camera obscura for spectacles staged outside the camera in real-time. His stupefied friends would not believe that the spectacle was produced by natural causes 'until, opening the panels, I demonstrated them the artifice'.[31] Part of the ideology of 'artificial magic' was the revelation of the secret. However, in practice this idea was not always adhered to, particularly when demonstrating devices to 'the ignorant and [the] uncultured'. Natural magic certainly also inspired shows and demonstrations that exploited superstition and belief in the occult. This is well demonstrated by the early history of the magic lantern, another seventeenth-century optical device. It was soon adopted by touring showmen and necromancers who fully utilized both its novelty value and its 'magic' potential. Phantasmagoria, a new type of

ILL AND LOOKED LIKE A PHYSICAL SPACE BUT ACTUALLY WAS A COMPUTER-GENERATED CONSTRUCT REPRESENTING ABSTRACT DATA. THIS CYBERSPACE IS ONE THAT HUMANS CAN ENTER.

magic lantern spectacle that became popular in the late eighteenth century, was still based on the public ambivalence about the relationship between natural and occult causes. Interestingly, the peepshow followed a more worldly trajectory.

The Culture of Attractions

Scene 'in the slot machine'
Postcard of two boys occupied with a mutoscope. F. von Bardeleben, New York & Germany. Printed in Germany
Erkki Huhtamo Collection

The main trajectory of peep media opted for the 'admiration of the ignorant and uncultured', although not necessarily with supernatural persuasions. In modified forms, devices like magic lanterns and peepshow boxes were displayed to the general population for profit. The underlying idea was the commercial exhibition of curiosities, many of which were familiar from the repertory of 'artificial magic'. Typically, the increasing popularity of such shows was deplored by intellectuals. As a case in point, to protect his scientific reputation, Christiaan Huygens never admitted publicly his role in the invention of the magic lantern, anticipating its use for trivial purposes.[33] As early as 1719, the art historian Arnold Houbraken is said to have stated about peepshows that 'only rubbish is made nowadays in that genre'.[34] In spite of such invectives, peepshows (sometimes known as 'raree-shows'), carried from place to place by showmen, became a popular phenomenon in the course of the eighteenth century. The peepshow was a manifestation of an emerging phenomenon that could be labelled the 'culture of attractions', the development of which can be followed all the way to the twentieth-century 'society of the spectacle' and beyond. An 'attraction' is meant to raise curiosity by presenting something out-of-the-ordinary. It is meant to 'attract' – literally, draw near – potential audiences, who will pay for the satisfaction of their curiosity. Wherever it happens and whatever is shown, an attraction creates a kind of magic circle, separated from the dull monotony of everyday existence. It is always a

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purposeful act, not a chance. This phenomenon did not appear out of nowhere. Relics and other curiosities had been publicly displayed since the Middle Ages. Rare animals and native inhabitants of faraway countries were popular displays already in the sixteenth century. Performing dancing bears with their masters can even be found pictured in eighteenth century magic lantern slides. Indeed, 'raree-shows' could be almost anything, as a remark in Benjamin Franklin's Autobiography shows. Having returned as a young man from Philadelphia to Boston and having been asked what kind of money was in use in the first mentioned town, Franklin 'produc'd a handful of silver, and spread it before them, which was a kind of raree-show they had not been us'd to, paper being the money of Boston'.[5]

In the eighteenth century, the number and variety of public shows proliferated, as Richard Altick demonstrated in his classic *The Shows of London*.[6] Many shows resorted to technical novelties to attract audiences. They promised sensational and truthful simulations of humans or natural phenomena. From the countless displays of automata to novelty attractions like De Loutherbourg's celebrated mechanical theatre Eidophusikon (performed in London and later turned into a touring attraction), the human performer was often displaced from the centre of the 'stage', becoming a commentator, operator and impresario. Media and technology began to take over. One also witnessed the beginning of a phenomenon that could be labelled the 'social construction of attractions' – the deliberate and ruthless production of attractions with little regard for anything except their 'display value' and their commercial potential.[7] This development, which came of age in the nineteenth century with the notorious stunts conceived by the master showman P.T. Barnum, went hand in hand with increasing competition. As a consequence, new forms of advertising and publicity campaigns developed, including the habit of putting announcements in newspapers and printing broadsides and handbills. Such new forms did not concern peepshows, at least not until they gained a new level of respectability among urban audiences in the early nineteenth century with the introduction of permanent 'Cosmorama Rooms'. Until then (and even afterwards) the peepshows were considered a form of cheap street entertainment. The showmen were

1987

STAR TREK'S HOLODECK IS A FORM OF VIRTUAL REALITY TECHNOLOGY WHICH ALLOWS YOU TO SELECT A SCENARIO AND THEN PRODUCE HOLOGRAMS THAT FEEL SOLID IN AN EMPTY SPACE. THESE CAN BE OBJECTS, (FICTIONAL) LIVING CREATURES AND EVEN ENTIRE WORLDS. THE HOLODECK IS NOT ONLY DESIGNED TO USE IN SIMULATIONS AND TRAINING, BUT ALSO FOR PURE ENTERTAINMENT.

classified, together with salesmen, knife sharpeners and other travelling people, as 'street criers' or 'colporteurs', belonging to the lower strata of society. Although some of them performed on city streets, others were vagrants, carrying their show boxes and belongings on their backs from place to place.[38]

Although the peepshow was relatively simple as an apparatus, various things had to be taken care of, beginning with the construction of the box itself. Because no industrial manufacture existed, each box was unique, although usually based on certain repeated structural features. The most precious part were the lenses, which were normally rather large, meant to be peeped through with both eyes. Most publicly displayed boxes seem to have had more than one of them. This was no doubt based on financial calculation: the initial investment paid off when more than one person could peep simultaneously. The box itself often contained a mechanism for changing views, usually by lowering and lifting them one by one by means of strings that were attached to the outside of the box. Another, less often used possibility was to attach the views together as a roll and use a cranking mechanism to move them. Many boxes also contained ways of manipulating the amount and direction of light falling on the views, usually by opening and closing panels on top and at the back of the box. The external appearance of the box depended on the showman's means and the nature of his activity. Judging from existing evidence, the variety seems to have been considerable, from plain wooden boxes with shoulder straps to elaborate miniature 'buildings' with numerous peepholes (evoking the design of Kohlhans's 'optical fortress'). The box could be painted in bright colours and decorated with ornaments or 'architectural' details like lanterns and little turrets. Some boxes even had advertising slogans. Sometimes there were little automaton figures on top of the box. These were animated by the showman by pulling a string to attract attention.

While the external appearance of the box was important, the showman also had to use other ways of raising curiosity among the local population. He could attract attention by shouting and singing and playing musical instruments like the hurdy-gurdy or the hunting horn. Different versions of the raree-showman's shouts have been preserved

1991

in literary sources. They probably soon became part of oral traditions, repeated by children in their games and modified as popular sayings and songs. They were often reproduced in children's books and used as captions for popular prints depicting showmen at work. In the eighteenth century, the peepshow man also became a stock character reproduced in porcelain figurines and gobelins, which points toward its widespread codification in culture. The showmen's efforts were no doubt aided by the fact that he had become an almost instantaneously recognizable figure. Thus it is not surprising that a peepshow man appears as early as 1739 as one of the characters in an 'opera' called *The Raree Show, or The Fox Trap'*, written by a certain Joseph Patterson (or Peterson), a London actor. In this burlesque, Belamour's – the protagonist's – efforts to marry his sweetheart Corinna have been turned down by her guardian. Belamour's servant poses as a peepshow man, speaking pidgin French. He manages to capture the guardian inside his box, holding him there until he agrees to sign the marriage agreement.[39] The fact that the guardian ends up trapped in the place usually reserved for curiosities may be more than just a clever trick: although the peepshow box doubles here as a metaphorical cage for wild animals (another kind of ocular spectacle), perhaps the piece also alludes to the often neglected fact that not only pictures, but also comic objects like puppets on strings were displayed inside viewing boxes.

The Dynamics of Competition

Alongside peepshows, there were competing forms of 'low' entertainment, such as magic lantern shows and portable cabinets of curiosities. There were significant differences between the constitutions of these shows as apparatuses. Magic lanterns were used indoors to project images for groups of people; it is significant that each of the viewers saw the same image at the same time; this created

IN HIS FILM **UNTIL THE END OF THE WORLD**, *WIM WENDERS COMES UP WITH A MACHINE THAT CAN CAPTURE THE BIOCHEMICAL EXPERIENCE OF LOOKING. THE MACHINE NOT ONLY ALLOWS THE BLIND TO SEE, IT CAN ALSO RECORD DREAM IMAGES AND PLAY THEM BACK. THE LATTER APPLICATION PROVES TO BE VERY ADDICTIVE.*

opportunities for shared experiences and lively social interaction.[40] Peeping into a lens always has an element of isolation, even when it happens in a social situation; the peeper always leaves the crowd, even for a few seconds, to encounter the hidden view on his/her own. Although in most early shows the magic lantern was clearly visible, the immateriality of the image, perhaps even its dimness and its flickering quality, made it seem uncanny. As Laurent Mannoni has remarked, in France an early observer, Pierre Petit called the magic lantern 'lanterne du peur', lantern of fear.[41] The name was appropriate, for the device was easily associated with necromancy and other occult rituals, at least among the 'ignorant and uncultured'. Even when they did not invoke demons or dances of the dead, lantern slides often displayed fantasies, or little comic episodes from everyday life, anything from hunting to dancing and even scatological scenes. As mentioned above, the peepshow seems to have been much more matter-of-fact, dispensing with otherworldly fantasies and concentrating on existing geographical locations and events of the world. What are the reasons for this difference of emphasis? Did it simply have to do with the availability of views? While geographical prints for peepshows were mass-produced and relatively easy to secure, lantern slides had to be painstakingly painted by hand; fantasies, gags and stock figures were probably much easier to produce than detailed views of towns and landscapes. Or is it possible that lantern projections were considered 'inherently' immaterial, while the tangible presence of the peep box almost automatically 'secularized' the curiosities it contained (without, of course, negatively affecting the pleasure of peeping)? While some curiosities may have served as tangible pointers to occult wonders, others – like those enclosed in peep boxes – provided evidence about human-made marvels.

As contemporary illustrations show, the cabinets of curiosities (reduced and simplified versions of those kept by Kircher, Ole Worm and other savants in their museums) were portable cabinets with little compartments for items and doors that were opened at the beginning of the show. Although these cabinets often contained 'curious objects', they also presented miniature scenes with tiny human figures and props, reminiscent of the series of sequential carvings found in

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churches, although on a much smaller scale. During the presentation, the showman would point out the scenes with a stick, using them to illustrate his narratives. The topics seem to have been didactic and religious, but could also contain satire, anecdotes and political comments. Echoing the structure of the cabinet itself, the show was most likely episodic, consisting of a number of 'curious' topics.[43] It is likely that the situation encouraged lively social interaction with the spectators. Contemporary prints show observers pointing at the cabinet with their fingers, no doubt posing questions or making comments. Unlike the peepshow, the cabinet of curiosities presented its contents for everyone to see. Whether the showman collected his money before opening the doors or afterwards is not know. Another development that resembled the presentation of the cabinets of curiosities in its relationship to the audience were the public lecture performances given by showmen known in the German-speaking world as Moritatensanger.[44] The showman generally stood on a scaffold, pointing at a large canvas with a series of pictures, singing his commentaries about them. As an attraction this form, well known from fairs and marketplaces, does not seem very effective, because it leaves the spectators the possibility of watching without paying. On the other hand, the open structure may have drawn a larger audience than a presentation taking place in a tent. The tent, often used as a venue for popular shows like circuses and touring freak shows, has the advantage of enhancing curiosity by hiding the main attraction from sight. It also makes it easier to make sure that the spectators pay. As an apparatus, the peepshow had affinities with these attractions.

Unlike these devices, the peepshow presents a problem for the interpreter: although numerous prints and paintings depicting peepshows and peepers have been preserved, they rarely give us a clear idea about what is inside the box. Even to conclude that *at least* they contained images would not be accurate: such a supposition might prove to be little more than a forced transposition of the centrality of images in the current media culture onto its historical 'predecessors'. There is some evidence that rather than images, at least some boxes contained curious objects like puppets on strings and three-dimensional scenes composed of little objects.[44] Such boxes resembled crude miniature

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DANNY HILLIS: 'I WANT TO BUILD A CLOCK THAT TICKS ONCE A YEAR. THE CENTURY HAND ADVANCES ONCE EVERY HUNDRED YEARS, AND THE CUCKOO COMES OUT ON THE MILLENNIUM. THE AIM IS TO PUT HUMAN THINKING IN A WIDER PERSPECTIVE, AND BREAK AWAY FROM THE 'FASTER-CHEAPER' SOCIETY WE LIVE IN.

theatres and had some affinities with phenomena like the Punch and Judy puppet show. Written testimonies by contemporaries, most of them from nineteenth-century England, mention topics like the murder of Weare; the Queen of Sheba's visit to Solomon; the execution of Probert; the conversion of St. Paul; Greenland Whale Fishery; the building of Babel; Wellington at Waterloo; Daniel in the Lion's den; the lying in state of George IV; the murder of Maria Martin; the coronation of William IV; Mazeppa; Paul Jones the Pirate; and the siege of Gibraltar.[45] How were these topics, and countless others, visualized? Were they hastily sketched drawings, paintings, prints, or, as suggested above, displays of miniature scenes consisting of real objects? Could they have been collages cut out and pasted together from various sources, perhaps with a few 'props' as an additional attraction? We will never know for sure. It is likely that the nature of these attractions changed over time, perhaps spurred by the steadily increasing availability of mass-produced images. What is sure is that the supply of printed images most commonly associated with peepshows (known as *vue d'optique* or 'perspective view') never covered most of the topics listed above.

'Vue d'optique' and its Context

By the middle of the eighteenth century, a sizeable *vue d'optique/* perspective view production was in operation. Important centres included Paris, London, Berlin, Augsburg and Bassano in Northern Italy. Large numbers of these prints have been preserved.[46] The great majority of them depict geographic locations within Europe, above all cities, churches and palaces. In addition to these there are views of battles, fires, celebrations, earthquakes and other events, and

some of historical, mythological and non-European subjects. The Eurocentrism of the supply is an interesting issue that deserves further reflection. Why were there relatively few *vues d'optique* showing non-European subject matter? Did this reflect the audiences' tastes for scenes that were beyond one's horizon and yet not too distant, at least in theory (although rarely in practice) within one's reach? In other words, did these prints give an expression to a sense of Europe as a geographical, political and cultural unity, a self-sufficient world unshaken by recent geopolitical upheavals? As far as the *vues d'optique* reflected their users preferences, one might identify from them a certain lameness of imagination, an unwillingness to break away from a rather conventional and restricted geographical mindset. Not only would one expect more fantastic details; it is truly surprising that the excitement about exotic, distant lands created by the voyages of discovery has left so few traces in the repertory of these prints. Of course, one might look at the issue from the producers' point of view: securing more or less reliable sketches (often with not a little room for artistic license) about European locations must have been much easier than obtaining material about foreign lands. The same views were reprinted from decade to decade, and sometimes copied by other printers, which contributed to the cultural codification of the subject matter. One should also note that the buying audience for these prints was heterogeneous, and so were their uses. Similar prints were often viewed both in upper-class saloons (as will be explained below) and displayed by touring showmen, who may have sometimes bought their prints from the second-hand market.[42]

When displaying perspective views, the peepshow was essentially a virtual voyaging medium, providing the peepers opportunities to 'visit' locations and events that most people could not have witnessed *in situ* in their entire lifetimes. As the expression 'perspective view' demonstrates, the views shown in the boxes were usually schematic and simplified versions of the perspective lessons of the Renaissance. They presented not just a geographical location, but also a particular conception of space that was uniform and rigid, an image that was sometimes little more than a vaguely disguised rendition of the underlying co-ordinate system. The almost ritualistic repetition of the

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CRESTVIEW BAPTIST CHURCH IN AUSTIN, TEXAS CALLS ON ITS CONGREGATION TO EMAIL GOD: 'TO BE ALMOST SAVED IS TO BE TOTALLY LOST.'

central perspective in the repertory of the eighteenth-century *vues d'optique* is thought provoking. Erin C. Blake, who has researched British perspective prints published around 1750 for consumption in the drawing rooms of the 'polite society', has interpreted their formal rigidity as a recurring 'mapping' of its notion of public space.[43] For her, the repetition is more telling than the subject matter of any individual print. However, Blake pays relatively little attention to the varieties of contexts and uses for these and similar prints and to the theoretical issues this gives rise to. The members of the 'polite society' may have enjoyed their sense of power over the space the prints provided, but how did the 'common people' perceive and interpret similar images? Would the common people have become 'captivated' by the recurrence of the perceptual grid, by being turned into wilful prisoners of the perspective machine? What opportunities would the situation have left for oppositional readings of the depicted space (for the shattering of the grid with one's gaze, so to speak)? The poverty of textual source material requires taking the constitution and the functioning of the apparatus into consideration.

Although it could be claimed that the uniformity of the *vues d'optique* tended to homogenize the peeping experience, there were factors that provided a counter force, emphasizing differentiation. First of all, there were some prints that occasionally deviated from the rigid central perspective. This might have provided a temporary 'jolt', momentarily 'shaking' the perspectival grid. Neither should one neglect the fact that on the surface level at least, the prints purported to depict different locations and events, creating a content-based tension against their formal uniformity. One should also pay attention to the social and cultural historical context. Unlike the cinema, the peepshow was not a permanent, location-based attraction. For the showmen, the nomadic nature of the show was essential to keeping its offerings fresh. Most of them could not have afforded to update their repertories regularly by buying views (even used ones). By moving from place to place they could hope to find audiences not yet familiar with the programme. Of course, it was always possible to pretend that the views were new, depicting something other than originally intended. As Charles Dickens commented in *Our Mutual Friend*: 'A peepshow which had originally

started with the Battle of Waterloo, had since made it every battle of later date.'[17] Here the showman's skills of persuasion became crucial. He was aided by the fact that few people consuming street entertainment would have had points of comparison, living in a visually impoverished environment. However old and obsolete the views, the sight of a peepshow must have been, at least in the eighteenth century, an event that stood out from the environment. Peeping into the lens was like looking into another world. Appropriately, the Italian word for the peep show was 'Mondo Nuovo (or Nievo)', 'the new world'. It was essential that the 'new world' (however 'old' its representations may have been) was revealed only after a financial transaction. It is unlikely there was a 'money back guarantee'.

The showman could also rearrange the programme from time to time. Peepshow boxes were conceived, particularly in Italy, as 'optical theatres' (Teatro Ottico) without actors.[18] The views followed one another like stage backdrops, but as the main attraction. It seems, however, that elaborate thematic arrangements were not the norm. The succession of the views seems often to have been quite random, dictated by availability, or perhaps by the logic of attraction that emphasized the display of curious sights over narrative continuity.[19] Last but not least, it was possible to 'localize' the prints, making them more interesting and lively by colouring and pin-pricking as well as by adding new elements such as painted or cut-out figures. Yet, as far as I know, this rarely led to the creation of true fantasy landscapes; the improvements were additive, rather than truly transformative. Most prints could also be bought as specially treated 'deluxe' versions that contained translucent sections and other effects. By positioning candles inside the box and opening and closing its panels, impressive atmospheric transformations could be achieved. A question that needs to be asked concerns the role of such 'special effects': Which aspect was more important for the observers, the subject matter of the print, or the 'added' visual tricks? Did content dominate over sheer visual spectacle, or vice versa? How were the two related in the peeper's mind? What was the attraction value of the mysterious peep box itself? With so little source material preserved about the 'user's share', we will never know for sure. Similar questions have been asked numerous times in the

course of media history. The stereoscope astonished the viewer with the illusion of three-dimensionality, but also by its ability to represent the world in minute detail. The giant circular panoramas were overwhelming as visual experiences, yet they always purported to instruct their audiences about geography, history and politics. Much the same can be said about today's giant screen attractions like IMAX, where immersion meets education and the amazement created by the technological apparatus itself as a modern marvel. Rather than being mutually contradictory, these elements are part of the field of potential experiences the media provide. They are activated differently by each individual viewer, depending on their life experiences, liabilities, perceptual preferences, etcetera.

A boy using a mutoscope to view Scènes de Paris
Postcard, probably German, early twentieth century
Erkki Huhtamo Collection

'Pfui Teufel, ist das schön!'
Postcard showing a tramp using a mutoscope containing Pictures from Paris. Only for Gentlemen, Germany, early twentieth centurErkki Huhtamo Collection.

Looking for the Peepers

Who were the peepers? Much of our knowledge about them is based on visual sources showing people in the act of peeping. Although relatively numerous, such sources cannot be taken at face value. The showman, his box and a group of people around it provided a suitable genre scene, a stock situation that was repeated with little variation in prints, paintings, tapestries, designs for mantle clocks and even decorative porcelain figurines produced in the Meissen factories and elsewhere. Peepshow became codified as part of the well-known 'Cries of London' or 'Cris de Paris' – representations of typical professions from the streets of the city. Often based on existing images rather than 'sketches from nature', the figure of the peepshow man evolved into an

iconographic tradition that began to live a life of its own. It does not reflect truthfully what was really happening on the streets and marketplaces. Sometimes it wasn't even meant to: there are prints in which the peepshow plays a metaphorical role as a satirical representation of political events or other 'deceptions of the senses'.[53] Trying to draw conclusions about spectatorship from such sources forces one to be careful. A puzzling detail repeated over and over again is the large number of women and children among the peepers, while men seem to be the minority. Particularly children are often depicted, impatiently trying to make their way through the crowd to the peephole. Is it possible, then, to conclude that the peepshow was essentially a feminine, or even an 'infantile' medium, harmless enough to entertain women and children, but not challenging enough for men? Or were the women and children deliberately chosen by painters and engravers as attractive subject matter? Although it seems clear that having passed its heyday, the peepshow eventually became a children's attraction, this was not necessarily so during the first hundred years of its existence. There is no definite answer to the questions posed above. Some amount of speculation cannot be avoided.

One might look for clues from the structure of the apparatus itself. Many peepshows depicted in prints and paintings have two rows of lenses on top of each other, implying that the show may have been meant to be viewed simultaneously by both grown-ups and children.[53] It might be pointed out that in the eighteenth and even in the early nineteenth century, a clear division between the cultures of the grown-ups and the children did not exist, particularly among the lower classes. Women and children could be often found on the streets and squares, sometimes performing mundane activities like washing and cooking, or just biding their time. They formed a potential audience for the peepshow – as long as they had coins to spare. The caption to a print from 1830 admonishes the children: 'Run home to your mother, and cry for a Ha'penny, do, – if you want to see the show.'[54] Peepshows were common at popular events like fairs, where large crowds, including women and children, gathered. The behavioural codes at such events were more relaxed than in normal life, giving practically anyone a 'permission to peep'. Of course, the contents of the peep box had to be suitable for any pair of eyes. Most *vues*

A GERMAN INVENTOR FROM OSNABRÜCK HAS DEVELOPED A SPECIAL MOBILE TELEPHONE FOR USE IN THE GRAVE. THE TELEPHONE ANGEL ALLOWS YOU TO KEEP IN TOUCH WITH THE DECEASED AFTER THE FUNERAL.

d'optique would have been found acceptable without problem. It is possible that views with scatological and erotic subjects were also shown, but there is little direct evidence of this.[55] It seems that public peepshows rarely contained such material, which may seem surprising, if we take into consideration the present connotations of the word 'peepshow'. According to Laurent Mannoni, there were explicitly erotic *vues d'optique*, but they are extremely rare today, which implies that their production was limited.[56] Possibly, they were meant primarily for private consumption, like erotic anamorphoses. Some hints about eroticism in the peepshows can be found in a book called *Les Voyeurs* (1835), an album of erotic novelty prints all related to peeping. One of the prints – 'Optique à l'usage en l'instruction de la jeunesse' – displays a large peepshow on display at the carnival of Venice.[57] From behind a curtain, the feet of three peepers, two men and a woman, can be seen. When the reader lifts the curtain (a flap), an explicit pornographic scene featuring three people is revealed. Perhaps this can be interpreted as an anticipation – an act stimulated by the 'educational' views seen inside the box. In an eighteenth-century image, the spectacle inside the peepshow box proves to be the showman's own erect male organ.[58] The relationship of such fantasies to the realities of the era remains unclear.

Two erotic postcards from the series Keyhole Frolics Collectable Mutoscope exhibit cards, USA, 1940s
Erkki Huhtamo Collection

In a famous engraving by the Italian Bartolommeo Pinelli, erroneously titled 'La lanterna magica' (1809), men are seen peeping together with women and children. The engraving reminds us of a fact that certainly had an effect on the peeping experience: the peepholes were often so close to each other that physical contact with other peepers was unavoidable.[59] Although the boxes may have been lacking explicitly erotic content, eroticism became part of the experience through the bodily contact with strangers, including members of the opposite sex. Was Pinelli's tight group of viewers, consisting of both sexes, typical? It

might have been so in the Italian context, where bodily contact in public is still more common than in other European cultures. Whether there were social codes of behaviour controlling this potentially 'contagious' situation, charged with latent eroticism as well as with the risk for contracting epidemics, we don't know. Compared with other existing sources, the configuration of people shown in the engraving seems rather exceptional. A division can often be found: while women and children dominate the genre pictures, men have an exclusive role as peepers in allegories and satires, where women and children are never seen. A man is depicted as a personification of the people (such as the British 'John Bull'). He is usually a victim: while peeping at pictures of some governmental manoeuvres, such as its costly war plans, the peeper's purse is picked by a pickpocket identified as a government official. Transferred into the masculine world of politics, warfare and money, the peepshow has been turned into a vehicle for ideological criticism. It presents an 'official spectacle', which is deliberately delusory, meant to dazzle the peeper and turn his attention away from unpleasant realities, like the need for taxpayers' money for financing the campaigns.

Such prints could also be read from a slightly different angle as manifestations of a topos frequently encountered in the culture of peeping: the real price one has to pay for the act of optical immersion is not a coin, but the loss of the ability to control one's immediate physical surroundings. When the person's eyes are glued to the peephole, anything can happen behind his – and also her – back. A well known print titled 'Musée Omnibus' (circa 1840), with the telling caption 'What's seen & what isn't!', displays us another peeping scene.[10] A mother, together with her younger son (?), are shown bent over the peepholes, while an officer is secretly caressing a beautiful young lady (obviously her elder daughter) behind her back. Numerous variations of this topos can be encountered in the context of subsequent peeping technologies, as we will later see. However, judging from some other prints, men do not always try to profit from this situation. They are content just to stand behind the women and children, acting out the patriarchal role of an escort. They don't peep into the lens themselves, which might confirm the earlier argument about the feminine/infantile

nature of the early peepshow. Be it how it may, in the course of the nineteenth century the men's attitude towards the pleasures of the peephole changed dramatically, eventually reaching a point where separating them from the peepshow box, reconfigured as the 'Mutoscope', required raw physical power, and perhaps a few well-targeted hits on the head with an umbrella. This development will be analysed later, after discussing the role of peeping in private life.

Peeping and Privacy

In the early twenty-first century, perspective peeping is considered a secretive activity. The peeper wants to see, but not to be seen. S/he does not want others to be aware of her/his activity. There is something forbidden in the act, and a taste of obscenity in the pleasures it provides. That this has not always been the case, as is proven by the early public peepshows. Peepers were part of a crowd, waiting for their turn. We can easily imagine the soundscape – the comments, the jokes and the laughs that filled the air and competed with the explanations of the showman. This would have made 'deep immersion' difficult, but very probably it was not even sought after.[61] Peeping was a joyful social ritual, a collectively experienced highlight on an otherwise uneventful day. However, peeping was never the exclusive domain of 'the ignorant and uncultured'. Already in the eighteenth century, peepshow boxes were made for domestic consumption by the privileged classes. Different types of boxes existed. As pieces of 'optical furniture' (like the television much later), they were often smaller and more richly decorated than their counterparts in the streets and marketplaces, but their possibilities of manipulating the viewing experience were more limited. Still, they allowed the user to simulate some of the effects performed by showmen. The views could be changed in succession, and sometimes the day could be made to turn into night

by means of the hinged panels of the box. There were also 'double function' versions that could be turned into either a peepshow or a camera obscura by quickly adjusting some of the elements. With such a device one could handle different aspects of media culture, from producing views of the outside world to viewing ones made by others. Often the device folded into a wooden box that could easily be carried around. Sometimes the box had the look of a leather-bound book, providing a hint about future forms of media literacy. The multi-functionality anticipated later media machines, including multimedia mobile phones.

Because of social stratification and segmentation, it is possible that upper-class users, particularly women and children, had never had direct experience of the actual 'vulgar' public peepshows (unless a showman had been invited to perform for them as a curiosity). Perhaps they knew these shows as glimpses in the distance from the window of a coach, or indirectly through representations – the discursive peepshow boxes encountered in narratives, prints, tapestries, decorated fans and porcelain figurines. The designs of such luxury products often reflected the familiar-but-alien life of the 'common people'. The use of the peepshow box in the saloon could then be interpreted as a distanced and quasi-nostalgic re-enactment of the rituals of folk culture. There is a wonderful oil painting by F.H. Drouais (1727-1775) in the Frick Collection, New York which supports this argument. It depicts two boys, actually the young count and the 'cavalier' de Choiseul, posing dressed as touring 'Savoyards' with their peepshow box and hurdy-gurdy.[62] The calm and confident expressions on their faces prove that these privileged youths had experienced none of the hardships the actual Savoyards had to suffer to make their daily bread. No doubt the boxes for private consumption were often used as toys and novelties, but this does not rule out their potential for education and enlightenment. Optical devices, such as magic lanterns and solar microscopes, were recommended as aids for learning by educational reformers in the second half of the eighteenth century.[63] Why not use peepshow boxes with their wide supply of views for the same purpose?

This issue is raised in an interestingly ambiguous manner by a late eighteenth-century French engraving titled 'L'Optique'. It depicts two

girls using a typical pyramid-shaped peep box with a lens and a mirror positioned in a forty-five degree angle in its upper part.[65] Through the lens and the mirror, the peeper is supposed to view a print placed horizontally on the bottom of the device (inserted from the backside). This arrangement simultaneously physically distances the print from the observer and brings it optically closer, thus enhancing its perspective. Obviously, the girls are having a geography lesson given by a young male tutor, with a pointer in his hand.[66] The landscape the young ladies see, however, is 'something else': the mischievous tutor has replaced the *vue d'optique* by his own bare bottom, which, 'elevated' by the optical system, practically hits the girls in the face.

While one of the young ladies stares at the sight in obvious perplexity, the other turns away in disgust. The illustrated geography lesson has, through an obscene trick, turned into a sexual 'shock attraction'. Whether the peepshow can be characterized as feminine or not, the carnal male 'landscape' has here re-entered the 'immaterial' visual field of the *vue d'optique* in a brutal manner (although we don't know how contemporaries would have reacted to this print – would they have found it just humorous, didactic, or potentially subversive? Who would have put it on the wall?).

The illusion of virtuality produced by the perspective view has been shattered instantaneously, as the exposed male body has returned the female peepers within the regime of the Masculine. Commenting on this 'lesson', the caption re-enacts the didactic subtext, asking which of the girls is more novice, the one who turns away or the one who keeps on staring? Again, with our twenty-first-century codes it is difficult to judge how contemporaries would have interpreted this ambiguous message.

The question about individual versus social viewing in the domestic setting can be addressed by comparing the peepshow box with another, seemingly quite different device, introduced around 1750. It was known by many names, including 'zograscope', 'l'optique' and 'diagonal optical machine'.[67] Technically, the zograscope was a combination of a magnifying lens and a mirror behind it, both fixed in wooden frames and attached to an adjustable pillar-like table stand. The *vues d'optique* (the same ones also used in peepshow boxes) were placed flat on the

table behind the device for viewing. Erin C. Blake has proposed that this device could be considered a neglected predecessor of the nineteenth-century stereoscope, another form of peep media (to be discussed in the next section).[67]

For us, however, the most interesting aspect of the zograscope is its relationship to the peepshow box, neglected by Blake.[68] Indeed, technically it could be characterized as a peepshow without the box. The relationship between the lens, the mirror and the print is similar to that found in the pyramid-shaped peepshow boxes (like the one in the 'L'Optique' print). The effect, however, is quite different, as Jean-Jacques Rousseau observed. Laurent Mannoni has located a very interesting letter by Rousseau (December 20, 1764), in which he expresses his disappointment about the zograscope (which he calls 'L'optique'), still a relatively new device at the time. Rousseau was annoyed by the light falling on the print from all directions; he also complained about the fact that the openness of the structure lets the surrounding objects remain visible.[69] For Rousseau, the proto-Romantic, the solution to the problem was the peepshow box (in French, 'bôite d'optique'), because it contains the print in its darkened interior and allows the direction of the light to be controlled. As Rousseau's letter demonstrates, the presence of the box made a difference. In addition to focusing the observer's attention exclusively on the image, the box excludes the surroundings, providing an experience of visual immersion, anticipating virtual reality.

Arguably, the experience Rousseau was longing for could indeed be realized in a more intense and intimate manner with a peepshow box. For the people gathered around a zograscope, there was no strict separation between the acts of peeping and non-peeping.[70] The prints could be passed from hand to hand and observed either with the device or without it in much (but not quite) the same manner. The peepshow box emphasized the private sensation of immersion, while the zograscope could be claimed to have underscored study, content and social interaction.

It would be tempting to associate its open structure with the Enlightenment rationalism, linking the peepshow box with the Romantic mind. In reality, both devices remained in use parallel to each other, similar prints being used in both.

Polyorama Panoptique
A miniature peep show for the home, French, invented in 1849 by Pierre Henri Amand Lerou
Erkki Huhtamo Collection

One might ask whether or not such an argument would lead us toward technological determinism, assigning certain 'effects' to the structure of the apparatus itself, rather than to its uses. Isn't it possible that in a certain social context, a peepshow box could be used in the same manner as the zograscope, in spite of the differences in construction? Couldn't a peepshow box also serve collective sessions of social entertainment and study, just as the zograscope could be used for individual 'virtual voyages'?

Such questions are difficult, and underlie much of the debate on media culture. Perhaps it could be proposed that structurally these devices 'suggest' certain kinds of uses, although this in no way determines their actual uses in varying circumstances. They have 'potential' which is or is not activated. Much depends on the context. Of course, observed deficiencies may lead to modifications in the device, and discrepancies between its functions and the user's expectations may result in entirely new inventions.[71]

On a discursive level, the imagined amendments may lead still much further, beyond the technological possibilities of the era. Such 'discursive inventions' may remain imaginary elements of the culture for long stretches of time, eventually appearing in material form in another context.

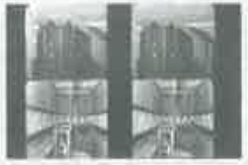
One should avoid simplified cultural arguments, such as stating that the presence of the peepshow box in the parlours of the eighteenth-century upper class was a symptom of a growing sense of individuality. Although individual viewership, as called for by Rousseau, may have become an outlet and even a form of expressing such a sense in some cases, it hardly became the rule.

However, the use of the peepshow box in the domestic setting did differ in certain respects from the collective rituals of the marketplace. While the street audience was dependent on the choices made by the

showman, the home users could playfully alternate between the roles of the showman and that of the audience.[72]

The possibility to manipulate the device manually and its smaller size contributed to its redefinition as a personal 'media machine' – it was subordinated to the intentions and the will of the user rather than vice versa.

At the same time it invited social interaction among users who more or less shared the same skills, knowledge and value systems. Particularly in the nineteenth century, instructions for building optical devices and drawing images for them were published in periodicals and manuals for educational parlour entertainment. For example, *The Boy's Own Book of Indoor Games and Recreations* contained detailed instructions for making different types of peepshow boxes, which could be 'about the size of an ordinary cigar-box, or large enough to cover a dining-room table.'[73] The book encouraged the prospective children's room showman: 'The following peep shows, if carefully and neatly made – and they are well within the capacity of any handy boy – will form permanent and most interesting recreations, to say nothing of the pleasure to be obtained in their construction'.[74] The repertory of the 'boy hobbyist' came later to include devices like homemade crystal radio sets and eventually self-programmed computer 'demos' and game hacks.



Unmarked postcard with two pairs of stereoscopic images showing a Kaiser Panorama from the inside and the outside. The only known period photograph showing the inside of a Kaiser Panorama, early twentieth century
Erkki Huhtamo Collection

Stereoscopic Armchair Travelling

The idea of peep media was evoked again and again along the cultural trajectory leading from traditional peepshows to devices like the Polyorama panoptique, the Megalethoscope, the stereoscope and the Kinora, to name just a few.[75] The nineteenth century also saw the appearance of countless toys and souvenirs that encouraged peeping: kaleidoscopes, alabaster 'peep eggs', paper 'concertina'

Photograph printed on postcard stock showing a poor family posing in their home. A simple Holmes stereoscope can be seen on the table to the right of the sitters. – Erkki Huhtamo Collection

peepshows, minuscule 'starhope' viewers, novelty postcards. Accompanying (and often anticipating) such devices for private or domestic use, there were all kinds of public entertainment from the old style peepshows – already struggling – to novelty attractions like the Cosmorama, the Kaiser Panorama and eventually the Kinetoscope and the Mutoscope. These were seen in permanent public premises, from 'Cosmorama Rooms' to Kinetoscope Parlours' and 'Penny Arcades', reflecting the institutional consolidation of technology-based entertainment, particularly in urban areas. The idea of domestic peep media was given a strong impetus in the second half of the nineteenth century by the introduction of the stereoscope.[76] The scientific principle behind stereoscopy was demonstrated by Charles Wheatstone in Britain in the 1830s. For the purpose, he created the first stereoscope – an open design which used two angled mirrors in the centre and two images placed on both sides, wide apart from each other. The images were drawn (photography was not yet available) from slightly different angles corresponding with the parallax difference of the human eyes. When a person stared into the mirrors, the reflections of the images merged, creating an illusion of a three-dimensional shape. For scientific demonstration purposes, the openness of the structure had both a practical and a symbolic justification. The production of the illusion was made concrete and easy to explain. Science needed no veils.

After being introduced to the public at the Crystal Palace Exhibition in London in 1851, the stereoscope soon became extremely popular both in simple handheld versions and elaborate cabinet designs. When it was turned into a commodity, however, it was marketed in forms remarkably different from Wheatstone's original model. The most current early

design was perfected by the Scottish scientist David Brewster.[77] A stereoscopic pair of photographic images was placed inside a handheld wooden box and observed through a pair of lenses mounted on its side. Based on this simple design, large cabinet stereoscopes with dozens of views and special changing mechanisms were created. In the late 1850s, a cheap and practical hand-held model known as the Holmes-Bates stereoscope was brought to the market, first in the USA and soon elsewhere. In a sense it was a hybrid between the Wheatstone and Brewster viewers. The stereoview was placed on an open slider which was adjusted manually by the viewer to find the right focus. The lenses were under a viewing 'hood', and a wooden divider helped keep the left and right eye views apart. Although the stereoview was 'outside' and could be seen by others, it was 'inside' from the peeper's point of view. Why Oliver Wendell Holmes, an early stereo enthusiast, who vividly described his stereoscopic armchair travels in his writings, came to conceive such a structure is an interesting question.[78] Although the creation of a convincing experience of immersion was an important priority for him, he was also probably aiming at a cheap and basic model that could be mass-produced. By the late nineteenth century such simple but effective viewers were practically everywhere.[79] They were used in classrooms, working class homes, and farmhouses far from urban centres. They were sent by immigrants to the USA as gifts to those who had stayed behind. Stereoviews were given away by businesses as collectibles, their backsides bearing advertisements for products from coffee to cereals. In half a century, millions of stereoviews and an enormous variety of stereoscopes, something for anybody's taste – and purse – had been produced.[80]

It is likely that many owners of a stereoscope never came to think about its relationship with the peepshows of the past.[81] This would also have been in the producers' interests – they were promoting novelties, not updated versions of obsolete curiosities. The connection may not have been acknowledged and even perceived by contemporaries, but from a media archaeological perspective it is evident. Kircher's Parastatic Microscope easily evokes the handheld Victorian stereoscopes, and cabinet stereoscopes were pieces of 'optical furniture' in the tradition of the peepshow boxes. Like the peepshow box, the

stereoscope presented a 'tunnel vision': it emphasized the depth axis without managing to expand the visual space laterally, to turn it into a 'panorama' (an issue virtual reality head-mounted displays tried to solve, with mixed results, much later). Of course, there were crucial differences. The stereoscope was mainly used to view photographic images and, most importantly, these were three-dimensional. While the peepshow boxes achieved the depth illusion by *enhancing* the perspective of the view (with the help of lightly distorting convex lenses), a 'cerebral' *transformation* took place in the stereoscope. Two images merged into a third one in the peeper's mind. The act of peeping activated a theoretically grounded relationship between the view, the viewing apparatus and the viewer.[82] Although it could be claimed that the peepshows had striven for something similar, and, indeed, there was some theory to support such claims, the peepshow remained 'theatrical', existing 'fully prepared' for the showing, merely waiting for the peeper's eyes to enjoy it.[83] The stereoscope had a 'physiological' basis, only providing ingredients for the spectacle, which was actuated, and therefore existed, in the peeper's mind.

Coupons released by The American Cereal Company, Chicago, Illinois, ca. 1905. By returning coupons with all the eatables for the brand name Pet (1 p. for the consumer) would be sent a free stereoscope. Erkki Huhtamo Collection

Both peepshows and stereoscopes were media for 'virtual voyaging'. Like the majority of the *vues d'optique*, great numbers of stereoviews depicted cities, landmarks and distant lands. However, while the repertory of the *vues d'optique* was largely limited to Europe, the stereoscope developed into a veritable world-voyaging tool.[84] Although the shift had to do with the possibilities photography offered to produce a simulacrum of the world, it was also related to a wider framework of social, political, economic and cultural factors, including colonialism, global capitalism, new means of transportation, the beginnings of modern tourism and the increasing curiosity about the world

Photograph on postcard showing a poor family posing in their home. A simple Holmes stereoscope can be seen on the table to the right of the sitters. Erkki Huhtamo Collection

Coupons released by The American Cereal Company, Chicago, Illinois, ca. 1905.

This Coupon Not Good after January 1st, 1906

STEREOSCOPE FREE

THIS beautiful, finely finished, well made Stereoscope has a cherry frame, aluminum, velvet edged hood, dark chamber, fitted with corrected lenses, that perfectly define the beauties of the handsome colored views; has patent folding handle with brass fastenings. It is equal to any Stereoscope in the market.

Keep These Red Letters—(one division packed in each package)—until you can spell **Pet-ti-jo-hn** (Pettijohn), then mail them to us with fifteen cents to pay actual postage and we will send you *free* one of our Stereoscopes as described and illustrated above.

THE AMERICAN CEREAL COMPANY

1755 Railway Exchange CHICAGO, ILLINOIS

Name .....

Street .....

City ..... County ..... State .....

This Offer Good only in the United States of America

NOTE—Not more than one Scope will be sent *free* to any one household.

over

This Coupon Not Good after January 1st, 1906

Save This Coupon—It's Valuable

Consumers' Notice

We shall commence soon to distribute to consumers of Pettijohn, through its package, a series of beautiful, entertaining and instructive

STEREOSCOPIC VIEWS IN COLORS

These views will first cover a series of subjects of general interest, to be followed by a

World's Tour Series of Original Views

FOR BOTH GROWN PEOPLE AND CHILDREN. Every family (especially those with children) should have a Scope to fully enjoy these beautiful colored views.

We Send Stereoscope Free

Read Our Offer on Other Side

beyond one's immediate surroundings, also manifested in panoramas, travel literature, newspapers and illustrated magazines.[85] Stereoscopic 'package tours around the world' were sold by large companies like Underwood & Underwood and Keystone View Company. In addition to the dozens of numbered stereoviews, the sets contained guidebooks and maps. Everything was delivered in handsome boxes that looked like books – once again the idea of literature was enrolled in support of the emerging visual media. The parallel with the eighteenth century book-shaped peepshow boxes went even further: there were models in which the stereoviews were actually bound into a book, and a folding cover served as a stereoscope.[86] Favourite topics, already familiar from the repertory of the *vues d'optique*, included wars, battles and catastrophes – events like the Johnstown flood or the San Francisco earthquake proved particularly popular. Stereoscopes reached a larger and demographically more varied audience than the peepshows ever did. The combination of photography and stereoscopy made the scenes seem life-like, although the stereoscopic illusion was highly artificial.[87] Contemporaries generally considered the stereoscope as a highly convincing tool for armchair travelling. It brought the outside world to the privacy of the Victorian parlour, preparing the ground for the phonograph, the radio and the television.[88]

However central stereoviews with geographical and topical subject matter may have been, it should not be forgotten that unlike the repertory of the *vues d'optique*, the supply of stereoviews contained many other topics as well. There were genre scenes (often with children), gags, slightly erotic episodes (also in serialized form, as the well-known French Cook series), and portraits of celebrated beauties or other well-known people. There were also series of views with theatre scenes and the deeds of the devil ('Diableries') realized with miniature figures in doll-house like settings. These were typical French products, known as 'tissue cards'. They were printed on thin albumen paper that was often dotted with pinholes. They also had hand coloured paper 'screens' behind the actual images, so that light and colour effects appeared when the view was observed toward a light source. These were essentially the same techniques already used in vues d'optique in the eighteenth century, although on a miniature scale – yet another token of continuity

'The Fresh Door-Agent Soliciting'.
A door-to-door salesman of stereo cards kisses the wife while the husband views samples. Stereo view by C.H. Graves, Philadelphia, sold only by agents of 'The Universal Photo Art Co.', late nineteenth century. Erkki Huhtamo Collection

under the guise of novelty.[8] There were also pornographic stereoviews that appeared on the market soon after the production of stereoscopic photographs began. The production of such cards, officially illegal, blossomed particularly in France, but many 'dirty' cards were smuggled to other countries as well. Many questions about these cards remain unanswered. What was their principal audience? Where were they used? What role did they play within the home? The most obvious stock answer is that such cards were the exclusive privilege of males, who would have peeped at them in brothels, gentlemen's clubs, bars with coin-operated stereoscopes and probably also in the privacy of their homes for sexual stimulus. This may not be the whole truth. It is quite possible that the late-Victorian audience for visual pornography was wider than thought, including (at least sometimes) also women.

The Stereoscope and its Peepers

An unidentified view of a Victorian salon. A common Holmes-stereoscope is seen stored on the lower level of the small coffee table, just left of the piano. Erkki Huhtamo Collection

By the early twentieth century, the stereoscope had become a widely used media machine. However, in spite of its massive cultural presence, there are surprisingly few contemporary testimonies about its reception.[9] This may be partly related to its near-ubiquitous presence, partly to its somewhat vague identity: although it was an accepted part of Victorian life, there were those who considered it little more than a toy, a harmless pastime hardly worth

serious attention. To gain an understanding about the discourses that surrounded the stereoscope and affected its meanings, it is necessary to look at visual sources, particularly those showing people with stereoscopes and views. From a media-archaeological perspective it is not surprising that we soon encounter motives that feel familiar. Things are happening behind the peeper's back again. But instead of cunning officers, we now encounter door-to-door salesmen of stereoviews – descendants of the 'street criers' of the past – who cannot resist the temptation to cuddle pretty housewives when their unsuspecting husbands remain immersed in the sample views (the salesmen certainly brought enough material to keep them busy!).[91] The persuasiveness of this topos is proven by the fact that it was staged again and again for decades. Of course, the contemporaries themselves may have seen in such scenes little more than delightful gags, while for the publishers they offered a well tested topic, and another opportunity for 'product placement'.[92] For a media archaeologist, however, such views offer valuable glimpses to the lives of the topoi, pointing out the migration of cultural motives, but also their reinterpretations in changing cultural circumstances. The Holmes-Bates stereoscope – by far the most common model – was a simple and familiar construct that changed little over the years.[93]

Stereoscopage!
Erotic postcard designed by G. Mouton, 1903.
France, publisher unknown.
Erkki Huhtamo Collection

In spite of its well established presence, the stereoscope was sometimes unfavourably compared with other visual devices. An advertising booklet for John Fallon's magic lantern or 'Stereopticon' show (circa 1863) gave this interesting judgement at the time when the stereoscope was still an emerging medium: '[A]fter all, the picture in the stereoscope is but a miniature, and, besides, there is nothing social in the enjoyment of the view revealed to you. You look selfishly at the show with your personal eyes, and

your friends must wait their turn to see it. Have you never wished that a gigantic stereoscope were possible, through which a whole company could look at once, as they would at the actual scene, with sympathetic satisfaction? This very wish, wild as it seemed to you then, has been realised in the Stereopticon.'[94]

Although he called his show 'Stereopticon', Fallon could not offer his audiences stereoscopic views. It was just an advertising gimmick; he was only able to show them photographic lantern slides projected on a screen. Of course, they were large and could be observed by the entire audience together. Do we have to conclude, then, that the 'nature' of the stereoscope was antisocial and its small images inherently inferior to projected lantern slides (to say nothing about the giant wraparound panoramas)? Although it could not compete in image size or the number of spectators with the magic lantern, it had advantages of its own. The three-dimensionality of the views is the most obvious of them, but hardly the only one. By its construction, the stereoscope was a personal media machine, something tangible, a thing to manipulate with one's fingers. One could easily choose and change the 'software'. The stereoscope was ready to 'teleport' the user to witness the world whenever the daily routines began to feel boring or depressing. However, the question about the social versus antisocial nature of the stereoscope is not solved so easily. What do contemporary sources tell us about it? Fortunately, there exists an extensive iconography about people using the stereoscope or posing with it.[95]

This iconography can give us valuable clues about the cultural meanings attached to the device, although it cannot by itself answer all the questions. As semioticians have pointed out, images are polysemic; their meanings are in flux unless they are arrested by words. These words are in many cases missing. This forces us to formulate hypotheses, which cannot always be verified with absolute certainty.

Several types of images can be considered: stereoviews of people using the stereoscope, cabinet cards showing it as a prop in a photographer's studio, interior views displaying it as part of the domestic environment. There are also graphic representations of stereoscope users, encountered in magazines and mail order catalogues. Because manufacturing and distributing stereoviews soon became an

established business, the views showing people peering into the stereoscope have nothing spontaneous or accidental. They present us an idealized view, the preferred customers in their ideal environment as envisioned by the producers. These views confirm the status of the stereoscope as a parlour instrument – there are practically no views showing the stereoscope used outside.[98] It is displayed as a 'natural' element of the Victorian parlour, as part of its stereotypical inventory of objects and codified domestic activities. Thus it is not surprising to find a stereoscope 'forgotten' on the table behind a group of people observing a young lady painting a landscape (!) in a view from 'The Happy Homes of England' series by the London Stereoscopic Company.[97]

Often a family or a group of friends are seen sitting around a table, passing the stereoscope from hand to hand, with piles of views on the table. Sometimes they are sitting in armchairs and sofas, chatting, flirting, knitting, reading and, again, enjoying stereoviews. In an early British studio view entitled 'A problem at chess' (circa 1860) a group of Victorian ladies are playing chess around a table. Another lady sits in a chair, holding a letter (?) on her lap, while a young man is seen immersed in a stereoscope. Decades later, the world voyaging sets by the Keystone View Company often ended with a view entitled 'Still There's No Place Like Home', showing the harmonious family sitting together in their parlour, obviously having just completed their world tour. The potentially disruptive effects of travelling for the established values have been defeated, and the patriotic family ideology reinstated: 'But at the foundation of all our glory, the best thing under our flag, is the true American home'.[98]

'Jack Takes Stereos'
A dog peering into a stereoscope, stereo view from the series 'European and American Views', USA, late nineteenth century
Erkki Huhtamo Collection

There are quite a few stereoviews showing children (and some even pets!) peering into the stereoscope. Although the topic may have been chosen because of its 'cuteness' (reminding one of the numerous prints of children at peepshows), it is worth the attention. There is little doubt that the use of the stereoscope was often

considered suitable for children as a creative and educational pastime.[99] In an illustration from a mail order catalogue, a mother is seen happily spending 'An Evening at Home With the Little Ones'; stereoscopy is shown as a good pastime that keep the mother and the children together.[100]

A family posing in mourning dress. On the table is a postmortem photograph of a child, while the father holds a Holmes stereoscope. Cabinet card by A.F. Fisher, Hinsdale, New Hampshire, USA, late nineteenth century
Erkki Huhtamo Collection

There are also stereoviews that show the mother engaged in homework like sewing, while the children are playing with the stereoscope on the floor. In a view from the series 'Young America in the Nursery', three concentrated girls are shown studying, with a pile of books and a stereoscope on the table.[101] When we see, then, a stereoview about a mother sleeping in bed and her little son sitting on the nightpot, his face immersed into the stereoscope, we should probably interpret it as a benign little gag, rather than as a warning about the terrible lure of the media.[102] Indeed, words like 'stereoscomania' and 'stereoscopomania' had already been introduced in the early times of the stereo craze. However, they were often used as positive terms, merely pointing to the extent and novelty of the phenomenon, although occasional attacks against 'stereoscopic trash' also appeared. One of the most interesting critical documents is a two-page cartoon published in *Harpers Monthly* in 1860.[103] It shows how the introduction of the stereoscope into the home by the father (anticipating countless later fathers carrying home boxes of electronics, from TV sets to personal computers) changes the rituals of family life. Not only are habits like reading abandoned, but the entire family is turned into a bunch of cross-eyed human wrecks! The cartoon provides us a useful reminder about the way in which certain topoi appear and reappear in media culture. The public debates on the effects of media, from television to video games and the Internet, are not without precedent.

F. Giesel, *Bilder aus der Gesellschaft*, 'Am Motoskop', illustration from an unidentified German picture magazine, early twentieth century. Erkki Huhtamo Collection.

Particularly in the USA, the stereoscope was used as a prop in cabinet card and tintype portraits taken at professional studios.[104] Based on an examination of about three dozen examples, certain conventions can be detected. The stereoscope is either placed on a table, sometimes with other props like a photograph album or a stack of stereoviews, or held in the sitter's hand. If there is more than one person in the picture, one of them holds the stereoscope, while others hold individual stereoviews.

Sometimes, particularly in the case of children, the views are placed on the floor around the subjects. People of both sexes and of any age – from little children to elderly couples – have been pictured with the stereoscope.

In no American studio portrait I have seen does any of the sitters peep into the stereoscope, which probably has a practical explanation: the unobstructed visibility of the face is the most important feature of a portrait.

What, if any, meaning does the stereoscope have in these photographs? Is it merely a prop like any other? Or did it have some symbolical significance? Without textual evidence it is extremely difficult to 'anchor' (R. Barthes) the meanings of these photographs. A stereoscope in a wedding photo might signify future, anticipation, or opening vistas.[105] A stereoscope in a mourning photo, also containing a photograph of a deceased child on the table, surrounded by the grim sitters, might signify hope, a counterforce to loss and sorrow. Be it how it may, the presence of the stereoscope associates the sitters with optical technology, and indirectly with emerging modernity. Something similar also happens in those rare interior views and non-studio snapshots in which a stereoscope can be detected, obviously accidentally left in its place. Media technology has permeated life. Here its role could be compared to that of the television set in countless family photographs;

although of course there are also many shots in which the presence of the TV set is anything but accidental, representing the values and achievements of the posers.[106]

Contrary to what one might expect, pictures of a single person immersed in the stereoscope are less common than images of families or groups of friends spending time with it. This may seem surprising, particularly if one accepts the idea, raised in Fallon's Stereopticon booklet (quoted above), that as an apparatus the stereoscope has 'nothing social in the enjoyment of the view revealed to you'.[107] We have already encountered this issue in discussing the uses of the peepshow and the zograscope in the domestic setting. The question is: to which extent do the formal features of a device determine its uses? Does the fact that most stereoscopes only had one pair of lenses define it as a medium for solitary enjoyment? Against those theorists for whom 'the medium is the message', I would argue that the social context can have a powerful impact on the uses of a certain device, even when these seem to contradict its formal features.[108] As Raymond Williams argued, technology itself does not define the cultural forms it comes to serve.[109] Quite clearly, the stereoscope fits perfectly within the activities of the Victorian parlour culture. It was a curious pastime and a topic for discussion, but at the same time it provided a safe way to peek at the world outside. It was also in the interests of the publishers to promote the stereoscope as a social medium. Thus the scarcity of the figure of the solitary 'virtual voyager' may partly be an illusion caused by the nature of the source material. There is no doubt that the stereoscope provided *potential* for private, individual virtual voyaging, as

'*Stereoscopic Slides*' cartoon from *Harper's New Monthly Weekly Magazine*, Vol XXI, no. CXXV (October 1860), 717–718. Erkki Huhtamo Collection

'Stereoscopic Slides'
cartoon from Harper's New Monthly Weekly Magazine,
Vol. XXI, no. CXXV (October 1860), 717-718
Erkki Huhtamo Collection

Oliver Wendell Holmes early understood. However, this potential needed to be *actuated* by the user, always operating in a cultural and social space. A Marcel Proust might have appreciated the solitary pleasures of the stereoscope, but his experience could hardly be generalized. Although it is extremely difficult to say which type of use – the solitary or the social – was the dominant one, I suspect it could have been the latter, with its conventions of chatter and 'light reception'. It would, however, be very interesting to learn more about the deep, concentrated modes of using the stereoscope that certainly existed as well.[112]

Peeping at 'Dirty Things'

Whiting's Sculptoscope, coin-operated stereoscopic viewer. American Novelty Co. Cincinnati, Ohio, USA, patent date 1915. Erkki Huhtamo Collection

In the late nineteenth century, the idea of the peepshow box was applied to mechanical public attractions. Coin-operated stereoscopic viewers and moving picture machines, such as the Kinetoscope and the Mutoscope, were found in places like amusement piers, saloons and even railway stations, although the principal venues were the 'Kinetoscope Parlours' and 'Penny Arcades'. In spite of the claims by their owners, such places were not an absolute novelty. The idea of an amusement arcade stems from the popular shopping arcades (or 'passages'), considered by Walter Benjamin as one of the early signs of urban modernity.[113] Since the first half of the nineteenth century, such arcades had contained, besides shops and boutiques, novelty amusements, like dioramas and cosmoramas. For shoppers, such attractions provided an opportunity for temporary relaxation and diversion. In some cases the owners of this entertainment conceived their attractions as independent mini-arcades. Cosmoramas, for example, were indoor 'arcades', consisting of rows of magnifying lenses inserted into the walls.[114] Illuminated views, often with subjects of

Mutoscope with open side, International Mutoscope Reel Co. Inc., New York, USA, ca 1927. Erkki Huhtamo Phantasmagoria Collection, Society of Film History Helsinki, Finland. Photo: Kai Vase/SEA

topical interest, were peeped at by the visitors, strolling from one peephole to another, sometimes stopping for a chat. The popularity of the cosmorama – P.T. Barnum's American Museum on Broadway in New York even had one – provided inspiration for other 'improved' spectacles. One of them was the Kaiser Panorama, a European network of stereoscopic peepshow arcades. Founded by the businessman August Fuhrmann (1844-1925) in Berlin, the network, which had a well-organized international distribution system for rotating the slide programs, operated for decades from the 1880s on.[113] Rather than a 'panorama', it was a round or oval wooden structure (much like Kohlhans' 'Opticus Fortalitius' from 1677!), with numerous stereoscopic eyepieces mounted along its walls; series of stereoviews – arranged as virtual voyages – were displayed in quick succession for seated peepers by a mechanism hidden inside the structure.

Although Edison's idea of gathering his Automatic Phonographs and Kinetoscopes into public parlours has been treated as an innovative business gesture, it was really a re-enactment of an existing tradition, just like the Cosmorama had been a 'domesticated' and 'gentrified' urban version of the touring peepshow.[114] The trick was to create an attraction that utilized well-established ways of looking and modes of behaviour, while 'coating' them with features that made them seem novel and 'abreast of the times'. One of the catchwords was 'automatic', which in this context referred to direct communication with a machine.[115] This idea, an outgrowth of mechanization in factories and offices, severed the personal relationship between the showman and his audience. While touring showmen had personally collected coins from the peepers (or let their monkeys do it) and accompanied the peeping act with their comments, observations and quips, the new 'automatic'

machines in the Kinetoscope Parlours and Penny Arcades were entirely without this human-to-human dimension. The 'street cries' of the old times had been replaced by advertising billboards tempting the passers-by to step in; once inside, one only needed to look around, inspect the 'marquees' on top of the machines, make a choice, and put a coin in a slot. The attraction had been identified with a machine, containing pictures of human beings. There was no need for human intervention, unless the coin got jammed in the slot, as often happened. For short periods at a time, again and again, all peepers were involved in separate microworlds. Whether they exchanged experiences we don't know; most of them would have been strangers to each other anyway. From a communal ritual, peeping was on its way to becoming a way of being 'together alone' – a characteristic feature of twentieth-century media culture.

A particularly successful example of the new generation of attractions was the Mutoscope, publicly introduced in 1897. It was a peepshow for viewing 'animated photographs'.[116] Differing from its motor-driven predecessor, Edison's Kinetoscope, which had a very short-lived success, it was hand-cranked.[117] The frames of a film had been copied on paper slips attached to a rotating cylinder. The cranking speed could be freely adjusted, and the session interrupted at any point to observe a particularly interesting frame. The only limitation was that the movement could not be reversed. This was an economic rather than a technical imperative. For just one coin, the user could not be allowed to spend too much time with the device. The 'proto-interactive' nature of the Mutoscope was clearly expressed in an advertising booklet in 1897: 'In the operation of the Mutoscope, the spectator has the performance entirely under his [sic] own control by the turning of the crank. He [sic] may make the operation as quick or as slow as fancy dictates . . . and if he so elects, the entertainment can be stopped by him at any point in the series and each separate picture inspected at leisure; thus every step, motion, act or expression can be analysed, presenting effects at once instructive, interesting, attractive, amusing and startling.'[118] The expression 'entirely under control' seems to anticipate the advertising slogans for interactive media. There was, however, an important difference: experiencing the voyeuristic offerings of the Mutoscope

required no acquired mastery. 'Control' refers to the scopic and tactile power over the 'performance', the subject matter on display, generally conceived as 'risqué' (although it was in reality often far from that).[119]

Whether justified or not, sexual connotations dominated the Mutoscope's public image, which is well summarized by its British nickname, 'What the Butler Saw Machine'. There is an entire tradition of contemporary illustrations inspired by this. In a typical cartoon we see an elderly lady trying to drag her husband away from the peephole. In a reverse scenario, a elderly gentleman, having a walk with his young wife, resists the idea at first but finally decides to peek; this obviously gives the couple some good reasons to go back home . . . Of course, the Mutoscope did not only appeal to the elderly: cartoons and postcards show us young boys – sometimes using each other as stepping-stones – having a peek into its eyepiece, with wide grins on their faces.[120] There are also illustrations that refer to possible cracks in the assumed heterosexual cultural constitution of the apparatus. A French cartoon from 1910, showing a pickpocket emptying a male peeper's pockets, is clearly invested with latent homosexual undertones.[121] The peeper (while evidently watching heterosexual content inside the Mutoscope) experiences the pickpocket's touches as erotic, and the positions of the male bodies suggest an anal intercourse. A German cartoon goes even further in its masochistic-onanistic tone. It shows a male peeper cranking the Mutoscope furiously, undisturbed by the various forms of violent torture inflicted on him from behind his back. Nothing disturbs his concentration; indeed, it seems that the bodily stimulation really 'fires him up'. Finally, in what could be characterized as his 'post-orgasmic state', the peeper states, lying in blissful exhaustion next to the machine: 'These were the best fifteen minutes of my life'. Of course, these cases are manifestations of a topos we have already encountered. The pickpocket no longer represents the

'When I see a naked woman, I can almost feel her caresses' cartoon by S. d'Alba, Le Rire (no. 369), 26-2-1910, France
Stephen Bottomore Collection

state stealing the tax-payer's money, he has become an ambiguous agent that disturbs the prevailing heterosexual world order. The events taking place behind the peeper's back are no longer simply a threat or an invasion: they contribute something to the experience itself, even if unacknowledged by the subject himself. Perhaps these are symptoms of a crisis, traces of a collapsing binary value system and its beginning replacement by a more complex logic.

Linda Williams has suggested that the sexual stimulus provided by the Mutoscope – so often hinted at by cartoons – might have been inscribed in the construction of the apparatus itself. She has paid attention to the position of the handle on the front side of machine, and pointed out that the act of cranking could have functioned as an ersatz to the act of male masturbation.[122] The point is interesting, not the least because it verges on technological determinism. Could the Mutoscope's handle have been deliberately placed where it is, anticipating its use as a sex toy? Or was it an 'accident of design' that gained its significance through practice and the vagaries of popular imagination? Or could this be an argument in terms of which the critic's own faculty of interpretation simply superimposes a model on historical material? As contemporary visual evidence shows, Williams's idea had at least some discursive validity at the time – it was part of the cultural imaginary about peeping. Whether any man ever received sexual satisfaction from the cranking action is another thing, but may be deemed irrelevant. However, positing men as the sole users of the Mutoscope would be oversimplifying matters. In spite of the relative scarcity of evidence, there are growing indications that Kinetoscopes and Mutoscopes did not belong exclusively to the men's domain. Research by feminist scholars like Kathy Peiss and Lauren Rabinovitz has implied that women may have played a much more active role as users of these devices than has been thought.[123] Women got new opportunities to explore urban spaces on their own in the late nineteenth century.[124] Particularly young working women eagerly visited department stores and places of amusement with their women friends, often without male escort. They frequented Nickelodeons – why wouldn't they have dropped a coin in a Mutoscope?

Kinetoscope Parlours, Penny Arcades and amusement piers gave women opportunities to familiarize themselves with the new devices –

The Funnygraph, a clown shows pictures for his dog with an early oak Mutoscope, post-stamped February 5, 1904. Misch & Stocks, the Funnygraph series no. 118. Designed in England, printed in Prussia
Erkki Huhtamo Collection

many of them had already got acquainted with new technology, from power looms to dictating machines and typewriters, at their workplaces. Like men, women must have felt curious about the new peepshows; a photograph showing two women peeping into a series of Mutoscopes (one of which displays 'The Ramping Girls on the Swing', another 'The Great Cricket Match') on a pier in England (1912) makes this perfectly clear.[125] Although it was probably normally considered just a moment of fun, for some women the peek into one of these machines may have signified a conscious effort to transgress the border between 'female' and 'male' domains. And they did not have to look at scantily dressed female bodies only. In his interesting discussion about the early films for Edison's Kinetoscope, Charles Musser has paid attention to the prominent role of trained semi-naked male bodies (boxers, the strong man Sandow, etcetera) in them. According to Musser, this may have provided an outlet for the male viewers' hidden homosexual desires.[126] Kinetoscopes were often placed in bars and other places where male bonding was common. However, women could also have used this opportunity to gaze secretly at naked male bodies, another 'forbidden' pleasure in late-Victorian society. Of course, the female bodies in the Mutoscope could have appealed to lesbian desires as well. These 'innocent' entertainment machines may thus have played a role in the questioning and redistribution of sexual roles and identities during an era of transition. According to Musser, 'motion pictures thus contributed to the breakdown of two discrete and complimentary realms – that of rugged masculinity and feminine domesticity – by pulling the veil from the former and exposing it to the latter.'[127] When it comes to children, they were initially excluded from the newly defined culture of peeping. As an indication of this, the eyepieces of both the

Kinetoscope and the Mutoscope were placed too high for them to reach. Some decades later a 'kiddie stand' for the Mutoscope was introduced, indicating that the culture of peeping was beginning to consider the younger peepers again.

Although more in imagination than in practice, the Kinetoscope and the Mutoscope, together with the even more ubiquitous coin-operated stereoscopes displaying 'dirty' images, contributed to the eroticizing of the image of the public peepshows.[128] Views of erupting volcanoes, earthquakes and conflagrations were replaced by burning desires at both ends of the peephole, or at least so the public thought. This happened against the background of the sexually intolerant Victorian society, which, however, had given rise to a blossoming (although invisible) market for clandestine pornographic literature and imagery of all kinds.[129] Devices like the Kinetoscope and the Mutoscope appeared at the moment when the seemingly desexualized surface was beginning to crack. Peep media were well suited to this moment, because they were situated at the liminal zone between 'closedness' and 'openness'. Its nature as an attraction was based on a peculiar combination of public exposure and private secretiveness, features that successfully merged in the Mutoscope – its colourful marquee, the ever-hungry coin slot, the inviting crank and, last but not least, the treats beyond the tempting peephole. Largely because of its doubtful reputation, the Mutoscope has been left outside 'serious' histories of the twentieth century, in spite of its phenomenal success and long-lasting cultural presence. A similar 'blackout' concerns the erotic live peepshow, which flourishes in many parts of the world. Its 'visible invisible' history remains largely unwritten, although it is theoretically highly interesting both as an institution and as an 'apparatus'. Its relationship to the traditions of peep media deserve attention. The replacement of images by real human beings, observed by an invisible observer, may be a reaction to the ubiquity of visual pornographic imagery. In a world saturated with the 'obscenity' of media (Baudrillard), increased secrecy (the rite of passage from the street through curtains and doors to a tiny cabin) and the presence of a real human body turned into an erotic spectacle becomes a 'thrill' again. In some sense this seems like a return to the nineteenth-century culture of living attractions, when human curiosities were commonly displayed for money at dime museums and fairground tents.

Coda: Peeping, Media Art and Beyond

This article has focused on the notion of peeping applied to specific viewing machines over a number of centuries. Such machines have been used as curiosities to amaze people, but also to make them pay for the spectacle looming on the other side of the peephole. They have been an essential part of the formative developments of the culture of attractions. Since the eighteenth century, the public peepshows have also developed side by side with devices meant for private consumption. The relationship between these two modes of peeping has been closely linked with the continuous negotiation of the boundary between the public and the private, the changing role of media technology as a transmitter and transformer of information about the world (with its changing cultural, economical and geo-political definitions) and the politics of sexuality and gender. Concrete developments have been accompanied by discursive formations that have fantasized about peeping, 'jammed' with its meanings and extended them to other fields. As should be clear from what has been said above, as historical evidence these discursive formations should be considered equally important as any built artefacts or shows that actually travelled along the roads of some country at some point in time. From a media-archaeological point of view, the peepshow as a material fact does not have a life of its own, independent of the intricate, constantly metamorphosing discursive networks that envelop and affect it at every step within culture.

Only a limited number of traces of such discourses have been discussed here. Little has been said about the fantasies inspired by devices like the kaleidoscope, the telescope and the microscope. The discourses triggered by the invention of X-rays since the late nineteenth

century are another issue worth attention.[132] In a sense, the X-ray provided the ultimate peeping experience. Peering into the 'fluoroscope' (another peepshow device, albeit a very specialized one) one could see 'beneath the skin'. This sensational discovery became an endless source of inspiration for cartoonists, writers and film producers for decades to come. Sometimes existing devices provided models for fantasies about peeping technologies of the future. When inventors and popular illustrators began to envision electric 'tele-vision', the stereoscope was one of the models they turned to.[133] Although it was technically just an 'off-line' medium, it was nevertheless used to peek 'beyond the horizon'. In his imagination, one cartoonist had the stereoscope 'wired' and electrified, introducing a desktop 'tele-peepshow' for real-time communication at a distance.[134] In the late 1910s, a postcard published by the Keystone View Company declared: 'She Sees Her Son in France. You can talk across the miles with your TELEPHONE - The WHOLE FAMILY Can See the WAR ZONE'. The picture shows an old lady sitting in an armchair, immersed in her stereoscope, which looks as if it is emitting (or receiving?) a light beam that pierces the distance, displaying a view from the front of the Great War. By associating it with the telephone, the card positions the stereoscope in a role that anticipates television.[135] In the 1930s, when experimental television broadcasts had already begun in Europe and the United States using television receivers with proper 'screens', proposals for handheld peep televisions and wearable 3-D television spectacles were still presented.[136] They may seem prophetic anticipations of the head-mounted displays and 'TV goggles' of the future, but they were really extrapolations of preceding traditions, demonstrating the persistence of the topoi related with the peepshow imagination.

'She Sees Her Son in France. You can talk across the miles with your TELEPHONE – The WHOLE FAMILY Can See the War Zone.' Postcard, Keystone View Company, USA, 1910s; post stamped on July 1, 1921, sent to inform the recipient of the delivery of an order of stereoscopic photographs. Erkki Huhtamo Collection.

Other demonstrations of the evocativeness of peeping can be found in the works of twentieth-century artists. Frederick Kiesler, whose exhibition designs for Peggy Guggenheim's 'Art of This Century' gallery were introduced in the beginning of this essay, was not the only major figure interested in peepholes.[135] Another example is Jean Cocteau, whose poetic film *Le sang d'un poète* (The Blood of a Poet, 1930) used peeping with great effect. In one of the films key [sic] scenes, the protagonist, having passed through the mirror, enters a mysterious corridor with a series of closed doors. Peeping through their keyholes, he witnesses a series of surreal erotic sights. Although Cocteau does not explicitly refer to peepshow boxes, his work is related to the early silent film genre known as 'keyhole films', built, as the title indicates, around the act of peeping through a keyhole.[136] Films, like *Par le trou de serrure* (Pathé, 1901) show a peeper enjoying some forbidden sights and then receiving a punishment.[137] Cocteau took this already worn formula and gave it an entirely fresh poetic meaning. The master of abstract animation, Oscar Fischinger, made some works for the Mutoscope. Another artist in whose oeuvre the idea of peeping recurs is Marcel Duchamp. Beginning with his early exploration of three-dimensional imaging in *Hand-made Stereopticon Slide (Hand Stereoscopy*, 1918-1919), the peephole reappears in *Rayon vert* (The Green Ray, 1947) and, above all, in his last major work, *Étant données . . .* (1946-1966), which occupied him during the last twenty years of his life. *Rayon vert* was a round hole in a partition, showing a photograph of the sea placed behind it, bathing in green light. Whether deliberately or not, this work evokes the nineteenth-century Cosmorama, among numerous other references.[138] The enormously complex *Étant données . . .* could – if only on one level – be described as an elaborate peepshow machine, displaying a deliberately ambiguous pornographic scene. The viewer peeps through a hole in an old wooden door, and discovers a three-dimensional 'perspective view', calculated with utmost precision.

The idea of the peepshow box has been evoked in an even more overt sense by artists working with new media technologies. Lynn Hershman, Mike Naimark, Perry Hoberman, Catherine Richards and others have created boxes that deliberately refer to the peepshows of the past.[139] Hershman's *A Room of One's Own* (1993) displays a miniature house; the

'She Sees Her Son in France. You can talk across the miles with your TELEPHONE — The WHOLE FAMILY Can See the WAR ZONE.'

viewer's gaze (actually, the turning peephole that serves as a sensor) triggers feminist videos displayed inside the box, addressing the peeper directly. Mike Naimark's *See Banff!* (1994) is a retro looking, hand-cranked peepshow machine that displays Naimark's stereoscopic time-motion studies shot at the Banff National Park in Canada. At the same time it raises issues about virtual tourism, referring to nineteenth-century stereoscopy. Perry Hoberman's *Excess Baggage* (1992) is a series of stereoscopic viewing devices built into old suitcases. Catherine Richards's *The Virtual Body* (1993) is another artist-constructed peepshow box, allowing the user to enter one's hand inside the box through another hole, thus questioning the immateriality of the virtual world inside the box.[41] The work also plays with the idea of the camera obscura, some models of which had a structure reminiscent of Richards's creation. The work unleashes a complex discourse about peeping in relation to the body and its assumed disappearance in virtual realities. Although less concerned with media-archaeological references, works dealing with virtual reality could also be connected with the peepshow tradition. The head-mounted display is, after all, a new kind of interactive stereoscope. The connection between peepshows and virtual reality was made clear by Lawrence Paul Yuxweluptun's VR work *Inherent Rights, Vision Rights* (1992), displayed in a custom-designed interactive peepshow viewer.[42] Other examples could easily be listed.[43]

Of course, commenting on peepshows and peeping does not have to resort to explicit references to the past. It could be claimed that the culture of peeping has never been as widespread as it is today. Contemporary society has been permeated by surveillance, often resorting to the most sophisticated technology available. Wherever we go in public spaces, there is always somebody peeping at us – or so we are made to believe, reflecting Michel Foucault's interpretation of Jeremy Bentham's idea of the Panopticon.[44] Peeping has found another platform on the Internet. The countless webcams – available for free, or, as it more and more often happens, for a financial contribution – have led to the creation of a veritable global super peepshow. Millions of peepholes, as little software windows, are waiting for desirous customers twenty-four hours a day. The principles of the culture of

attractions have been translated into the design of digital banners, pop-ups and other graphical tricks that try their best to persuade us to peep. The coins collected by the showman have been replaced by the credit card numbers typed into little boxes. Adult webpages have swelled into massive syntheses of various types of peepshows, displaying both images and live performances (sometimes verging on the freak show). However, not only do we peep on the Internet - we are continuously being peeped at by authorities, businesses, junkmailers and hackers alike, eager to find out about us and our habits to 'create profiles' serving financial, even political purposes. Like Lafcadio Hearn inside the Japanese house, we have been turned into attractions for others. Do we have to conclude, then, that peeping has turned into something utterly negative – restraining, subjecting, dehumanizing? Could it also serve some positive goals – be socializing, stimulating, liberating?

1. See Jean Clair and Harald Szeemann (eds.), *Les Machines Célibataires/The Bachelor Machines* (New York: Rizzoli, 1975).

2. See Kirk Varnedoe, *High & low. Modern Art, Popular Culture* (New York: Museum of Modern Art, Distributed by H.N. Abrams, 1992).

3. Lewis Kachur, *Displaying the Marvelous. Marcel Duchamp, Salvador Dali, and Surrealist Exhibition Installations* (Cambridge, Mass.: The MIT Press: 2001), 20.

4. For a more detailed discussion, see my 'Slots of Fun, Slots of Trouble. An Archaeology of Arcade Gaming', in: Joost Raessens and Jeffrey Goldstein (eds.), *Handbook of Computer Game Studies* (Cambridge, Mass.: The MIT Press, 2005).

5. For Beauvoir's comment, see Dieter Daniels, 'Points d'interference entre Frederick Kiesler et Marcel Duchamp', in: *Frederick Kiesler. Artiste-architecte* (Paris: Editions du Centre Pompidou, 1996), 124.

6. Frederick Kiesler, 'Un example de co-realite entre lait et vision', in: *Frederick Kiesler*, op. sit. (note 5), 142 (originally published in English in FIT, no. 2, March 1943).

7. This sense of using the word 'topos' has been adopted from Ernst Robert Curtius, although not without certain modifications. See my 'From Kaleidoscomaniac to Cybernerd. Notes Towards an Archeology of the Media', in: Timothy Druckrey (ed.), *Electronic Culture. Technology and Visual Representation* (New York: Aperture 1996), 296-303, 425-427.

8. This text includes some material, although in rewritten form, from my study 'Elements of Screenology. Toward an Archaeology of the Screen', Iconics, vol. 7 (2004), 31-82. The Japan Society of Image Arts and Sciences.

9. I use the concept 'peep media' to refer to all media devices that interface with their user via peeping – peering into a hole, a lens, a hood. This is understood as an individual activity – only the peeping person sees the sight (of course, there may be several peepholes available). This situation differs from gazing at a screen, which is available for several people's gazes simultaneously.

10. Michel Foucault, *Discipline and Punishment. The Birth of the Prison*, translated by Alan Sheridan (New York: Vintage, 1977).

11. Although not addressing the issue of peeping directly, the feministic scholarship by Kathy Peiss and Lauren Rabinovitz points in this direction. See Kathy Peiss, *Cheap Amusements. Working Women and Leisure in Turn-of-the-Century New York* (Philadelphia: Temple University Press, 1987). Lauren Rabinovitz, *For the Love of Pleasure. Women, Movies, and Culture in Turn-of-the-century Chicago* (New Brunswick, New Jersey: Rutgers University Press, 1998).

12. Lafcadio Hearn, *Writings from Japan. An anthology* edited and with an introduction by Francis King (London: Penguin, 1984), 74.

13. Ibid., 53.

14. Timon Screech, *The Lens Within the Heart. The Western Scientific Gaze and Popular Imagery in Later Edo Japan* (Honolulu: University of Hawaii Press, 2002 [1996]).

15. The Japanese peepshows shown at

public fairs and other gatherings were evidently often made of separate elements put together on site, thus reinforcing the house parallel. This certainly made them easier to transport. Rice paper screens stretched in wooden frames were used; lenses were also mounted in these frames. The structures were often quite large, meant for several peepers at the same time. The tradition still existed after the middle of the twentieth century, but seems to have become extinct since then. No original fairground peepshow box seems to have survived in its entirety, but copies have been produced for exhibition purposes. I have seen some large hand-painted views in wooden frames used in these boxes during my trips to Japan, but also these are now very rare.

16. Screech, *The Lens Within the Heart*, op. cir. (note 14), 129.

17. Although interesting, the space does not allow us to deal with this issue in the present article.

18. Jakob Burckhardt, *The Civilization of the Renaissance in Italy* (New York: HarperTrade, 1975 [1860]).

19. Martin Kemp, *The Science of Art* (New Haven and London: Yale University Press, 1990), 167-186.

20. Jonathan Crary, *Techniques of the Observer* (Cambridge, Mass.: The MIT Press, 1990), chapter 2.

21. Paula Findlen, 'Scientific Spectacle in Baroque Rome: Athanasius Kircher and the Roman College Museum', in: Mordechai Feingold (ed.), *Jesuit Science and the Republic of Letters* (Cambridge, Mass.: The MIT Press, 2003), 247.

22. Lynn Thorndike, *A History of Magic and Experimental Science*, volumes VII and VIII (New York and London: Columbia University Press, 1958), 272. Thorndike's classic history gives a good idea of the wide extent and vagueness of the natural magic tradition (see ibid., 272-322).

23. See Ingrid D. Rowland, *The Ecstatic Journey. Athanasius Kircher in Baroque Rome* (Chicago: University of Chicago Library, 2000); see also Siegfried Zielinski, *Archäologie der Medien. Zur Tiefzeit des technischen Hörens und Sehens* (Reinbek bei Hamburg: Rowohlt, 2002), chapter 3.

24. Jurgis Baltrusaitis, *Le miroir* (Paris: ElmayanLe Seuil, 1978), 32-33.

25. A famous example of such clocks can be found from the Strassbourg cathedral, France. A similar idea was applied by Etienne-Gaspard Robertson in his Phantasmagoria show in the late eighteenth century. A rotating cylinder with figures painted on it was projected by means of the Fantascope. An example of the device has been preserved at the Conservatoire des Arts et Métiers, Paris. See *La lanterne magique et fantasmagorie. Inventaire des collections* (Paris: Conservatoire national des arts et métiers/Musée national des techniques, 1990), 28.

26. Werner Nekes, 'Das Loch, die Kammer, der Spiegel und die Linse', in: Georg Fuesslin et al., *Der Guckkasten: Einblick - Durchblick - Ausblick* (Stuttgart: Fuesslin Verlag, 1995), 107.

27. Siefried Zielinski calls it 'Smicroscopin'. See Zielinski, Archäologie des Medien, op. cit. (note 23), 166.

28. Erkki Huhtamo, 'Ten Chapters on Lost Media, in: Rotraut Pape (ed.), *Sixcon Lost Media* (Offenbach am Main: Hochschule für Gestaltung Offenbach/Friedrichs Stiftung, 2002), 13-28.

29. Nekes, *Das Loch*, op. cit (note 26), 102.

30. Norman M. Klein, *The Vatican to Vegas. A History of Special Effects* (New York and London: The New Press, 2004); see also Evonne Levy, *Propaganda and the Jesuit Baroque* (Berkeley: University of California Press, 2004).

31. Findlen, 'Scientific Spectacle in Baroque Rome', op. cit. (note 21), 362. Kircher defined these goals in his book *Magnetic Kingdom of Nature*.

32. 'Io molte volte ho dato questi spettacoli a gli miei amici miei, che l'hanno mirati con gran meraviglia, e stupore; che dandole le cagioni di Filosofia, e di prospettiva non volevano credere, che fussero cose naturali, finche aprendo le porte, li fece conoscere l'artificio.' From Giovanni Battista della Porta, *Della magia naturale* (Napoli: Antonio Bulifon, 1677). Facsimile reproduction in Laurent Mannoni, Donata Pesenti Campagnoni and David Robinson, *Light and Movement. Incunabula of the Motion Picture* (Pordenone: Le Giornate del Cinema Muto et. al., 1996), 51.

33. Laurent Mannoni, *The Great Art of Light and Shadow*, translated by Richard Crangle (Exeter: University of Exeter Press, 2000 [orig. French 1994]), 41-45.

34. Richard Balzer, *Peepshows. A Visual History* (New York: Harry N. Abrams, 1998), 21. Balzer refers to Karl G. Hulten, 'A Peep Show by Carel Fabritius', *The Art Quarterly* (1952), 278-290, quote on 288.

35. *The Autobiography of Benjamin Franklin* (New York: Touchstone, 2004), 23. On his trip to England, Franklin managed to visit two 'curiosities', meaning privately owned cabinets of curiosities (ibid., 35, 38).

36. Richard Altick, *The Shows of London* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 1978).

37. 'The social construction of attractions' is a free modification of the concept 'the social construction of freaks', used by Robert Bogdan in his *Freak Show. Presenting Human Oddities for Amusement and Profit* (Chicago and London: The University of Chicago Press, 1988), 2-10. Freak shows were a part of the culture of attractions.

38. Travelling peepshow men were often known in Europe as Savoyards, which seems to point out to the poverty-stricken region of Savoy in present Northern Italy as their origin. It is also possible that the word became generic, referring to a type of profession rather than nationality. 'The early exhibitors appear to have been Savoyards,' says the *New English Dictionary*, and Marin's *Dutch-French dictionary* (1760) has this: 'a Savoyard with a rare-kiek.' (Frank I. Wientenkampf, 'Peep-Show Prints', *Bulletin of the New York Public Library*, vol.25, no. 6 (June 1921), 362.) Rareckiek is the Dutch word for a peepshow.

39. My knowledge about this work comes from a manuscript titled 'The Raree Show' by Edward P. Goodnow, kept in the Harvard Theatre Collection. The text was probably published, but the date and the publication are unknown. Goodnow gives the author's name as 'Joseph Patterson'. Judging from external evidence the text was possibly written around 1930-1950. *The Raree Show, or The Fire Trap!* is also listed in: *Early American Secular Music and its European Sources, 1789-1889*: Bibliography. http://www.colonialdancing.org/Easme

s/Biblio/B005708.htm (last checked July 6, 2004). Here the author is mentioned as 'Joseph Peterson'.

40. Sometimes contemporary illustrations show a showman with both a magic lantern and a peepshow; obviously he is offering a 'total service': the former meant for nighttime, the latter for daytime entertainment. If the showman could afford it, such switching made sense. The peepshow and the magic lantern show were not just alternatives for different times of the day; they had significant differences as spectacles.

41. Mannoni, *The Great Art of Light and Shadow*, op. cit. (note 33), 48.

42. Although this tradition seems to have dried out by the early nineteenth century, particularly in the German speaking world it was continued by the 'Moritatensänger', public performers and storytellers who were a common sight at fairs. They used large sheets of images hung on the stage, using them as the visualizations for their sung narratives.

43. These figures can also sometimes be spotted giving their performance in a market place in eighteenth-century *vues d'optiques*.

44. One has to ask questions: how many touring showmen could have afforded to buy such prints, even second-hand? Wouldn't it be easier and cheaper to show something homemade? The peepers, of course, would not have been able to tell in advance. It is possible that the role of peepshow boxes containing *vues d'optique* has been exaggerated by contemporary discourse. The possible bias may have been caused by the dominance of images in contemporary media culture. If a peepshow advertised a representation of the Battle of Waterloo, isn't it more likely that it was some kind of a puppet show or a scene made of mixed materials? Securing a whole series of prints about the event would probably have been more difficult than creating a show with objects.

45. Summarized from Thomas Frost, *The old Showmen and the London Fairs* (1881), Henry Morley, *Memoirs of Bartholomew Fair* (1859), and Henry Mayhew, *London Labour and the London Poor* (1861), by W[eitenkampf], *Peep-Show Prints*, op. cit. (note 38), 364.

46. For illustrated inventories of these, see Carlo Alberto Zotti Minici, *Il Mondo nuovo. Le meraviglie della visione dal '700 alla nascita del cinema* (Turin: Mazzotta, 1988); Alberto Milano, *Viaggio in Europa attraverso le vues d'optiques* (Milan: Mazzotta, 1990).

47. Goodnow speaks about 'a wide market for worn prints, which were easily colored afresh and made to serve for something very tasty'. (Goodnow: 'The Raree-Show', op. cit. note 39). I have found no contemporary sources about the existence of this market, which certainly would have made sense.

48. Erin C. Blake, *Zograscopes, Perspective Prints, and the Mapping of Polite Space in Mid-Eighteenth-Century England*, Ph.D. Dissertation, Department of Art and Art History, Stanford University, May 2000 (unpublished), Chapter 5. Blake has condensed her main points in the article 'Zograscopes, Virtual Reality, and the Mapping of Polite Society in Eighteenth-Century England', in: Lisa Gitelman and Geoffrey B. Pingree (eds.), *New Media, 1740-1915* (Cambridge, Mass.: The MIT Press, 2003), 1-29.

49. Weitenkampf, *Peep-Show Prints*, op. cit (note 38), 364.

50. See a preserved eighteenth-century broadsheet for such a show in Zotti Minici, *Il Mondo nuovo*, op. cit. (note 46), 77. The broadsheet also gives a fairly precise description of the programme and the effects provided. The showman also mentions that he has 'carried this theatre building' (portato l'Edificio di quel Teatro). It seems that the Italian 'Mondo nuovo' was more highly developed as an entertainment than corresponding attractions in some other countries.

51. Gian Piero Brunetta has analysed a picture roll which contains the following extremely heterogeneous topics: Adam and Eve, allegories of the five senses, the influences of the planets, the seven wonders of the world, battles and naval catastrophes, views of European cities and once again Biblical scenes. Gian Piero Brunetta, *Il viaggio dell'icononauta dalla camera oscura di Leonardo alla luce dei Lumiere* (Venezia: Marsilio Editori, 1997), 286–287. The roll has been illustrated as plate No. 53.

52. In a print titled 'Billy's Raree-Show – John Bull (enlightened)' (S.W. Fores, London, 1797) the peepshow box bears a banner with the text 'Licenced by Authority Billy Hum's Grand Exhibition of Moveing Mecanism of Deception of the Senses'. Reproduced in Balzer, *Peepshows*, op. cit. (note 34), 68.

53. A peepshow box with two rows of lenses has been preserved in the François Binetruy Collection, Versailles, France.

54. The print by W. Heath is titled 'The Omnibus' and included in Seymour's book *Evening's Amusements* (1830). See Weitenkampf, *Peep-Show Prints*, op. cit (note 38), 364.

55. Such scenes can also be found in eighteenth-century anamorphic images and magic lantern slides. Whether these were displayed publicly or privately is not clear. Scatological images were found humorous and more or less acceptable in the eighteenth century, at least among the lower classes.

56. Mannoni, *The Great Art of the Light and the Shadow*, op. cit (note 33), 88.

57. 'Optics used in the education of the youth', plate no. 19. The word 'Optique' also refers here to the peepshow box. In his book *Peepshows* (op. cit. note 34) Richard Balzer has reproduced this print (on page 97), without mentioning its source. Reflecting the ideology of a 'coffee table book', the pornographic scene under the flap has not been reproduced. It can be found in the facsimile edition of *Les Voyeurs* (Legnano: EdiCart, 1991), earlier published in German in the series *Die bibliophilen Taschenbücher* Nr. 547 (Dortmund: Harenberg Kommunikation, 1989), no page numbers.

58. In Jean-Pierre Bourgeron, *Les Musées d'Eros. Les objets erotiques de collection a systèmes* (Paris: Les Editions de l'Amateur, 1985).

59. I have experimentally verified this together with some colleagues by means of some elaborate eighteenth-century peepshow boxes preserved at the Film Museum in Turin, Italy.

60. Reproduced in Balzer, *Peepshows*, op. cit (note 34), 100. This print was also used as the motif in colourful pictorial fans.

61. 'Deep immersion' in the sense of virtual reality experiences would have been difficult, also because each peep probably had a time limit. The showman would have asked the peeper to move aside, making room for others. There is a limit to what you can do with just one coin.

62. Reproduced in *Il Mondo nuovo*, op. cit. (note 46), 24.

63. Mannoni, *The Great Art of The Light and the Shadow*, op. cit (note 33), 84–85.

64. Engraving by J. Henriquez, after F. Eisen the Elder: 'À Paris chez Buldet, rue de Gèvres'. Reproduced in Laurent Mannoni, *Trois siècles de cinéma: de la lanterne magique au Cinématographe* (Paris: Editions de la Réunion des musées nationaux, 1995), 54. The original French text is as follows: 'Nicolle observe et son oeil curieux,/À ce qu'il voit près sans malice, / Mais Aglaé fuit d'un air furieux,/Juge Lecteur, quelle est la plus novice'. On top of the box there is a little automaton figure, a woman sitting in a chair, reminiscent of those used by the showmen. It may have a symbolic meaning, perhaps representing the ideal of the perfect woman, or the ideal of education for women. One cannot say for sure.

65. This is not a hundred per cent certain, but in this context it does not seem likely that he would be a touring showman. As far as we know, pyramid-shaped peepshow boxes were generally used in domestic settings. However, one preserved example, now at the collection of the Musée du Cinéma of the French Cinematheque, still has the shoulder straps for carrying it around.

66. For the *vues d'optique*, see Kees Kaldenbach, 'Perspective Vieuws', *Print Quarterly*, June 1995; also published on www.xs4all.nl/~kaldern/auth/perspectiveviews.htm.

67. I am referring to the extensive debate inspired by Crary's *Techniques of the Observer*.

68. While the peepshow box existed in versions for both private and public consumption, the zograscope was clearly a device exclusively for domestic use. Its structure would not have been suitable for public viewing.

69. Mannoni: The Great Art of the Light and the Shadow, op. cit (note 33), 89.

70. There were also versions with two lenses side by side, although these were much less common than the single lens models. There is an example in the author's collection from the early nineteenth century.

71. As a case in point, Emile Reynaud's invention of the Praxinoscope was born as an attempt to overcome the deficiencies in another 'persistence of vision' device, The Zoetrope. Later the 'deficiencies' of the Praxinoscope, particularly the short duration of the animation sequence, caused Reynaud to develop his device further, looking for solutions to presenting longer animations. This let him towards cinematography, but his 'Theatre d'Optique' was still something different.

72. Like other optical toys, small peepshows were also created at home as a good and educational pastime. In the author's collection there is a homemade 'accordion peepshow', innovatively decorated with Victorian scraps.

73. Morley Adams (ed.), *The Boy's Own Book of Indoor Games and Recreations. An Instructive Manual of Home Amusements* (London: 'The Boy's Own Paper' Office, 4, Bouverie Street and 65 St. Paul's Churchyard E.C., no date), 121.

74. Ibid.

75. The popular Polyorama panoptique, invented by the optician Lefort in Paris in 1849, has often been

thought of as a miniature version of the Diorama, a large scale visual spectacle launched by Daguerre and Bouton in 1822. Yet the 'Dioramic effects' were essentially magnified and elaborated versions of these transformations achieved with the professional peep show boxes already in the eighteenth century. The Polyorama panoptique was probably influenced by both these traditions. See Mannoni, *The Great Art of Light And Shadow*, op. cit. (note 33), 180.

76. For an earlier discussion about the cultural role of the stereoscope, see my 'Armchair Traveler on the Ford of Jordan. The Home, the Stereoscope and the Virtual Voyager', *Mediamatic*, 'Home' issue, vol. 8 (1995) no. 2-3, 13-23.

77. See Brewster's book *The Stereoscope: Its History, Theory and Construction* (London: John Murray, 1856). The book is often biased, particularly in its attitude toward Wheatstone and his contribution.

78. On Holmes and his stereoscope, see George E. Hamilton-*Oliver Wendell Holmes: His Pioneer Stereoscope and Later Industry* (New York: Newcomen Society, 1949).

79. The stereoviewers found in remote areas like Finland are usually of this type. Most likely they were sent or brought back from the USA by emigrants. For them it was an impressive but affordable gift, which could give a clear idea of their new living surroundings to those who remained in the old mother country.

80. See Paul Wing, *Stereoscopes: The First One Hundred Years* (Nashua, New Hampshire: Transnion Publishing, 1996).

81. Stereoviews never point to the connection with the peepshow. I know about one single exception: a French stereograph depicting a crowd of people peering into a row of peepshow machines (Tirage Verneuil, 1868). See Denis Pellerin, *La photographie stereoscopique sous le second Empire* (Paris: Bibliotheque nationale de France, 1995), 99. The stereograph has been erroneously titled as 'La baraque des stereoscopes'. All machines seen in the picture only have one large peeping lens – perhaps this is a photograph of a Cosmorama show.

82. It is possible to develop a skill for 'free viewing' stereographs without the stereoscope. The author can do it easily. This experience is interesting, because it shows a three-dimensional view, but also the surrounding objects in the peripheral vision. This might recall Rousseau's discussion of the zograscope, except that free viewing requires unfading concentration on the stereograph.

83. About the theoretical background, see Blake, Zograscopes, op. cit. (note 48), 9-11. Blake tries to show that the zograscope produced a real transformation, producing a view that 'does not have an original elsewhere; it is created then and there, and exists only in the moment that observer and viewing device come together.' (14). If this is really so, then Jonathan Crary's theorizing about the origins of the physiology of vision and its demonstration by devices like the stereoscope (*Techniques of the Observer*, Cambridge, Mass.: The MIT Press, 1990) should be pushed further back in time. However, compared with the transformations achieved by devises like the stereoscope, the phenakistiscope or the thaumatrope, I see the 'virtual' effect

achieved by the zograscope (and the pyramid-shaped peepshow box) as very slight, more an enhancement and slight distortion than a real transformation. I have come to this conclusion after trying several original eighteenth-century apparatuses in my own, and other's people's collections. Her Ph.D. offers no evidence of whether Blake has done any experimental research to support her claims.

84. This was aptly expressed by a text printed on a stereoview, no doubt used for advertising purposes: 'With the Stereoscope, by the fireside, one can wander through strange cities and sunny valleys, over bleak mountains, or delve among the wonderful ruins of the past' (Stereoview from the series 'Picturesque Views Of all Countries', no publisher mentioned, in the author's collection.) The text sounds like a quotation from Oliver Wendell Holmes's writings, but I have not been able to verify it. The view depicts a beautiful exotic lady.

85. That 'normal' photographs of buildings and places could serve the purpose of virtual voyaging as well is confirmed by a quotation from the British author W.J. Loftie: 'It is pleasant to lean back in one's chair and be transported to distant countries at a glance'. Cit. Asa Briggs, *Victorian Things* (London: Penguin Books, 1988), 247. Briggs also writes about the importance of the stereoscope (132-133).

86. Such sets were sold by large American companies like Underwood & Underwood and the Keystone View Company. These companies often used door-to-door salesmen operating in rural areas. Precise instructions about the appropriate marketing methods were provided in the form of educational booklets. Examples of Keystone booklets exist in the author's collection.

87. In her article 'From Phantom Image to Perfect Vision: Physiological Optics, Commercial Photography, and the Popularization of the Stereoscope', in Gitelman and Pingree, *New Media, 1740-1915*, op. cit. (note 48), 113-137, Laura Burd Schiavo pays attention to the shift of emphasis the stereoscope underwent from a scientific demonstration device to a commercially marketed illusion. For a well-informed discussion of nineteenth-century stereoscopy, see 'The Giant Eyes of Science: The Stereoscope and Photographic Depiction in the Nineteenth Century', in Thomas L. Hankins and Robert J. Silverman, *Instruments and the Imagination* (Princeton: Princeton University Press, 1995), 148-177.

88. Lynn Spigel confirms that 'television's inclusion in the home was subject to pre-existing models of gender and generational hierarchies among family members – hierarchies that had been operative since the Victorian period'. Yet she does not mention the role of the stereoscope. See Lynn Spigel, *Make Room for TV. Television and the Family Ideal in Postwar America* (Chicago and London: University of Chicago Press, 1992), 11.

89. Such views have also been called 'dioramic'. The Diorama, first introduced in Paris by Daguerre and Bouton in 1822, was the connecting link between the techniques of the peepshows and later miniature forms like stereoscopic tissue cards and the Polyorama panoptique. It displayed very large transparent paintings that

underwent transformations thanks to the very careful manipulation of back lighting.

90. Most studies look at late nineteenth-century/early twentieth-century stereoscopy from the point of view of the industry, describing its strategies. See for example an article by Judith Babbitts, 'Stereographs and the Construction of a Visual Culture in the United States', in: Lauren Rabinovitz and Abraham Geil (eds.), *Memory Bytes. History, Technology, and Digital Culture* (Durham and London: Duke University Press, 2004), 126-149. While Babbitts relies entirely on conventional textual sources, a Ph.D. Dissertation by Marilyn Faye Morton, 'The Social Stereoscope: Issues in American Cultural History' (Graduate School of Emory University, 1998) is exceptional in that it pays much attention to the stereoviews themselves and their subject matter. It also provides useful information about the early research on stereoscopy, not documented as well elsewhere.

91. This method was widely used to sell stereocards in the rural areas of the United States by major companies like Underwood & Underwood and Keystone. The sellers were often young men, who had been given the rights to sell in given territories. Detailed instructions about appropriate strategies were provided by the companies. *Manual of Instruction for The Use of Agents of the Keystone View Company* (Meadville, Pa.: Keystone View Company, 1899) gave the prospective salesman detailed instructions from his 'your appearance' and 'your bearing' to 'a vital part of cabinet delivering'. Numerous handwritten notes in the copy of the booklet in the author's collection show that the owner took the sales effort seriously.

92. In the author's collection there is another interesting stereoview ('11927. A trip around the world through the "Saturn"', James M. Davis and B.W. Kilburn, 1897), showing a salesman presenting sample views to a secretary, sitting in front of her typewriter. She is immersed in the stereoscope, while another man looks over. There is no 'gag' in the view, but it could have been part of a sequence. The caption makes the 'product placement' explicit by mentioning Kilburn's 'Saturn' stereoscope.

93. Although a well-known piece of Victorian optical culture, novelty stereoscopes were constantly brought to the market. Most of them remained marginal. At the Paris World's Fair of 1900, Holmes-Bates stereoscopes made entirely of aluminium (a novelty at the time) were sold. The structure, however, remained the same. Today it is difficult to appreciate the novelty value the use of aluminium had a century ago.

94. Stated to be a quotation from *Salem Gazette*, in: *Six Years Through Foreign Lands. A Guide to Fallon's Great Work of Art*, 4. No date and publisher mentioned, but contains Fallon's advertising letter dated July 1, 1863, with Music Hall, Springfield, Mass. mentioned as the correspondence address for Fallon's agent, Tilly Haynes. A copy of this extremely rare pamphlet has been preserved by the American Antiquarian Society, Worcester, Mass. Although Fallon's show was called 'Stereopticon', it was not stereoscopic. However, the projections of photographic lantern slides with a powerful projector using an oxy-hydrogen light source, a novelty at the time, may have felt three-dimensional.

At least it successfully used the popular buzz around the stereoscope. The word 'Stereopticon show' was generally used for magic lantern shows in the USA until the twentieth century.

95. This paragraph is mainly based on the analysis of original stereocards, cabinet cards and 'cartes de visite' in the author's collection.

96. This may of course have to do with photography itself: most of the stereoviews discussed here were studio shots, which were much easier to secure than outdoor views with people.

97. Was she possibly inspired by the view in the stereoscope? We will never know. For this view, see John Jones, *Wonders of the Stereoscope* (New York: Alfred A. Knopf, 1976), 26-27.

98. From the text on the back of the card. There are two versions of the view, both numbered '11917' and copyrighted 1909 in the author's collection (one has the additional copyright date 1903 for B.L. Singley). Although the families and the settings are different, the elements are essentially the same. The children playing in the foreground, the older members of the family sitting in their armchairs, and the storage cabinets for the stereoviews visible at the back. In one of the views, adolescent boys are also seen playing around a table. In another a lady is looking into the stereoscope, while a young man holds a view; and one shows an ornate stereoscope placed on top of the storage cabinet at the back.

99. The stereoscope had one great disadvantage compared with peepshows and many other optical toys: it could not be constructed by the children themselves. The stereoscope and the stereoviews were early examples of consumer items that had to be bought as readymade packages. From the late nineteenth century on, amateur stereoscopic photography gained some popularity, but not as a children's hobby.

100. Reproduced in Edward W. Earle (ed.), *Points of View: The Stereograph in America – A Cultural History* (Rochester: The Visual Studies Workshop Press in Collaboration with The Gallery Association of New York State, 1979), 82.

101. From M.M. Griswold's series 'Griswold's Compositions', entered according to an act of Congress in the year 1871. (Original in the author's collection.)

102. '11468. The Fountain of Knowledge', a view by James M. Davis, published by B.W. Kilburn, 1897. There are other versions of the same topic, for example a view published by G.H. Graves, Philadelphia/ he Universal Photo Art Co. The topic is interesting also because it is connected – although in remarkably 'cleaned up' form, to the eighteenth-century scatological tradition – a man emptying his stomach was a favourite topic in anamorphoses and lantern slides!

103. 'Stereoscopic Slides', *Harpers Monthly*, June 1860. Reproduced in Wing, *Stereoscopes*, op. cit. (note 80), 16-17.

104. Because many photographers marketed stereoviews as well, it can also have been a subliminal marketing trick. At least one cabinet card in my collection, showing a beautiful young lady posing with a stereoscope on the table, was used by the photographer, Cramer from Carbondale, Pennsylvania, for marketing purposes: the same image exists on other mounts as well. Tall cabinet stereoscopes were sometimes

used as leaning stands, taking the place of a table or a flower stand.

105. A cabinet card in the Erkki Huhtamo Phantasmagoria Collection, The Society of Film History, Helsinki, Finland. In the Hollywood musical *Story of Irene and Vernon Castle* (1939) the stereoscope is used in a similar way—the young couple (played by Fred Astaire and Ginger Rogers) is communicating their ideas about marriage indirectly to each other by viewing stereocards of Niagara Falls (a popular honeymoon destination) in a Holmes-Bates stereoscope. However, I have also seen cabinet cards of older couples, with the stereoscope placed on the table between them. Groups of children were also often photographed with the stereoscope and stereocards.

106. Matthew Geller (ed.), From *Receiver to Remote Control. The TV Set* (New York: The New Museum of Contemporary Art, 1990).

107. In an unidentified stereoview from the 'Popular Series' a woman is seen sitting by a table reading a letter (?). There is a stereoscope with a view on the table as well. From behind the table a female ghost figure appears (her mother?). The apparition can be interpreted as a memory possibly triggered by the letter. The role of the stereoscope is unclear.

108. My argument here goes against the ideas by theorists like Marshall McLuhan and Friedrich Kittler, who emphasize the impact of the medium itself over its social contextualization. Their theories often verge on technological determinism. For an attempt to mediate between context-oriented and medium-oriented approaches, see Asa Briggs and Peter Burke, *A Social History of the Media: From Gutenberg to the Internet* (Cambridge, UK: Polity Press, 2002).

109. About the distinction technology—cultural form, see Raymond Williams, *Television: Technology and Cultural Form* (London: Collins/Fontana, 1974).

110. Jonathan Crary provides a useful theoretical background for investigating this issue, although it does not deal with cultural and social historical source material. See Jonathan Crary, *Suspensions of Perception. Attention, Spectacle, and Modern Culture* (Cambridge, Mass.: The MIT Press, 1999).

111. Walter Benjamin, *Charles Baudelaire. A Lyric Poet in The Era Of High Capitalism*, translated by Harry Cohn (London: Verso, 1983).

112. The Cosmorama was defined in the following manner by John Timbs in his *The Curiosities of London Exhibiting the Most rare and Remarkable objects of interest in the metropolis, with Nearly fifty Years Personal Recollections* (London: David Bogue, 1855), 235: 'The Cosmorama, though named from the Greek, (kosmos, world, and orama, view, because of the great variety of views), is but an enlargement of the street peepshow, the difference not being in the construction of the apparatus, but in the quality of the pictures exhibited. In the common shows, coarsely-coloured prints are sufficiently good; in the Cosmorama, a moderately good oil-painting is employed.' In London, there were occasional complaints about the high ticket prices. A newspaper clipping ('Sketches of Society. Sights of London, etc. No. II') at the Harvard Theatre Collection (source and date unknown, but from a London publication circa

1820s-1830s), scorns the Regent-Street Cosmorama for charging one shilling for each side of the gallery! 'A house divided cannot stand; and for persons bringing families to such sights, a shilling a head is poll-tax sufficient.' Quite clearly visiting the Cosmorama was beyond the means of the lower classes of the society. The first Cosmorama is said to have been opened by Abbott Cazzara in Paris in 1808. See Donata Pesenti Campagnoni, *Verso il cinema. Macchine spettacoli e mirabili visioni* (Turin: UTET Libreria, 1995), 87.

113. Amazingly, an original Kaiser Panorama, known as the 'Photoplastikon', still operates in Warsaw, Poland!

114. The first phonograph parlour was opened by The Ohio Phonograph Company in Cleveland on 15 September 1890. The listening machines were often lined along the walls of the premise, re-enacting the arrangement of the Cosmorama (also known as 'Cosmorama Rooms'). Peeping at images was replaced by listening to sounds. The intimacy of the peephole was replaced by the aural intimacy provided by the earphones. See Charles Musser with Carol Nelson, *High-Class Moving Pictures. Lyman H. Howe and the Forgotten Era of Traveling Exhibition*, 1880-1920 (Princeton: Princeton University Press, 1991), 38-39.

115. I have dealt with the changing meanings of the words 'automatic' and 'automation' in my other articles 'From Cybernation to Interaction: A Contribution to an Archaeology of Interactivity', in: Peter Lunenfeld (ed.), *The Digital Dialectic. New Essays on New Media* (Cambridge, Mass.: The MIT Press, 1999), 96-110, 250-256, and 'Slots of Fun, Slots of Trouble: An Archaeology of Arcade Gaming', in: Joost Raessens and Jefferey Goldstein (eds.), *Handbook of Computer Games Studies* (Cambridge, Mass.: The MIT Press, 2005).

116. About the invention of the Mutoscope, see Gordon Hendricks, *Beginnings of the Biograph* (New York: The Beginnings of the American Film, 1964), 59-65. For its early history, see Richard Bueschel and Steve Gronowski, *Arcade 1, Illustrated Historical Guide to Arcade Machines, Volume 1* (Wheatridge, Colorado: Hoflin Publishing, 1993), 91-100.

117. This decision may be partly explained as an effort to avoid patent infringement accusations. The Kinetoscope and the Mutoscope were both largely the work of one man, William Kennedy Laurie Dickson, who left Edison's company after the development of the Kinetoscope. Edison tried to find new applications for his electric technology, which may explain why the Kinetoscope used an electric motor to run the film. The Mutoscope relied on a different principle, that of the flip book, which had been known since the 1860s. But the Mutoscope was also more reliable and could be shown in places where electricity was not available. The Kinetoscope soon disappeared from the market, while the Mutoscope became a great success that lasted until the 1950s, and even later.

118. Cit. David Nasaw, *Going Out. The Rise and Fall of Public Amusements* (Cambridge, Mass.: Harvard University Press, 1999 [1993]), 133.

119. This issue would be worth investigating; although some films were sexually suggestive and mildly erotic, overt pornography was probably

nonexistent, or at least very rare. Whether the idea of the Mutoscope as a 'risque' medium was deliberately created by the industry or developed spontaneously is not yet clear. The American Biograph and Mutoscope company also produced many other types of films for the Mutoscope, including short dramas and comic subjects. No history of the long and varied career of the Mutoscope has so far been written.

120. There is an example of this in Stephen Bottomore's *I Want to See This Same Mutagraph. A Cartoon History of the Movies* (Pordenone: Le giornate del cinema muto, 1995), 151. There are also several cartoons showing middle-aged men peering into the Mutoscope (40–43).

121. Reproduced in Bottomore, *I Want to See this Same Mutagraph*, op. cit. (note 120), 42. The peeper says: 'When I see a naked woman, I can almost feel her caresses.' On the same page there is a much tamer British variation of the same motif from the same year (two months later). The caption says: 'Jones (looking into animated picture machine). Oh, I say, that's funny, ha! ha! A chap having his pocket picked, ha, ha!' Bottomore's valuable book also contains several other examples of cartoons about the problems that staring into a peep show machine causes for men.

122. Linda Williams, 'Corporealized Observers: Visual Pornographies and the "Carnal Density of Vision"', in: Patrice Petro (ed.), *Fugitive Images. From Photography to Video* (Bloomington and Indianapolis: Indiana University Press, 1995), 19.

123. Peiss, *Cheap Amusements*, op. cit. (note 11); Rabinowitz, *For the Love of Pleasure*, op. cit. (note 11). Neither deals explicitly with women's relationship with the Kinetoscope or the Mutoscope.

124. See Anne Friedberg, *Window Shopping. The Cinema and the Postmodern* (Berkeley and Los Angeles: University of California Press, 1993).

125. Reproduced in Brian Coe and Paul Gates, *The Snapshot Photograph. The Rise of Popular Photography 1888–1939* (London: Ash & Grant, 1977), 90.

126. Charles Musser, *Edison Motion Pictures, 1890–1900. An Annotated Filmography* (Gemona: Le giornate del cinema muto/Smithsonian Institution Press, 1997), 33–36.

127. Ibid., 36.

128. This is reflected in countless souvenirs and other little objects. A box with the title 'Case of Funny Things from Niagara Falls' (circa 1905) contains ten small metallic erotic cards. One of them shows a man staring through large lenses at a lady's exposed bottom. The title reads: 'The Stereoscope. A Fine Aspect' (in the author's collection).

129. The classic study about this topic, mostly focused on literature, is Steven Marcus's *The Other Victorians. A Study of Sexuality and Pornography in Mid-Nineteenth-Century England* (New York: Basic Books, 1964).

130. This issue has been researched by Lisa Cartwright in her *Screening the Body. Tracing Medicine's Visual Culture* (Minneapolis and London: University of Minnesota Press, 1995).

131. I use the spelling 'tele-vision' to refer to various early devices, many of them imaginary, that claimed to communicate at a distance by means of 'electricity' (electronics did not yet exist). 'Television' is a later established product and a successor to this tradition.

132. An illustration (from the French *La Nature*?), visualizing this idea, said to be from 1890, has been reproduced, with no source mentioned, in Albert Kloss, *Von der Electricitat zur Elektrizitat* (Basel: Birkhäuser Verlag, 1987), 245. The tele-vision device is envisioned within the framework of colonialism to maintain a link (and power over the 'dominions') with the homeland.

133. Card in the author's collection. The card has been used to inform the addressee that the representative of the Keystone View Company is going to deliver her order (of stereoviews) 'about' July 6, 1921. The card, as well as the extensive series of war views published by Keystone, remained in use well after the war ended. Although visually the situation resembles that of broadcasting, the card may imply the idea of two-way communication, often present in early ideas about tele-vision.

134. See Hugo Gernsback, 'Radio in the Future', *Radio-Craft*, March 1938, 591, reprinted in Scott Wood (ed.), *Classic TVs. Pre-War thru 1950s* (Gas City: LW Book Sales, 1997), 3.

135. Herbert Bayer is another exhibition designer who used peepholes in his designs, see Mary Anne Staniszewski, *The Power of Display. A History of Exhibition Installations at the Museum of Modern Art* (Cambridge, Mass.: The MIT Press, 1998).

136. See Elena Dagrada, 'Through the Keyhole', *Iris*, no 11 (1990). Thanks to Mr. Doron Galili for pointing out this source to me.

137. The same idea was also used in early hardcore pornographic film. I have seen an example from the 1920s. A janitor in a corridor peeks through a keyhole at the sexual acts taking place in the room.

138. As Dieter Daniels explains, the work seems inspired by a story from Jules Verne *Le Rayon-Vert* (1882) (Daniels, 'Points d'interference entre Fredrick Kiesler et Marcel Duchamp' 125, 127). As far as I can see, the cosmorama was not used as a reference by Duchamp's pupils.

139. For a discussion of these (and other) works from a media-archaeological point of view, see my 'Time Travelling in the Gallery: An Archeological Approach in Media Art', in, Mary Anne Moser with Douglas MacLeod (eds.), *Immersed in Technology. Art and Virtual Environments* (Cambridge, Mass.: The MIT Press, 1996), 231–268.

140. A highly original approach to peeping was developed by Valie Export in her well known *Tapp und Tastfilm* (1968). Wearing a miniature theatre, the artist encouraged audience members to touch her breasts, hidden behind a veil. The scopic dimension was denied; the breast were only 'visible' via touch!

141. See color plates 17 and 18 in: Moser and MacLeod, *Immersed in Technology*, op. cit. (note 139).

142. The artist Roy Fridge created wooden viewing boxes obviously directly inspired by the Mutoscopes. See Axel Mogelon and Norman Laliberté, *Art in Boxes* (New York: Van Nostrand Reinhold, 1974), 43.

143. About the relevance of Bentham's idea for contemporary culture, see Thomas Y. Levin, Ursula Frohne and Peter Weibel (eds.), *CTRL SPACE: Rhetorics of Surveillance from Bentham to Big Brother* (Karlsruhe: ZKM and Cambridge, Mass: The MIT Press, 2002).

'It is not very difficult to decode the strategic interests behind the eternal return of the mythology of new technology.'

Connection Machines

Eric Kluitenberg

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By the time the German Catholic mystic Heinrich Suso published his manuscript 'Horologium Sapientiae' (*Wisdom's Watch upon the Hours*), most commonly dated to 1339, mechanical clocks had made their way in civic life throughout Europe's major cities. Late in the thirteenth century the mechanical clock had appeared in monasteries belonging to the Benedictine order and it was used to mark the seven canonical hours of the day to call for collective prayer. The clock spread to the civic sphere in the fourteenth century featuring as a public timepiece in the tower of many a European city's town hall. Its function also changed: The clock had become the central medium structuring and ordering the life and communication of late medieval city dwellers.

Suso's thinking was very much informed by the juxtaposition of the

Miniature after Heinrich Suso's *Horologium Sapientiae*, ca 1375. Collection Royal Library of Belgium, Brussels

erratic temporal nature of earthly human affairs, versus the divine order of Eternal Wisdom of the Christian God he revered. With the spread of the clock in religious and social life the entire world system of earthly life, the passing from day to night and from night to day, and the movements of the heavens, came to be seen as the visible signs of the divine clockwork that ruled and governed earthly existence. Suso structured his book as a series of imaginary dialogues between Eternal Wisdom (his god represented by the virtue Eternal Wisdom) and himself, divided into 24 chapters following the 24 hours of the day.[1] It was Eternal Wisdom that instilled order in this heavenly clockwork, and the mechanical clock was the medium for ordinary man to bring his life into unison with this divine order.

The construction of Suso's imaginary medium is twofold: First he portrays the world-system as clockwork as one giant communication medium set in motion and guided by the invisible hand of Eternal Wisdom, which thus 'communicates' divine order to the human subject. The mechanical clock then translates this divine order into perceptible form and becomes a medium for the lesser mortal to establish contact with the divine order, most notably by the call to prayer at regular intervals according to the canonical hours – the original purpose of the mechanical clock.

In Suso's mystical vision, which became highly popular throughout Europe in the fourteenth century, the clock is a connection machine, a medium to coordinate not only the affairs between humans, but also between that which is human and that which is divine. In the centuries following Heinrich Suso's mystical imaginations of the divine clockwork, the idea that technology compensates for the deficiencies of human conduct remained vividly alive. As society became more secular, the emphasis shifted away from its divine orientation, towards the mediation of more worldly human affairs, and yet a certain mystical inclination never left the realm of technological invention.

Modern Machines

The great historian and philosopher of technology Lewis Mumford relates the regularity of monastic life, and the central role that the mechanical clock came to play in organizing it from the thirteenth century onwards, more or less directly to the development of modern capitalism. The regularity of the division of the day into even time segments in the Benedictine monasteries, punctuated by the call to collective prayer, prefigured in many ways the organization of collective labour in the Ford factories. The ticking of the mechanical clock might thus almost be likened to the humming of the modern production line.

In his seminal work *Technics and Civilization* from 1934 Mumford writes: 'The habit of order itself and the earnest regulation of time-sequences had become almost second nature in the monastery ...So one is not straining the facts when one suggests that the monasteries – at once there were 40,000 under Benedictine rule – helped to give the human enterprise the regular collective beat of the machine; for the clock is not merely a means of keeping track of the hours, but of synchronizing the actions of men'.[2]

With the spread of the mechanical clock from the monastery to the cities and its subsequent miniaturization and massification, worldly and spiritual life in Europe were integrated in a uniform time regime. For centuries to come, the clock would become the ultimate connection machine, organizing and binding the lives of millions into an integrated social, economic, and religious system.

The highpoint and simultaneously the endpoint of the reign of the mechanical clock can be traced to the middle of the nineteenth century, when the invention of the telegraph allowed the first *real-time*[3] transmission of a time signal across vast distances, and ultimately around the globe. The demands of an industrialized society and the

expanse of international trade relations made the deployment of the required infrastructure (transatlantic cables) economically viable. This in turn necessitated the adoption of a uniform world-wide time standard. Through a series of 'World Conferences on Time', in 1884[1] the Greenwich Mean Time standard became the new global time regime as we know it today. Telecommunications, rather than the mechanical clock, would take over the role of connection machines supporting the new global time regime and its attendant social and economic structures.

Technological Transcendence

It is difficult to escape the economic rationale that favoured the rapid development of telecommunications technology from the mid nineteenth century onwards. The continued expansion of global trade created the social and economic context for this particular breed of technology to flourish. Yet, if we rely exclusively on this all too obvious economic explanation for the rise of contemporary electronic connection machines, deeper layers of motivation that inform the creation and the wider adoption of these technologies will continue to elude us. To grasp these rather hidden motives it is necessary to excavate some of the seemingly irrational undercurrents that accompany much of the visible history of technology, and thus to probe more deeply into the realm of the mythological.

Invention and imagination are relatively closely linked, as concepts and as functional principles of human endeavour. It will come as little surprise then that the dividing line between inventiveness and the imaginary is ambiguous and often porous. In popular culture, the inventor is usually portrayed as the semblance of a delirious maniac, rather than a rational man of science. Positive examples of this typology

might be the absent-minded personalities of Disney's Gyro Gearloose, or Dr. Emmet Brown in the *Back to the Future* film series. A rather darker shade of character is beautifully exemplified by the corrupt scientist Duran Duran in Roger Vadim's cult-classic movie *Barbarella*, which he based on the French comic strip by the same name created by Jean-Claude Forest in 1964.

Yet, when considering the extraordinary transformations in daily life brought about by the incessant drive for technological development in the industrialized world, such hard facts are rarely ascribed to the ravings of a lunatic. It is all the more intriguing then to see that some of the most infamous names in the history of technological invention derive their inspiration from deeply irrational, mythological, and even outright mystical sources. Indeed, the history of technology is littered with unfounded claims about the future (and the role of particular technologies in that imaginary future), misconceptions, arbitrary assertions, and inherently mythical beliefs about the immediate and longer-term significance of the machinic contraptions that emerge from the inventor's laboratory. Ironically, in many of these accounts the rhetoric of scientific rationality is emphatically employed to propagate preposterous, highly opaque and sometimes deeply mystical ideas.

Since none of these claims made by seminal figures in the recorded history of technology has proven sufficient reason to rewrite that history, nor to discredit the status of these individuals within this specific historical trajectory, it would follow that the resident belief structure that feeds these ideas extends far beyond the immediate surroundings of the historical protagonists of obtuse techno-mysticism. However, the aim here is not to somehow marginalize the significance of these early visionaries in the course of technological development. Rather, I would like to argue that their prominent place in the history of technological invention came about not so much *despite* the fact that they subscribed to highly mythological imaginaries, but exactly *because* of their mystical inclinations.

Such a complex set of relationships between invention and the imaginary, between inventor and consumer of the final product, and between technological inventions and their social and economic context, cannot be written off as the eccentric idiosyncrasies of the 'mad

inventor' – that emblematic archetype of popular culture. Popular imaginaries require a willing clientele (preferably an eager one . . . !) to sustain themselves over time. The imaginary product, in other words, has to fulfil real-world needs to survive, regardless of whether these needs be actual or imagined. It would require a lengthy study into the history of technology to 'excavate' the various lineages and discontinuities in the development of imaginary media and imaginary machines. I would like to concentrate here on two of the most prominent representatives in the history of technological invention, who exemplify emblematically the porous boundaries between inventiveness and the imaginary: Nikola Tesla (1856–1943) and Thomas Edison (1847–1931). Their prominent position in recorded history means that their life and activities are well documented. Furthermore, Tesla and Edison shared a predilection for being outspoken public personalities. They were also contemporaries, and they even came head to head in the late 1880s in the so-called 'War of Currents' dispute.[2]

What is of particular interest here is the structure of the arguments used by both Tesla and Edison to propose intensely speculative ideas for new communication devices and their application areas. Edison and Tesla worked at a turning point in history, when the emphasis in the technological imaginary moved away from the pre-electronic metaphorical connection machines of the Suso-type, towards something much closer to the contemporary electronic cult of wireless connectivity.

Nikola Tesla and the Wardenclyffe Tower

The Serbian/Croatian inventor Nikola Tesla (1856–1943) is credited with some of the most important breakthroughs in electrical engineering. Among the over 700 patents filed by Tesla were the Tesla coil, an induction coil widely used in radio technology, a telephone repeater, the

rotating magnetic field principle, the polyphase alternating-current system, alternating-current power transmission, patents for wireless communication, radio, fluorescent lights, and an electrical induction motor. In 1884, Tesla had come to the United States to work for the Edison Company. His employment by Edison, however, ended in bitter conflict, and both parties went on to consider the other a competitor.

Tesla's biography is momentous and begs the question whether such a life is produced by the wild genius he obviously was, or rather that his 'wild genius' resulted from his eventful and at times dramatic life story. Reading the fascinating biographies written about Tesla, it becomes increasingly clear that it is very difficult to separate the many practical inventions he produced from his singular and idiosyncratic obsessions in life. He worked feverishly on new energy devices, communication media, information and energy transmission systems, and more generally on what McLuhan would probably call the birth of the electrical age. The practicality of his ideas seemed only a consideration in as far as he was necessitated to create the proper working conditions (space, support, investments) to pursue his singular ideas about the electrified future of mankind.

Tesla's Wardenclyffe Tower, or 'Tesla Tower', might be considered both his most grandiose design and his most catastrophic failure. Tesla was offered an opportunity to build what most likely was originally conceived as a communications tower, on a piece of land in Shoreham Long Island.

The main investor in the site, James S. Warden, gave the tower and the area his name. He envisioned it as the beginning of a future radio city to be called Wardenclyffe-On-Sound. Tesla started working on the facility in 1900 and construction started in 1901.[3] However, by 1905, Tesla ran out of money. Construction was halted and staff were laid off, while the facility still did not function properly. A long period of unclear ownership conditions followed and in 1917 the tower itself was finally disassembled. Tesla, meanwhile, seeing his biggest project ever fall apart, suffered a severe mental breakdown.

There are many competing theories on how the tower and the facility

should have been operated. The most mundane explanation of its designated purpose was to create a worldwide wireless communication system and radio broadcasting facility. A second station would be set up on the southern coast of England to receive and respond to transmissions. However, Tesla envisioned other, more important uses of the system he was building. He was convinced that the facility would be able to wirelessly transmit not only communications and radio signals, but also electrical power. After the failure of the Wardenclyffe project, Tesla continued to work on his ideas and on prototypes that would enable the wireless transmission of electrical power.

Again, there are unclear and competing accounts concerning the results of Tesla's ideas and experiments. According to some of these accounts, he was able to light electric bulbs and other devices over longer distances without the use of conducting wires. Tesla's idea was supposedly to distribute electrical energy in a wireless manner through the air in the sparsely inhabited American countryside. People would be able to receive this electrical energy cheaply via antennas on their roofs. But other claims go further and connect the Wardenclyffe facility to its use as a weapon that would be able to produce bursts of electrical energy over vast distances, comparable to the effects of a ball of lightning or electromagnetic fireballs. Consequently, the withdrawal of life-saving funding for Tesla's work and the final decomposition of the tower in 1917 are explained as US government interventions aimed at reserving this possible military technology for classified research and preventing the sensitive technology from falling into the wrong hands (the German empire or the Bolsheviks in Russia – who staged their successful revolution in the same year the tower was taken apart – were likely candidates). Tesla himself made a bold proposal for what the tower facility should be able to achieve and demonstrate as a principle. In his vision the earth itself could be used as a giant conductor to transmit electrical energy on a global scale with minimum energy loss.

The earth's large cross-sectional area could provide a low resistance path for electrical impulses, which could be electrically resonated at predetermined frequencies. The main obstacle was the need to set up the transmission points where the earth's coil could be charged. Once in operation, electrical energy could simply be culled from the earth by

drilling a collecting rod into the soil. The planet would thus act as a giant battery, and practically free electrical energy would be available instantly anywhere on the planet!

The most speculative explanation of the Tesla Tower's purpose, however, introduces a distinctively different reading of both the facility itself and Tesla's incessant singular preoccupations. According to this largely undocumented theory, the Wardenclyffe tower was not primarily an earthly communications and radio transmission device, nor was it a global provider of free electricity. Rather, the tower would serve as a giant resonating and communications mechanism to reach the spirits of the deceased, a global transceiver of psychic energy and communication. Both Tesla and Edison expressed at various stages in their life a keen interest in and adherence to psychic phenomena, and both socialized in spiritist circles. One admittedly highly speculative explanation for Tesla's preoccupation with the occult can be found in his early life, when through a dramatic chain of events he caused his older brother's horse-riding accident, which proved to be fatal. Tesla remained filled with grief and guilt throughout his life, and repeatedly alluded to the insignificance of his own achievements in the light of what he imagined his older brother would have been able to achieve, had he lived. Was Tesla seeking contact with his brother who had passed away too early, was he seeking absolution from his life-long sense of guilt?

In his 1908 essay '*The Future of Wireless Art*', Tesla writes about the WardenclyVe Tower as a true visionary:

'It is intended to give practical demonstrations of these principles with the plant illustrated. As soon as completed, it will be possible for a businessman in New York to dictate instructions, and have them instantly appear in type at his oYce in London or elsewhere. He will be able to call up, from his desk, and talk to any telephone subscriber on the globe, without any change whatever in the existing equipment. An inexpensive instrument, not bigger than a watch, will enable its bearer to hear anywhere, on sea or land, music or song, the speech of a political leader, the address of an eminent man of science, or the sermon of an eloquent clergyman, delivered in some other place, however distant. In the same manner any picture, character, drawing, or print can be transferred from one to another place. Millions of such instruments can

be operated from but one plant of this kind. More important than all of this, however, will be the transmission of power, without wires, which will be shown on a scale large enough to carry conviction.'[6]

His remarks are uncannily familiar to the early twenty-first-century reader, as used as we are to the (fraudulent) promotional narratives employed by the vendors of wired and wireless electronic communications services. Later, once the irreversible demise of the Wardenclyffe project had become clear to him, Tesla's tone turns bitter and disappointed. Interestingly, he attributes the 'grandesse' of his scheme (wireless global communication, worldwide free electricity, the planetary earth-battery, wireless transmission of electricity through the air, and a wireless electrical cannon) to 'a simple feat of scientific electrical engineering', and its demise to the inability of the public (and his investors) to follow the lead of the visionary inventor. His words reveal the compulsive character of the vision he tried to pursue:

'It is not a dream, it is a simple feat of scientific electrical engineering, only expensive, blind, faint-hearted, doubting world! . . . Humanity is not yet sufficiently advanced to be willingly led by the discoverer's keen searching sense. But who knows? Perhaps it is better in this present world of ours that a revolutionary idea or invention instead of being helped and patted, be hampered and ill-treated in its adolescence, by want of means, by selfish interest, pedantry, stupidity and ignorance; that it be attacked and stifled; that it pass through bitter trials and tribulations, through the strife of commercial existence. So do we get our light. So all that was great in the past was ridiculed, condemned, combated, suppressed, only to emerge all the more powerfully, all the more triumphantly from the struggle.'[7]

Thomas Edison Phones the Dead

Besides being a professed materialist (philosophically speaking), during the early stages of his professional career, Thomas Edison (1847-1931) was also a shrewd businessman with a keen sense

for the potential practicality of the ideas he was working on. His business skills may equally have helped assure him a prominent place in history, as did his genuine intellectual gifts. In this sense, the typology that may be drawn of the young Thomas Edison seems to stand in marked contrast to the wilder imaginations of his contemporary Tesla.

Although Edison's biography reads significantly less momentous than Tesla's, his life also appears to have been characterized by the continuous presence of the occult. His parents were reportedly spiritualists, and Edison, though a professed atheist in his early years, seems to have enjoyed a life-long interest in the occult and the paranormal. These interests included a firm belief in psychokinesis (the ability to move objects 'merely' by mental powers), Extra-Sensorial Perception (ESP), and in his early thirties he dabbled in the writings of a certain Helena Petrovna Blavatsky, a prominent protagonist of theosophy. All these metaphysical liaisons are documented in detail in various biographies of Edison, and a concise summary of Edison's forays into the supernatural can be found in Martin Gardner's essay 'Edison, Paranormalist' for *Skeptical Inquirer*.[8]

Gardner in fact digs up quite a number of startling quotes by Edison that illustrate the ambiguous nature of his relationship to the paranormal. It seems that Edison moved ever further away from his early radical materialist positions as his life progressed. Finally, when facing death, various reports and public interviews suggest that he was working on a communication device with 'the afterlife', or the departed, though actual designs for such a device, sometimes referred to as the 'psychic telephone', were never recovered, nor any experimental devices for that matter. It has, however, made Edison a particularly popular reference for the extensive international Electronic Voice Phenomena (EVP) movement, a loose association of groups and individuals who are thoroughly convinced that it is possible to receive the murmuring of the dead by means of electronic devices. Advocates of

EVP even go as far as to believe that much of what we hear on off-station frequencies, which we tend to interpret or discard as static or mere noise, are in fact the voices of the dead, clogged and meshed-together, attempting to reach out to us lesser mortals across the rifts separating life from death.[9]

In October 1920, Edison gave a notorious interview to B.C. Forbes for the *American Magazine* entitled 'Edison Working on How to Communicate with the Next World' (Forbes later went on to establish Forbes Magazine). In this interview Edison claims to be working on an electrical device to communicate with the departed. This is later also confirmed by one of his laboratory assistants, but never corroborated with hard evidence in the form of working notes, sketches or actual physical devices. The question here is, were Tesla and Edison outdoing each other in bold claims to tap into that newly emerging phenomenon, the product of the real-time society of electrical speed, the attention economy? It cannot be ruled out that both, already media-savvy men, put out bogus claims that spurred the public imagination, referencing the supernatural with their costly technological ventures. Even Edison, though less so than Tesla, could not do without broader public support to ensure sufficient financial support for his operations, and although he was less strapped for cash than Tesla, he might have tried pre-emptively to ensure continued public interest in his explorations.

In an article in *Scientific American* (October 30, 1920) by Austin Lescarboura entitled 'Edison's Views on Life after Death', Edison spells out his otherworldly concerns in more detail:

'If our personality survives, then it is strictly logical and scientific to assume that it retains memory, intellect, and other faculties and knowledge that we acquire on this earth. Therefore, if personality exists after what we call death, it's reasonable to conclude that those who leave this earth would like to communicate with those they have left here.

(...) I am inclined to believe that our personality hereafter will be able to affect matter. If this reasoning be correct, then, if we can evolve an instrument so delicate as to be affected, or moved, or manipulated (...) by our personality as it survives in the next life, such an instrument, when made available, ought to record something.'

It sounds convincing enough that Edison was pursuing a genuine

interest here. And unlikely as it may seem for someone taking such a strongly anti-metaphysical stance at the outset of his professional career, there are further grounds to suspect that Edison might indeed have 'succumbed' to the illusion that an electronic communication device to establish contact with the dead might truly be feasible. Edison started to believe in the existence or at least possibility of a disembodied soul, something that radical materialists strictly reject, because they see the soul as nothing more than the product of the proper organization of the body and the brain in particular. Through Henry Ford, founder of the Ford automobile factories and spiritual father of modern scientific management, Edison became acquainted with the fake magician Howard Reese, who claimed to possess the power of Extra-Sensorial Perception (ESP). Edison was so deeply convinced that Reese's powers were genuine that he went on to defend him in print even after Reese had been publicly exposed as a fraud.

Gardner notes that it was Edison's self-conception as a rational man of science, too intelligent to be fooled by a cheap trickster, that reinforced his belief in Reese. Similar overtones can be heard in the quote above: 'If our personality survives, then it is strictly logical and scientific to assume that it retains memory, intellect, and other faculties and knowledge that we acquire on this earth.' Exactly because his method of observation and analysis is 'strictly logical' and 'scientific' it cannot be wrong or misguided. The afterlife, formerly the strict domain of mystic and religious cults, now becomes a new terrain for scientific analysis and logical deduction. It seems that this mere act of transference to another domain of analysis is enough to convince Edison that the object of his curiosity is no longer fictional. This is also reflected in another quote from the article in *Scientific American*: 'Certain of the methods now in use are so crude, so childish, so unscientific, that it is amazing how so many rational human beings can take any stock in them. If we ever do succeed in establishing communication with personalities which have left this present life, it certainly won't be through any of the childish contraptions which seem so silly to the scientist.'

What *is* startling is not that one of the most prominent figures in the history of modern (Western) technological civilization can make such a dramatic philosophical turn-around and become deeply immersed in

mystical obscurities. In fact, it makes Edison suddenly appear all the more human, because he exposes his own fragility. Suddenly he is no longer the shrewd businessman, the brilliant inventor, the ruthless egocentric. Here we see a man faced with the inevitability of his own life coming to an end, struggling with the insignificance of his own inventions when confronted with the ultimate boundary, and longing desperately for transcendence. And of course he resorts to what he knows best to achieve it, technological invention.

What is starling here is rather the appropriation of the language of scientific rationality to his mystical project. Edison makes a desperate attempt to bring his all too human desire for transcendence over death in line with his lifelong project of 'technoscientific rationality'.[10] By reframing the afterlife as a scientific question, Edison tries to redress his irrational desire as a scientific problem. The *myth* is not that of the afterlife, but rather the suggestion of science and rationality in the very question he so desperately tries to resolve.

The Long Now Clock

Technological transcendence involves time and measurement as two poles at either end of its ambivalent union. The clock introduces the even measurement of time, yet it does not transcend the scale of a human life. Some clocks, of course, survive their makers and their owners, but most disintegrate within a lifetime or within a few generations. Some timepieces are kept alive only thanks to the great effort of their owners. Technological transcendence therefore requires a more profound temporal perspective than traditional clocks can offer. A group of scientists, engineers, and enthusiasts in the USA has started working on the realization of such a deliberately profound perspective, the 10,000 Year Clock. The original incentive for the project came from computer scientist Daniel Hillis,

the principal architect of the Connection Machine, a ground-breaking design for a parallel computing device pioneered by Hillis and applied widely in the field of high-performance computing. Hillis noticed in his extensive professional career that the emphasis in technological development and in society at large was shifting towards an infinitely shortened time span, brought about by the continuously increasing speed of information-processing machines. Although this strategic acceleration is crucial to the short-term success of any society in the face of international competition, Hillis and others became increasingly concerned about the possible implications of this preoccupation with ultra-short duration. They started to think about a project, or a series of projects, that could shift public attention away from the immediate towards the longer term, and embarked on a rather surprising mission. They concluded that it was necessary to construct a technological edifice that would serve from the outset as a mythological object and that would be in stark contrast to the contemporary drive for the real-time. The edifice became the 10,000 Year Clock, a mechanical clock that ticks away 10,000 years, one tick per year, bonging once a century, and displaying a mechanical ballet once every thousand years. Although this clock is not made for eternity, it transcends the subjective time frame, and if finally realized it would very likely transcend every conceivable cultural frame of time. In this time-bridging immanence it can be considered a truly transcendental edifice.

Clock face of the first design for the Long Now Clock, Long Now Foundation (1999-2002)

The task of preparing the clock project and similar undertakings has been entrusted to the Long Now Foundation. The necessary funding has apparently been secured, a plot of land to host the clock has been acquired, and a design of the clock is finished. It would seem that nothing now stands in the way of the clock being put into operation. The project's website [March 14, 2004] quotes Hillis describing the starting point of the clock as follows: 'When I was a child, people used to talk about

what would happen by the year 2000. For the next thirty years they kept talking about what would happen by the year 2000, and now no one mentions a future date at all. The future has been shrinking by one year per year for my entire life. I think it is time for us to start a long-term project that gets people thinking past the mental barrier of an ever-shortening future. I would like to propose a large (think Stonehenge) mechanical clock, powered by seasonal temperature changes. It ticks once a year, bongs once a century, and the cuckoo comes out every millennium.

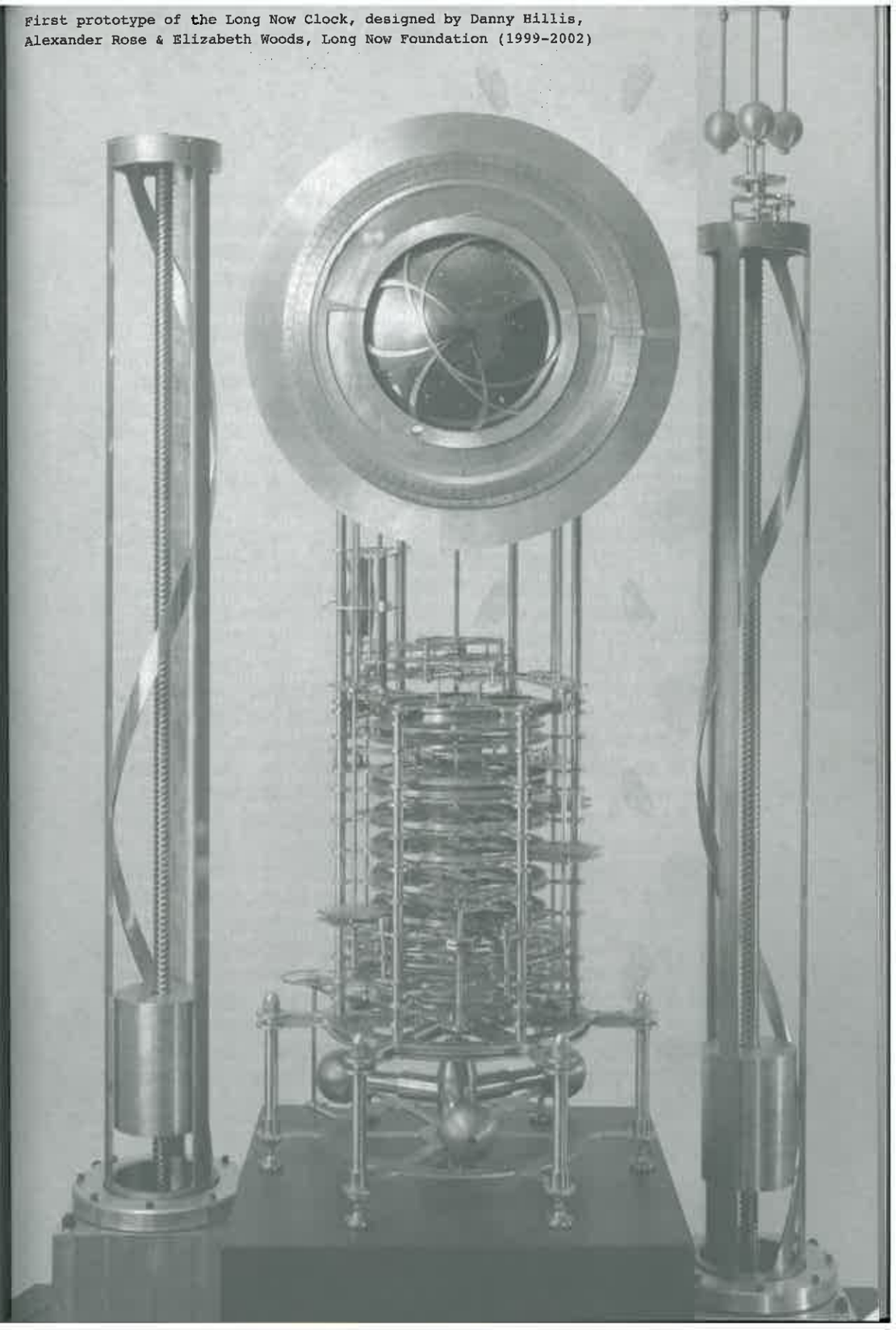
Such a clock, if sufficiently impressive and well engineered, would embody deep time for people. It should be charismatic to visit, interesting to think about, and famous enough to become iconic in the public discourse. Ideally, it would do for thinking about time what the photographs of Earth from space have done for thinking about the environment. Such icons reframe the way people think'.[11]

Transcendence here, as in so many other cases in Western technological history, is imagined as a machine. To transcend the timeframe of human life and experience inevitably points towards the eternal, and within that to the divine. The Long Now clock seems to be yet another imaginary medium whose prime intention is to unite daily human affairs with eternal wisdom, regardless of whether this eternal wisdom is given the name 'god' or 'nature'.

Compensation Machines

As noted earlier, popular technological imaginaries are sustained by a willing clientele (preferably an eager one). The ideal clientele for the promise of technological novelty is perhaps a desperate one, one that is not primarily interested in 'objectifying' its relationship to the new technological objects, or making 'sensible' assessments of these technological objects, and the imaginaries that accompany them.

First prototype of the Long Now Clock, designed by Danny Hillis, Alexander Rose & Elizabeth Woods, Long Now Foundation (1999-2002)



Looking back at the wonders of technological invention and the bright futures they promised in the past, we are often struck by a sense of disbelief that such silly narratives could be taken seriously at all. That the earliest computer games, or pre-GUI computer systems could once be the objects of such intense delight may seem laughable now. Could not the inadequacy of these primitive technological systems only be admired, either through the prism of mental disorder, or under the sway of a grand narrative according to which today's inventions were but the first stepping stones towards that magnificent future of limitless possibility? Are the early adopters and trend followers of such technological novelties all befallen by some form of mental disorientation? What constitutes this extraordinary mesmerizing quality of the technological sublime?

There is little point in taking a derogative stance here. The sense of an eternal return of the same techno-futuristic meta-narratives is too strong. The scale of involvement and investment (not least in hard cash) is too large. The excessive nature of the techno-imaginary embrace, bordering on the brink of sheer desperation, runs too deep to be discarded as the misguided preoccupations of a few simple minds. From the earliest unfounded expectations about the cultural literacy-building capacities of television to the hype of virtual reality technologies in the early 1990s, the dotcom mania in the later '90s (turning dot-bomb in 2000), and the subsequent 'great telecom crash'[13] – soon to be followed by the demise of 3G[13] – the public and professional investment is simply too large to marginalize the deep-seated belief in the saving grace of contemporary connection machines and treat it as a social fringe phenomenon.

As with cars, clothes, real estate, or briefcases, new communication devices and technological gadgets are objects of social distinction. Owning the right item, rather than the merely functional one, confers status. Furthermore, certain communication technologies do provide actual economic and private or social benefits. Also, the revenues made on stock markets in the 1990s with technology funds have been highly beneficiary for some shrewd traders and a very few companies. All these incentives can explain part of the excitement that characterized the later 1990s, and part of the willingness to put up the cash for it. But it can

never provide sufficient grounds to explain the degree and the intensity of the excitement, let alone the measure of personal and corporate/institutional investment, and the inevitable but still astonishing destruction of capital that was to follow.

The involvement of such vast numbers of people ready to buy (into) what the market has to offer, and the readiness of venture capitalists and institutional investors to put up the required capital to fuel the dotcom and telecom manias, points far beyond the merely practical, the functional, even the rational. A certain form of existential frenzy appears to be involved in creating the right conditions for this modern day version of Tulipomania to emerge.[14] The term 'technological sublime', which has achieved some currency in recent debates on technological culture, even though it has come to mean several rather incommensurate things, actually points in an interesting direction to analyse these recent forms of popular delusion.

There are a number of different understandings of the philosophical concept of the sublime, from Longinus' literary interpretation to Kant's almost cognitive concept of 'Analytik der Erhabenheit', and more recently Lyotard's transformation of Kant's theory of the Sublime as the unrepresentable. Most productive for current purposes, however, is the theory of the 'existential sublime', whose arguments have paradigmatically been laid out by the eighteenth-century philosopher and statesman Edmund Burke (1729-1797) in his study on aesthetics '*A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*' of 1757.[15]

Privation, Horror, and Delight

Burke maintains that there are passions that stir the soul to a far greater degree than those aroused by the experience of beauty. These passions are not of a singularly positive nature. Yet, they bring about intense sensations of pleasure and they seem intimately

connected with our innermost existential experience. What's more, these sensations appear to follow on necessarily from one another in a particular order, under specific conditions, and they always seem to involve an ambiguous mixture of pleasure and pain.

The progression of these sensations and the experiences they give rise to, necessarily follow a similar pattern, according to Burke, that of privation, horror, and *delight*. He introduces the term 'delight' specifically to indicate a distinct sensation of pleasure far more intense than the experience of beauty. His theory can best be explained by considering the existential fear of darkness, which in contemporary terms can be considered a genetically imprinted instinctive reaction to the absence of light, connected with an inborn sense of self-preservation.

Burke observes that the deep-seated fear of darkness results from privation of light, and he points out that this fear is of an existential nature. When light is taken away altogether and for an indefinite period of time, this privation gives rise to the fear that the darkness might prevail without end, and in absolute darkness we are surely destined, as biological creatures, to perish. Prolonged darkness heightens the fear of the end of life to the threshold of absolute panic, of horror. The confrontation with absolute darkness is the confrontation with an experiential rift, a non-space and a non-time. It is the confrontation with the very principle of death itself, and such a confrontation mobilizes the sense of self-preservation more than anything else in life can.

When light is finally reintroduced, and the existential fear, resulting from the threat of darkness without end, is put at bay, a tremendous sense of relief engulfs the mind. The reintroduction of light confirms the fact that life has not come to an end. The lost connection to the world of the living is restored. The removal of this existential pain, the end to horror, produces a feeling of pleasure much stronger than any possible experience of the beautiful, exactly because of its existential nature. Such a singular sensation required a new name, and Burke named it 'delight'.

The experience of what we would now call 'the existential sublime' is not restricted to any particular domain. It appears across different

forms of experience. What it retains from one domain to another is the adherence to the particular structure of sensation of privation, horror and delight.

Analysing different domains where the experience of the existential sublime may be found, Burke touches upon the theme of 'Society and Solitude'. He observes that 'society (...) gives us no positive pleasure in the enjoyment; but absolute and entire solitude, that is the total and perpetual exclusion from all society, is as great a positive pain as can almost be conceived. Therefore in the balance between the pleasure of general society, and the pain of absolute solitude, pain is the predominant idea. But the pleasure of any particular social enjoyment outweighs very considerably the uneasiness caused by the want of that particular enjoyment'.[16] And this is to him no small matter. The pleasure of general society, of contact with others, is even stronger than the fear induced by the threat of absolute solitude. The threat of an entire life of solitude, Burke concludes at the end of his observation, 'contradicts the purposes of our being, since death itself is scarcely an idea of more terror'.[17]

The basic structure of the experience of the sublime in relation to solitude and human contact follows the structure of the experience of privation of light, fear of darkness, and subsequent delight, discussed above. Privation of contact, if that privation is complete and of indeterminate duration, induces the existential fear of absolute solitude – a fear that is in fact of 'scarcely less terror than that of death itself!' When this threat of 'absolute' solitude is put at bay, the removal of the privation of contact gives rise to an enormous sense of relief, an almost absolute delight in the pleasures of general society, of contact with fellow human beings, with family, friends, and loved ones, even with colleagues, or simply with other people *suis generis*.

Here is a practical application of this theory. Most mobile phone conversations begin with the words: 'Where are you?'. This question is in itself entirely pointless, since the very fact that it is uttered in a *tele*phone[18] conversation means that presence of both parties in the same space is not available, while for the conversation their actual location is irrelevant.[19] It therefore points beyond the immediate situation, maybe towards future action (a meeting), but certainly to a set

of implicit existential fears and desires. The question 'Where are you?' actually speaks a multitude of other messages. 'We are not together', 'I want to be with you', 'I miss you', 'I'm on my way to you, but I can't wait until we actually meet', 'Even though we're not together I want to speak to you', 'I'm afraid not to find you where I expect you', 'I desire you', 'Please do not forget about me', 'What if we never find each other, what if we never meet again?', 'I'm afraid to be alone', 'Please don't leave me (alone)!', 'I feel lonely', 'I'm afraid of solitude', are just some of the modalities of this existential outcry we hear around us daily as we move through public spaces, on busses and trams, in trains, in corridors and on the street, in meeting places, airports, stations, waiting rooms, sometimes even in the public lavatory.

The phrase 'Where are you?' is first and foremost the expression of an existential anxiety, but it also already implies its immediate resolution, not in the future meeting that puts the fear of absolute or relative solitude at bay, but already in the very moment of its utterance. The call being answered, even in the absence of a reply, the confirmation of contact established with the designated addressee, instantaneously infuses the mind with relief. Privation of contact had instilled the fear of solitude, and the removal of this privation of contact through the telephone connection produces an intense and immediate sensation of delight. The threat of the fear of solitude, a fear imbued with scarcely less terror than the idea of death itself, is relinquished at the click of a few buttons: real-time consolation – a highly addictive apparatus!

'Experiences'

In the web campaign *Experiences*,[22] SonyEricsson introduces six stories ('experiences'), six imaginary scenario's in which their new 3G-ready[23] mobile phone comes into action, exploiting the wireless multimedia capabilities of the new device and the broadband mobile communication networks. The stories present daily

situations, which the potential consumer can easily identify with; stories that reflect the 'mobile lifestyle' of the potential customers, or attune to a high pitched life in the international business community.

Although many of the narratives used are highly predictable; see the unseen, transmit your images in real-time, connect to people you would otherwise miss, share information and 'experiences', play games together, etcetera, one story ('Bedtime story') reveals a keen understanding of the psychological insecurities that drive the use of mobile communication technology as a compensatory apparatus.

It is break time in the big city and we follow the musing of a manager, dressed in typical middle-managers attire, working far from home in a business district of functional high-rise buildings. There is no clear indication of which city the story is situated in, it could be anywhere on the planet. If we hadn't decoded it yet, there is a text version that accompanies the flash animation, which builds on the story with associative images and sounds. The text explains that this manager is working far from home. Back there, at home, it's his little daughter's time to go to sleep, but he is not there to read her a bedtime story, or sing her a lullaby. The new multimedia phone comes to the rescue. From the business park he starts to photograph the fluffy clouds in the beautiful blue sky behind the towers of commerce. With the images he constructs a story that is transmitted real-time to his daughter's bedroom, and we see her watching it unfold on the laptop (with wireless internet connection). His wife sends the pictures back to him (with her multimedia phone); the little girl reading the digitized clouds and finally falling asleep

The text is full of mystification and play on the subliminal desires of transcendence of the separation implicit in the scenario. Some quite literal: 'you wish you could be there with them', and 'you're missing your wife and child', while other suggestions are more sophisticated, planting keywords in the narrative that ascribe values to the story and the device that lead away from its lowly technical function and the commercial purposes of the advertisement (selling the new phone to

'early adopters' at a much too high introductory price). 'With a flash of inspiration and with just a few clicks you capture your vision . . .', and, 'you've written a wonderfully magical story', and then more overt again 'It's almost as if you were there with her'. And gratification is instant: 'Your instant reward is an e-mail back from your wife' – the picture of the sleeping girl that 'inspires you for the rest of the day'.

The text of the advertisement story is in fact remarkably similar to a dialogue in Peter Blegvad's stage play *On Imaginary Media*, between the characters A and B about creation, effort and inspiration:

'A – So, you want media that will make bringing into being effortless?

B – And instant. Inspiration comes so slowly to us mortals, that's why in allegories she is depicted as travelling by turtle. I want imaginary media that will put skates on Inspiration's turtle. I want media that will remove all obstacles to the immediate gratification of my every whim'.[11]

And of course we do not merely share text, images and voice, but 'experiences', implying that what is *sold* is not a product, but rather that an experience is *created* for you. The text ends with three more keywords. 'Touching from a distance', by sharing images you are supposed to share experience more directly 'than words ever can . . .' and you can share a moment 'no matter where in the world you are' – the death of distance. Finally everything can be personalized, you can 'be yourself', literally according to the ad, and what is more, you can 'share your character'. The new medium enables the sharing of that aura of personality that produces mind, spirit and persona, your character, not just empty words, images and text or data. How this metaphysical transformation is achieved is of course not explained, it is merely suggested . . .

Technology as Myth

Myth, Roland Barthes taught us long ago,[12] is a second order semiological system. Second order because mythological meaning is always superimposed over the historical existence of any event, object or person. Thus, beyond mystification,

myth serves many other purposes and performs other roles. The function of myth is always at least two-fold: to superimpose and to hide.

For myth to work it has to estrange the object, person, or event from its historical existence. The original significance of the mythical object has to be erased in order for the myth to be able to take hold of it and use it as a clean projection surface for a whole new range of significations.

The second order signification ascribed to the object of myth transcends its own existence here and now. Often these mythical significations are gathered from an extended, suggested, or even a purely imaginary past that can then be projected into the future. Although the new significations superimposed by myth are often mystifying, they are never arbitrary. Myth is entirely strategic in character. It serves an agenda and a purpose. It is never neutral, although in what any particular mythology communicates it will always deny its own strategic character by appearing 'natural'.

The superimposition that informs the mythologies of various forms of connection machines discussed so far is the dream of technological transcendence. This almost archetypical Western mythology can be read as a compensation complex, where technological apparatuses of various kinds are expected, believed or suggested to alleviate a wide spectrum of human, biological, and social deficiencies – as if 'at the flick of a switch': a true *Deus-Ex-Machina*, a magic spirit that resides inside the machine. This magic, which in itself remains unexplained, is supposed to abolish distance (physical, but also emotional distance), provide knowledge and insight, give inspiration, create a 'new economy', establish new forms of politics, make things free (of cost), reinvigorate community, include the excluded, bridge cultural divides, enhance or rather reduce mobility, create a global consciousness, it should be able to transcend the confines of time, and even cross the divide between the living and the afterlife, or serve as a mediator of the divine. In short, the mythology of new technology is the promise of the ultimate compensation machine, realizing all that is humanly unachievable.

It is not very difficult to decode the strategic interests behind the eternal return of the mythology of new technology. The rise and fall of

the New Economy has been a clear case in point. Today we understand why insignificant start-ups were blown up out of proportion, so much so that the Dutch proverb of 'Windhandel' (to trade on the wind) became a highly popular and apt characterization. From the viewpoint of financial speculation, the hype of new technology concerning the rapid expansion of the internet as a public access medium was the perfect opportunity for a well-established trade game. Hype the start-up company and buy into the stocks before they actually reach the market, wait for the hype to reach culmination point, cash in at the right moment, and take home incredible gains. For the speculator it is completely irrelevant whether the start-up company has any real economic, technological, or innovative potential – the only relevant question is whether it is *believed* to have that potential on the stock market.

These traders could then rely on the age-old human flaw of greed to do the rest. As the hype grows, more inexperienced and amateur investors hit the market and start buying into the attractive offers of the New Economy's emerging markets and players, looking for a quick profit, oblivious to the risks, or simply blinded by greed. The scheme is astonishingly simple and effective, and can be applied anywhere: biotech, security, tulips – as long as there is an 'emerging market' and new players that can be sold off as the promise of the future, all the necessary ingredients are at hand.

What is more difficult to understand about the impressive series of new technology crashes around the turn of the millennium (the dotcom, New Economy, and telecom crashes) is their sheer volume and the breathless eagerness of multitudes to be part of the game.

Also very large institutional investors, consultancy firms, politicians, and the wider public were ready to invest in the myth of growth without end ('The Long Boom') and perpetual productivity gains (which actually turned out not to exist anywhere else than in the high-tech industry itself, and could simply be explained from growing economies of scale resulting exactly from the very willingness of the rest of society to buy into the mythical status of the new technologies). Why did so many people by-pass all sound judgement, and how was this unprecedented destruction of financial and human capital possible in the first place?

It seems that a deeply rooted belief in technology as a compensatory

apparatus, a machine that can transcend the limitations of the merely human, has played a crucial role here. Machines have become not only the mediators of the divine, but in their mythological significations the complexity of the new machineries and their extraordinary transformative powers in society and in the private lives of an ever growing portion of the global population, have become the abstract embodiment of the divine. It is a system of belief that assumes a new 'naturalized' status, in which technology is not seen to be driven by will or interest, but is increasingly regarded as a matter of fact, much like the forces of nature. The enormous popularity of biological metaphors in the speculative writings of new technology protagonists of the mid 1990s testifies to this 'naturalized' status of emerging technologies.[24] Society itself is no longer seen as the interplay of strategic interests, conflict, and power, but is regarded as an emerging property of the interaction of abstract forces that operate outside of anybody's will or interest. However, the projection of this public image has been largely a deliberate affair, driven by a variety of strategic interests, so much is clear post-WorldCom, post-Enron, post-World On-line. As Barthes noted long before all this, myth is depoliticized speech, and the politics have been effectively washed away by the metaphor of nature. The purpose of the naturalization of the mythical object is to make it appear neutral, matter-of-fact, indeed 'natural', and thus unquestionable.

1. The ability to register 24 *even* hours in the day was an important innovation brought about by the mechanical clock.

2. Lewis Mumford, *Technics and Civilization* (New York: Harcourt Brace, Jovanovich, 1934/1963), 13-14.

3. Immediacy, according to Paul Virilio electronic telecommunication technology introduces a new precedence of time over distance, where in the immediacy of transmissions with the speed of light distance is dissolved on the level of communication and replaced by the rule of real-time: the immediate.

4. The International Meridian Conference Washington DC, USA - October 1884.

5. A fairly informative article about the War of Currents can be found here: http://en.wikipedia.org/wiki/War_of_Currents.

6. Nikola Tesla, 'The Future of the Wireless Art,' in: Walter W. Massie and Charles R. Underhill, *Wireless Telegraphy and Telephony Popularly Explained* (New York: D. Van Nostrand, 1908), 67-71.

7. Leland I. Anderson, 'Wardenclyffe - A Forfeited Dream', *Long Island Forum*, August-September 1968. On-line at http://www.teslasociety.com/dream.htm

8. Martin Gardner, 'Thomas Edison, Paranormalist', *Skeptical Inquirer*, July-August, 1996. www.findarticles.com/p/articles/mi_m2843/is_n4_v20/ai_18635410.

9. The image of Lethe clearly does not seem to apply in this imagination of the underworld.

10. Seeing all, knowing all, realizing all – according to Jean-François Lyotard.

11. www.longnow.org.

12. Leading cover story of *The Economist*, July 18, 2002.

13. This has yet to happen (March 2005).

14. A speculative frenzy in seventeenth-century Holland over the sale of tulip bulbs.

15. Edmund Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* (London, 1757), cited here from: ibid, edited by David Womersley (London: Penguin Books, 1998), 49-200.

16. Ibid., 90.

17. Ibid., 90.

18. Tele = from a distance.

19. Presence of the signal is in fact much more important – 'Do you have range and credit?', would be a far more relevant question to ask at the outset of a mobile phone conversation.

20. http://www.sonyericsson.com/experiences.

21. 3G: Third Generation or UMTS wireless network communication technologies.

22. Peter Blegvad, *On Imaginary Media*, stage play written for the Archaeology of Imaginary Media project of De Balie, Amsterdam, February 2004.

23. Roland Barthes, 'Myth Today', in: *Mythologies* (London: Vintage Classic Editions, 1993 (orig. Paris, 1957)), 109-159.

24. Kevin Kelly's book *Out of Control. The New Biology of Machines, Social Systems and the Economic World* (Reading, MA: Perseus Press, 1995) is one of the most outspoken examples of this trend – see also: www.kk.org/outofcontrol/.

'How should we understand this perpetuating of the Danse Macabre, the constant return of the skeleton as a key figure throughout the evolution of the animated image?'

Résurrection à la Carte

Edwin Carels

notes p. 212

What does the word 'fantasmagoria' conjure up in our minds? Do we associate it with dead-end technology? Or rather a technology of the un-dead? Do we use the word simply as a denominator for anything that is wildly Gothic, baroque, grotesque, spooky and essentially unfamiliar? That the term still speaks to the imagination is easily confirmed by a Google search. Among the search results found on 5 February 2004 were: a new media design and content creation studio; a title in a series of gay erotic comics; a Spanish speaking rock band; a selection of media art recommended by the WWW Women Webring; the title of an exhibition by Erkki Huhtamo organized in Helsinki in 2000; the title of a lesbian art exhibition against censorship; a review of a computer game of the same name.

When we spell the same word 'phantasmagoria' this yields yet another set of applications. The word is featured in a review of the theatre group Cirque du Soleil; it is the title of a poem by Lewis Carroll; it is the name of a French goth-electro band; it is linked to a source for an old computer game and Midi music; it refers to lots of Polish art work; it was the word of the day for Saturday, 4 August 2003 and so on. Even without reference to the etymological roots and the 'real' meaning of the word, this multitude of technologies and media already suggests something. With some good will, one could relate almost any of these very far-fetched, fantastic adaptations to some aspect of what the fantasmagoria was actually all about. Yet in each of these cases, the term 'fantasmagoria' is used as a metaphor, or at least as a strange, transformative concept. Rather than conjuring up a motivation for all these diverse applications of one single word, in the following text we rather suggest yet another list of seemingly incoherent incarnations with the 'fantasmagoria' as their common denominator. In doing so, we flash back from Francis Ford Coppola to Bram Stoker, Athanasius Kircher, Etienne-Gaspard Robertson, Marie Grosholtz, Joseph Plateau and links in the chain of that *danse macabre* that some still call the history of pre-cinema.

Smoke and Mirrors

Looking back on the fantascope and other instruments and technology used to move or project images in the eighteenth and nineteenth centuries, we may also discover traces of a genealogy for contemporary, immersive, hybrid, multimedia culture. It also becomes apparent that a central theme in the development of most early technology of moving pictures is the paradox of the undead and the becoming. This fascination for animated images of reanimated or

resurrected bodies features prominently in Coppola's filmed adaptation of Bram Stoker's *Dracula*. Coppola uses the text to transport us back to a time when cinema was not yet a conventionalized, institutionalized medium; when its speed, its number of images per second was not yet universally determined; when it was one among many visual attractions in what originally looked more like an arcade than a film theatre.

The film contains a scene in which count Dracula arrives in London. The scene looks like a fragment from an old film, grainy and with an unnatural rhythm. This all changes suddenly when the vampire discovers the real purpose of his trip: Mina, the unknowing reincarnation of his bride, who died prematurely. The quality of the film stock and the speed suddenly become 'normal'. Dracula asks her the way to the nearest cinema. For him the art of the moving image is the pinnacle of science, but Mina is far from convinced (just as she still needs to be convinced about his love for her). Although she says she prefers the dusty, sterile world of museums, the count seduces her to step over into the realm of optical illusion and fancy new entertainment.

The Undead was the title of Bram Stoker's original typescript, a typed manuscript with many hand-written alterations.[1] The book was published in 1897, and written in the same period as the cinema was introduced to international audiences. One of the characteristics of his novel is the kaleidoscopic, modernist variation on narrative perspective. Stoker also made sure that we would not forget about his timeframe by alluding to many technological novelties of the day: the typewriter, the phonograph, the gramophone, the photo camera, the microscope and of course the steam train. Coppola's most important contribution to the original text is his addition of the cinema. Or, as is suggested in the press book accompanying the film: 'This Dracula comes from the age of magic and illusion, smoke and mirrors.'[2]

Original manuscript of *Bram Stoker's* first title page of Dracula, using the title *The Un-Dead*

That age is what we find in the film history books labelled as the era of pre-cinema. The use of this term implies that with the dream factory the dream really has come true, that already from the very moment when in 1895 the Lumière brothers transported their strip of photographic positives through a specially adapted magic lantern, the pre-period was over and the ambition was met.

But why not have the history of the moving image start three years earlier, with the 'Pantomimes Lumineuses' presented from 1892 onwards at the Musée Grévin by Émile Reynaud? He elaborated on the projection model of the magic lantern, projecting a series of consecutive transparent positive images before a live and paying audience. (He entertained several hundreds of thousands of visitors before the success of the Lumières' Cinématographe depressed him so much that he threw his whole business into the river).

Poster for the Musée Grévin, ca 1895

The answer is simply that we prefer the photographic, the analogue image to the hand drawn one, and because we want to continue our fixation with a rectilinear, monocular conquest of the world from behind the renaissance window in our camera obscura. The fixated photographic image is considered as the essential component of the cinema, film as a preserved analogy of the profilmic reality. Or maybe we only want to accept an invention once it has been institutionalized, when it can be easily standardized and multiplied (again a characteristic that favours photography over drawing, reproduction over creation).

Victorian Parlours

However, the time may have come to consider a more imaginary, dream or even nightmare version of film history.

a shadow side to the official history of cinema, one that privileges the painted image, the animated image, and the iconography of the supernatural above the real. After all, from a contemporary point of view, with all the successes of *The Matrix*, *Harry Potter*, *Lord of the Rings* and the like, this is the new heyday of fantasy cinema, where artifice triumphs over the photo-realist image, where *special effects* prove to be seminal for the language of cinema. Under the influence of a continuously evolving media culture, cinema's purity has soon worn off, and many innovations actually lead us back to film's origins in the mixed media of Victorian parlours. Reading the press book on Coppola's Dracula film, this paradoxical double homage to both early cinema and contemporary visual culture is made very obvious by the recognition that it was actually Coppola's son Roman who took care of most of the visual effects. This budding filmmaker and director of pop videos even refers explicitly to a patented stage illusion known as Pepper's Ghost: 'A lot of Victorian parlour amusements were optical tricks that developed into film. Stage magicians were among the first to buy projectors and cameras.'[3]

In the film we enter an arcade where several films are being shown at once. There is nowhere to sit down and the audience is permanently in motion. While Dracula and Mina become better acquainted, an early erotic film plays in the background, as a projection of suppressed lust. The film features a man dreaming of two passionate and half-naked women sitting on his lap, until his wife calls him back to reality. A hundred years after the introduction of cinema it is obvious that this medium has indeed taken over the role of Victorian trivial literature, with its repulsive characters and demonic incarnations of suppressed erotic fantasies, as epitomized by the work of Bram Stoker.

On another screen we see the arrival of a train at a station, filmed from the same angle as the famous film by the Lumière brothers. Only we see it in a negative rather than a positive image. Maybe Coppola wanted to signal the danger implicit in Dracula's arrival? Alternatively the reversal could be understood as a conscious return to the roots of his art. The

railway film returns later in the scene, as if we were watching a toy train running in circles. Was it the eternally reincarnating, fatal character of his medium that Coppola wanted to stress? The power to capture and preserve life, ready to be resurrected on command? Just as a vampire leaves his victims undead, so the film camera takes the soul out of life. By capturing time, each subject on film is doomed to eternal life, a compulsive, senseless, repetitive spectacle. It can still move, but it can never change. It is undead. The only solution to this tortured existence, both for the vampire and for the film projection, is an unexpected dose of direct daylight.

Dracula is the prince of darkness, the master of his own shadow. The mere incantation of his name provokes the weirdest apparitions, a cinematographic form of accelerating the deformation of consciousness. He could also be considered an Eastern European parasite, feeding on western prosperity and women. A *Blut und Boden* monster that can only find rest on his own native soil (which he transports with him in coffins). Dracula moves faster than the speed of light, or faster than our eyes in any case. The magic kingdom of the undead is situated in this twilight zone, the black area between two frames of film. Dracula is film, and will reincarnate as long as the medium exists. For we can resurrect him at will.

Delayed Light

Bram Stoker's Dracula (F.F. Coppola): *The Battle between the Romanians and the Turks*, projected in a puppet show as analogy chronotope

In his book *Camera Lucida*, Roland Barthes compared the eye contact he could still have with his mother via a photograph as grasping the delayed light of a star, observing something in the course of its journey through time. Photography as a means of preserving life, or, by contrast, of facing our greatest fear: death. In various ways, many media seem to answer our need to catch up with the dead, to invoke them, to make them reappear or resurrect – to

Original manuscript of Bram Stoker's first title page of Dracula, using the title The Un-Dead

Bram Stoker and his Book of Blood

If Bram Stoker had not written *Dracula*, he would survive merely as a literary footnote to the the Victorian age. Though he authored sixteen other books, only *Dracula* rises above the ordinary to stand as a classic—at once a terrifying Gothic adventure, a dark mirror of Victorian obsessions, and a portrait of psychic conflicts that have plagued humankind eternally.

Born in Dublin in 1847, Stoker was a sickly child whose mother entertained him with Irish ghost stories. He compensated by becoming a star athlete and honor student at Trinity University, and took a civil service job after graduating, but became fascinated with the theater; for a time he was drama critic for the *Dublin Mail*. He loved Walt Whitman's poetry and championed humanist causes, a position he later reversed.

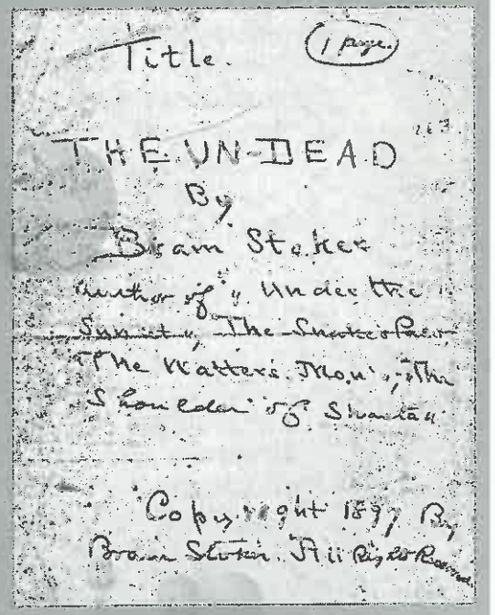
In 1878 Stoker met the famed actor Sir Henry Irving, "his real-life vampire," as George Slade notes, who would dominate the rest of his and labored tirelessly in this job for nearly 30 years—still finding time to write his fiction and earn a law degree.

Gothic horror had been a popular genre in England since the early 19th century. Stoker was an enthusiastic practitioner, and when he decided to attempt a vampire tale, he had several models: *Varney the Vampyre*, a potboiler serial; Sheridan LeFanu's more sophisticated *Carmilla*, and especially John Polidori's *The Vampyre*. The last novel has a fascinating genesis: in 1816, during a rainy sojourn at Lake Geneva, a group of literary lights—Lord Byron, Percy Shelley and his wife-to-be Mary, and Polidori, who was Byron's doctor—amused each other with scary stories. Mary Shelley's became the seminal *Frankenstein*, and Polidori's *The Vampyre* caused a mild sensation when published, largely because its fiendish protagonist resembled Byron.

Stoker made good use of these models, and of vampire folklore, but his real innovation in *Dracula* was his discovery of the bloodthirsty 15th-century Transylvanian prince, Vlad Tepes, to ground the novel historically. His other innovation, constructing the story in the form of "contemporaneous" letters and journals, has also been

from the start, it did not find favor with the critics of its day.

After nearly a century in print, however, and countless theatrical and film adaptations, *Dracula* is seen in a different light. In its barely veiled eroticism, we recognize Stoker's troubled reaction to his own libido and especially that of women. We still thrill to his vivid descriptions of horrifying and supernatural events. And in his deathless creation, the king vampire Dracula, we find "something at once monstrous and definitively human," touching on our fears of death and the lure of immortality; the seduction of power and control; the struggle to define the bounds of sexuality; the fight between the forces of day and night, light and dark, rationality and blind impulse, fantasy and reality.



Title. (1 page)

THE UN-DEAD

By

Bram Stoker

Author of "Under the Sunset", "The Snake's Pass", "The Watter's Mou'", "The Shoulder of Shasta"

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Top: *Bram Stoker, photographed in 1906*. Above: *Orig-*

overcome the relativity of time and place. In the days before photography, miniature paintings and silhouettes were employed. With the daguerreotype, this genre of the intimate, portable portrait only increased in popularity. In the 'reunion' scene in Bram Stoker's *Dracula* we see early cinema combined with shadow play (*Ombres chinoises*),[5] magic lantern projection and an imitation of the X-ray effect. What we don't see – but could easily imagine to be presented there: other optical illusions like the phenakistiscope, wax statues and the fantascope. And the way this scene could easily have been described is, indeed, like a fantasmagoria.

The French historian and film archaeologist Laurent Mannoni notes that the phenomenon of the phantasmagoria coincided with the popularity of the Gothic novel. The novels of Ann Radcliffe date from 1789-1797; M.G. Lewis's *The Monk* was published in 1796. Another French writer, Max Milner, opens his book *La Phantasmagorie - essay sur l'optique fantastique* with a quote from Emile Zola and one from Arthur Rimbaud, both displacing the meaning of the word phantasmagoria in very different ways.[5] Milner considers it a word very typical for that particular time frame, when the creative imagination became aware of the paradoxes and contradictory connotations included in the word. Milner further explains how the invention of a new technology on the level of optics not only allows us to qualify new modalities of the imaginary, but to a certain extent also promotes these. His book is basically a study on fantasy in historical literature, on texts dealing with appearances and cultivating a feeling of uncertainty. If the word *phantasmagorie* was so successful in France in reference to this mental alchemy, German romantic literature succeeded in raising the issue of the relationship between imagination and optics to a whole new level. Friedrich Novalis' *Hymnen an die Nacht* dates from 1800 and the devilries of Goethe's *Faust* were unleashed in 1808. Friedrich Schiller and Theodor Fontane supply other examples of the way optical devices were already understood both as scientific instruments and as metaphors.

The central developments in the history of optical illusions stem from the period of the Enlightenment, when allegory was a common mode of expression. Laurent Mannoni is best known for his book *The Great Art of*

The Head of Medusa
An animated slide for the phantasmagoria, ca. 1800
Collection Laurent Mannioni

Light and Shadow.[6] He borrowed the title from a seventeenth-century Jesuit, Athanasius Kircher, who published his *Ars Magna Lucis et Umbrae* in 1646. Milner also refers to him: 'At the origin of this theory, we find the character of Athanasius Kircher, and that is no coincidence. This Jesuit scientist was an inventor of several ingenious optical devices. If he manifests such an interest in everything that multiplies and modifies the appearances of this world, it is because he was convinced, just like Goethe, that earthly light, a reflection of divine light, is the primordial element that allows mankind to understand the universe in all its diversity *and* unity.' Light and shadow, he writes, compete to pay homage to the world. Nothing is visible in this world without the interplay of light and shadows, an enlightened obscurity.

Make Believe

Frontispiece to Athanasius Kircher's *Ars Magna Lucis* (2e edition), Amsterdam, 1671, engraved by Pierre Miotte

Athanasius Kircher is often referred to as the first person to introduce the magic lantern, but this is not entirely correct. He did publish some of the first extensive writing on this technique. The second edition, published in Amsterdam in 1671, also contained many engravings by Pierre Miotte. From his illustrations, we can deduce that he was not entirely familiar with the contraptions he described, as several practical mistakes can be spotted in the engravings, for example with the lenses and projected images in the wrong place.

Apart from the obvious imagery of Apollo (sun) and Diana (moon) the frontispiece to this edition defines four sources of knowledge. *Sacred Authority*, embodied in the Bible, is shown as a ray direct from God. *Reason* is close to God, but filtered through the inner eye. *Knowledge of the Sensible* is supplied not by God's intellectual light but by that of the sun, here shown enhanced as best it can be by a telescope. *Worldly Authority*, by comparison with the others, is a mere candle shining among clouds of unknowing. The cock is present as an emblem of Christ, the advent of a new message. And we also see enlightenment in the form of a portable (magic?) lantern. Gunther Holzhey continues along these lines in his essay *Spielerei mit dem Tod – die Medialisierung des Totentanzes durch die Laterna Magica*: 'the Jesuits fought in the Counter-reformation for the endorsement of Catholicism, and this included purgatory, the station between heaven and hell.'[8] Thus the emergence of a new philosophical or mental concept, the in-between (the un-dead?) coincides with the introduction of a new technology. New media were initially developed by Jesuits such as Kircher as means of propaganda, to propagate mental images: the medium as a messenger.

In 1662, Christiaan Huygens published a much more precise sketch than the one appearing in Kircher's second, 1671 edition. A contemporary of Kircher, this Dutch scientist, physician, mathematician and astronomer discovered, among other things, the mechanism of the swinging clock, the ring around Saturn, the rotation of Mars and the theory of light waves.

A third man, and most likely the true inventor of the magic lantern, was the Danish scientist Thomas Walgenstein, a good friend of Huygens and his fellow student at the University of Leiden. Walgenstein did public performances, including one in 1670 for the king of Denmark. Among the plates shown was the figure of Death. The king liked it, wanted to see it a few more times, but within three days he was dead!

New Spelling

In most books on the history of the era before the cinema, the description of the phantasmagorias is presented as an

Spectacle de fantasmagorie donné par Robertson au convent des Capucines
From: Etienne-Gaspard Robertson, *La vie d'un fantasmagore*
(Longueil/Brussels: Le Prámbule, 1990)

exceptional moment in the development of the culture of the moving image. Laurent Mannoni opens his chapter on the 'fantasmagoria' with an explanation of the Greek roots of the term: it is derived from the words *phantazô* (I make an allusion) and *agoreuô* (I speak). 'An etymology', he continues: 'which suggests a dialogue between the audience and the ghost called up by the magic lantern'.[9] Mannoni deliberately spells fantasmagoria at the opening of this chapter with an 'f', thereby associating this particular form of spectacle with an entertainer born in Liege in 1763, Etienne-Gaspard Robert, better known as Robertson. Not only did Robert change his name to the more international Robertson when he started doing pseudo-scientific shows, he also replaced the 'ph' of the already circulating word phantasmagoria with a simple 'f' to distinguish himself from his colleagues. Through newspaper advertisements and flyers of the time we know that, prior to Robertson, a certain Paul Philidor was already inviting people to his own phantasmagoria shows. The identity and the biography of this Philidor are still very obscure, but it is attested that he gave his first performance in Paris in 1792. Robertson was still Robert then, and didn't live in Paris on a permanent basis until 1796, while in 1793 Philidor had already quit the scene.

Projection of a monster in: W.J. 's Gravesande, *Physique Elemente Mathematica*
From: Etienne-Gaspard Robertson, *La vie d'un fantasmagore*
(Longueil/Brussels: Le Prámbule, 1990)

That same year, 1793, the word 'phantasmagore' appears for the first time as a name for the performer of phantasmagorical shows.[10] On 26 January 1799, Robertson applied for a patent for his own improvement of Kircher's magic lantern, which he then called a fantascope. It is a magic lantern

on wheels, about 1.6 m high, with the projection box itself 95 cm long and 80 cm wide. It has detachable lenses, one to project glass slides and one to project opaque objects as a megascope.

In 1800 a court of law officially confirmed that Robertson was not the original inventor of the phantasmagoria, despite his claims to that effect, most notably in his passionate *Memoirs* published in 1831 and 1833.[11] Ironically this confirmation was the outcome of a trial in which Robertson himself accused others of stealing his invention. His imitators in turn used the name 'fantasmaparastasie' or also 'fantomagie'.[12]

But Robertson himself not only combined the inventions of his predecessors, he also extensively expanded on them. Robertson was, if not the first, than still the most original, most inspired and successful propagandist of the phantasmagoria. He also invested the most time in this form of spectacle, nearly forty years, from 1798 until his death in 1837. There had been fantasmagores or 'nécromanciens' since 1780, but none as famous as the 'Spielberg of that era' (at least that is how Robertson is described on an Internet site dedicated to the phantasmagoria).

Spectacle de fantasmagorie donné par Robertson au couvent des Capucines
From: Etienne-Gaspard Robertson, *La vie d'un fantasmagore* (Longueil/Brussels: Le Prâmbule, 1990)

The key improvement made by Robertson to the fantascope, highlighted by Mannoni as the essential element of the whole spectacle, the one effect that differentiated it from a standard magic lantern show, is that images could now appear while approaching or receding from the spectator. Robertson had his fantascope mounted on a track and rolled his lantern closer or further away from the screen, thereby enlarging or reducing the size of the image. He had developed an ingenious system to keep the image in focus. Méliès would later use a similar tracking movement for his enormous enlargement in *La tête de*

caoutchouc, but what Robertson achieved, almost exactly one hundred years before the arrival of a train at the station at la Ciotat, was presented to a frightened audience, proving the impressive dynamic of a moving image seemingly aimed straight at the audience. To obtain this effect, Robertson kept his projector hidden in a large space behind the screen. In a sense this was an early discreet projection booth. Mannoni affirms that this adjustment to the magic lantern is not a small detail: 'This invention revolutionizes the frame, the perspective and the scenic space of the projection. The traditional procession of images, as practised ever since C. Huygens, is now left behind: the brightly lit and animated figures now cross the screen in all directions, they creep up from the back of the screen to come at us with stupefying speed, and then suddenly disappear. The combination of a mobile lantern and the animated slide means a essential step forward in the history of the moving image.'[13]

Robertson's screen was about 3.5 m wide, so it did not require a seam, and was made translucent by immersing it in melted, very white pure wax while the wax was boiling. He then nailed it immediately into the opening formed in the wall and gradually passed a well-lit burner over it. The wax gave the sheet a diaphanous quality.

Black Mass

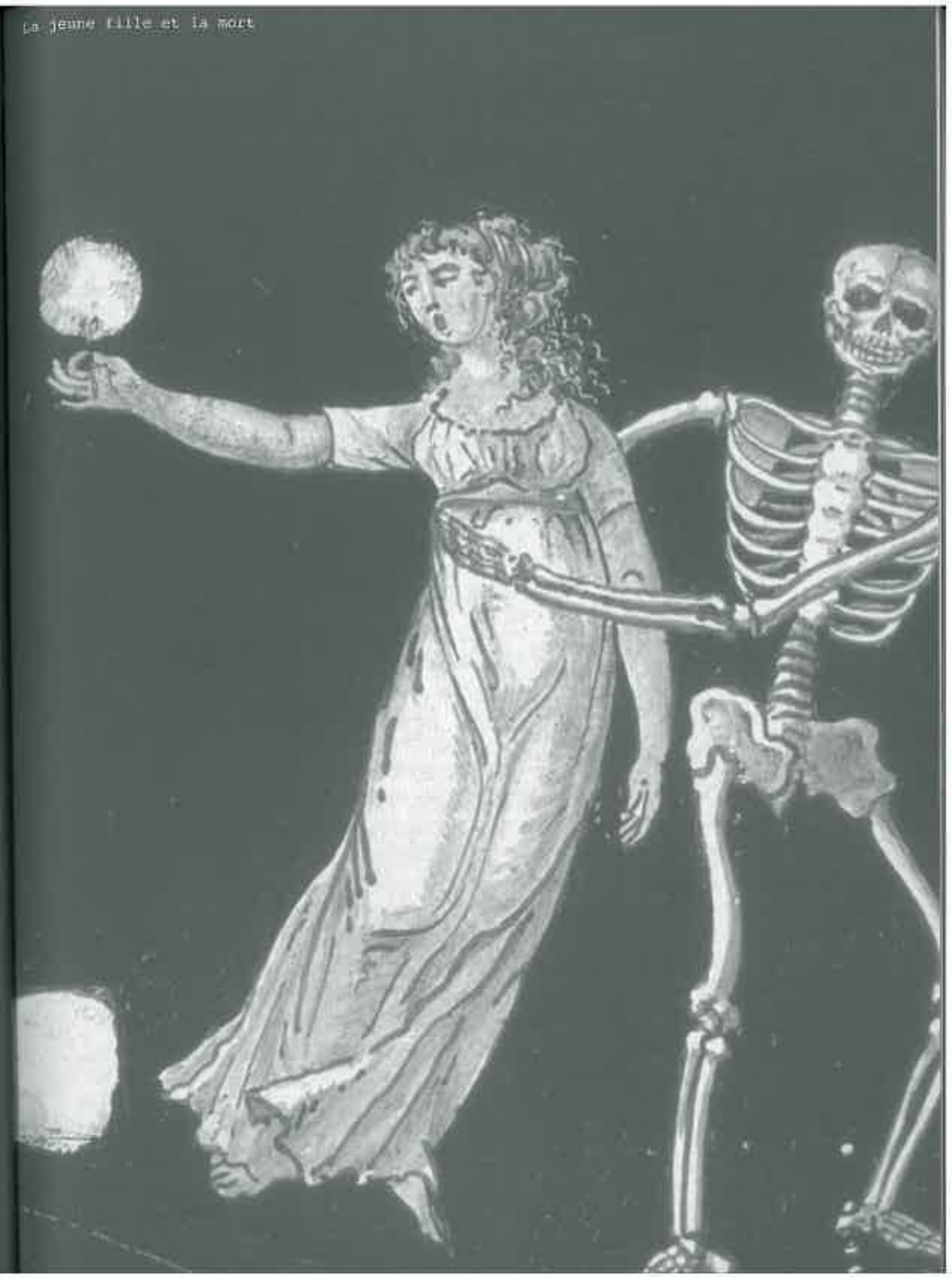
La jeune fille et la mort
Musée National des Techniques, slide
From: Etienne-Gaspard Robertson, *La vie d'un fantasmagore*
(Longueil/Brussels: Le Prâmbule, 1990)

It was not only his application of the art of projection to the show of horrors that earned Robertson the disapproval of his peers. We now know that Robertson's Fantasmagoria was more than simple entertainment that was intended to cause a stir. What he presented to the audience was a form of Expanded Cinema *avant la lettre*. The physician had created a complete show, combining on his self-painted plates contemporary issues, classical themes and literary adaptations. Robertson not

only combined the zoom effects of his fantascope with a system of animated discs, but also had his assistants move around with portable lanterns. The sound effects were provided by, among other things, a Glass Harmonium – an instrument said to produce extremely unhealthy sounds. He even used several types of scents. The overall effect of his performances could be compared to that of a Black Mass, or at least some kind of liturgy.

There is a background to all this: his parents had destined Robertson for the priesthood. Having completed his studies in philosophy at the University of Leuven, he enrolled at both the fine Arts Academy of Liege and the Grand Séminaire. At the Academy he was to be taught by the most illustrious painter in the principality, Leonard Defrance. At around the same time, he took up lessons in physics with Liege's learned optician François Villette. In 1789 he published his first scientific article, on electrical experiments. In 1791 he left for Paris where he received lessons from Jacques Alexandre Charles, a protagonist of experimental physics. He was one of the first practitioners in France of Galvanism (experimenting with electricity, named after the Italian Luigi Galvani). Robertson later became friends with Alessandro Volta. Whether or not he applied mild electric shocks to his surprised audience remains a matter for discussion.

Robertson produced his elaborate and bizarre spectacles in the crypt of an abandoned Capuchin convent near the Place Vendôme. Here, amid ancient tombs and effigies, Robertson found the perfect setting for his optical spectre-show, a kind of sepulchral theatre, suffused with gloom, cut off from the surrounding city streets, and pervaded by (as he put it) the silent aura of *les mysterrs d'Isis*.[14] The way he describes his own *mise-en-scene* brings to mind the Victorian parlour into which Dracula lured his Mina, as filmed by Coppola. A corridor decorated with fantastic paintings, then a magnificent scientific exhibition, where one could admire all sorts of curiosities inspired by Niceron, Bettini, or Kircher; then the gallery of the Invisible Woman (questions asked in front of a glass chest in the air). After all this foreplay, one descended at last to the *Salle de la Fantasmagorie*, where one was confronted with projections of, among others, Macbeth and the Ghost of Banquo, The Bleeding Nun, A Witches' Sabbath, Young Interring his Daughter, Proserpine and Pluto



on their Throne, The Witch of Endor, The Head of Medusa, A Gravedigger, The Agony of Ugolino, The Opening of Pandora's Box. Interspersed among these were often the bloody 'revolutionary' spectres of Rousseau, Voltaire, Robespierre, and Marat. Robertson concluded his shows with a rousing speech and a macabre *coup de theatre*. In the spirit of the enlightenment, he always claimed that his show was purely educational, not sensational.

Virtual Reality

Death was Robertson's key source of inspiration. Only some ten years ago a complete fantascope on wheels, intact with three lenses and a puppet, was discovered in the attic of a French castle south of Paris by Belgian collector Thomas Weynants.[15] At last we can see rather than merely imagine the impressive effects the phantasmagoria really had to offer: a resurrection from the dead in 3D. The fantascope found by Weynants came complete with a puppet, a skeleton carved out of ivory, and a decorative tomb prop, as a representation of Death, coming out of his grave. The quality of the projection of this opaque object with the megascope lens is better than any holographic image. The effect that was achieved was like a form of virtual reality, so detailed and almost tactile was its animated presence.

Robertson not only specialized in resurrecting skeletons, but also recently deceased people. In a way he introduced the notion of view on demand. In the afternoons before each séance, the public could visit him and order the apparition of a particular person for later that evening. An eyewitness described it as follows: 'Then Robertson poured two glasses of blood, a bottle of vitriol, twelve drops of *aqua fortis* and two copies of the journal *Hommes-Libres* on a lighted brazier. Immediately a small, hideous phantom in a red bonnet gradually arose, armed with a dagger. A man recognized the apparition as Marat, and

went to embrace him, but the phantom made a frightful grimace and disappeared.' Robertson apparently made people believe that the faces he projected (which he copied from medallions) where actually those of their dead loved ones. This part of his show could be described as resurrection à la carte, or in more contemporary terms: pay per view. There was a strong sense of interaction and the experience of the moving image surpassed the boundaries of the screen. We might perhaps even speak of a kind of a ride film – very much *avant la lettre*. The way the audience was warmed up as it stood waiting in the decorated corridors leading up to the spectacle, the fact that they were warned in the publicity material about the strong physical impact, the way the audience was directly addressed by someone telling them what to expect: all the elements we now associate with the ride film were already in place in 1798, two hundred years earlier.

Guillotine in Reverse

Portrait de Danton projecté dans la fumée qui s'échappe du sarcophagi
Reconstruction of the procedure of Funk
From: Etienne-Gaspard Robertson, *La vie d'un fantasmagore*
(Longueil/Brussels: Le Prámbule, 1990)

Robertson alternated heaven and hell, the sky and the underground, always flirting with death and resurrection. The show he perfected was the very fruit of the troubled times in which he was living, the aftermath of the French Revolution. Death, as already mentioned, was his main source of inspiration. The Parisians were filled with expectation: what did the Fantasmagoria, a guillotine working in reverse,[16] hold in store for them? If not really a resurrection, then at least some kind or reanimation!

At the end of his life, after performing throughout Europe, Robertson settled again in Paris near the Passage des Panoramas, in a building right across the street from what was to become the Musée Grévin, where Emile Reynaud would start his Pantomimes Lumineuses in 1892. By that time, the museum already had earned its reputation with a

collection of wax statues. It is ironic that of the many wax museums named Tussaud throughout the world (from London to Amsterdam, Hong Kong, Las Vegas and New York), the one that most deserves the name actually doesn't have it. While Robertson was using wax on his screen to project floating faces of the (un)dead, a certain Marie Grosholtz, better known as Madame Tussaud, was authorized (or rather was forced) to collect the heads of the guillotined and duplicate them in wax. The tradition of making wax heads stretches back to ancient Egypt, and as part of their funeral customs, the Greeks and Romans carried a wax figure at the head of processions. So, in the late eighteenth century, did Madame Tussaud's 'uncle', Dr. Philippe Curtius, who became deeply committed to the extreme left of the revolutionary movement, and took part in the storming of the Bastille. He was leading protest marches with wax heads on sticks two days before the revolution. Curtius taught Tussaud the art of wax modelling, at which she proved very talented. She created her first wax figure in 1778, of Jean-Jacques Rousseau. Other famous subjects of the time include Voltaire and Benjamin Franklin. Curtius was clever enough to survive the revolution unscathed, but died soon afterwards, leaving everything to Marie. She inherited the craft and an important collection.

'Food for thought for the crowned jugglers of Europe': the decapitated Louis XVI, illustration from the newspaper *Le Standard de Genève*, June 26, 2001

To kill a vampire, Francis Ford Coppola suggests at the end of his film, you have to decapitate him and pierce his heart. The end of a regime, the terror of the French Revolution, demanded the decapitation of Robespierre. A book about the Musée Grévin[17] describes how Marie Grosholtz carried the heads home – the heads of Philippe Egalité, Louis XVI, Marie-Antoinette, Marat and numerous other prominent figures, which she turned into wax heads. In 1802 Marie Tussaud went to London with her first son, Joseph, then four years old. Her second son stayed

behind. France and England were at war and Tussaud was unable to return to France. With her collection she travelled throughout Great Britain and Ireland. In 1821 or 1822 she was reunited with her second son. She established her first permanent exhibition in Baker Street in 1835. In 1846, shortly before her death, Mme. Tussaud's sons traced the actual blade of the guillotine which had killed so many in 1793 and 1794, to a certain Sanson, grandson of Paris's executioner during the Terror.

Retinal Afterimages

Wax statue of Joseph Plateau, 'staring into the sun', Filmmuseum Brussels

Guarding the entrance of the film museum in Brussels is the statue of a man staring straight into a spotlight. It is Joseph-Antoine-Ferdinand Plateau (1801-1883) most famous and usually mentioned in film history books for staring into the sun, studying the effect of the retinal afterimage and growing blind. Although no correlation has been proven between these early experiments on his own eyes and his blindness thirteen years later, the reputation of a martyr associated with this positivist scientist remains difficult to demystify. His experiments with the physiognomy of the eye could be said to have inverted the projection model (itself an inversion of the camera obscura model): he used the sun as his candle or light source, the pupil of his eye as a lens, his iris as a diaphragm and his retina as a screen. Only since very recently are similar experiments taking place once more, projecting images directly on to the retina with scanning lasers.

Although he remains important for discoveries in many different domains of science, Plateau is best known for his phenakistiscope (1832). Laurent Mannoni explains the origin of this strange word, derived from the Greek *phenax* (deceptive) and *skopeô* (I examine, or observe attentively).[18] The principle of the phenakistiscope, basically a *trompe l'oeil* or optical effect, had been known for centuries, but had

never before been so systematically measured, described and demonstrated.

Less attention has been paid to the type of design Joseph Plateau applied to his invention. At almost exactly the same time, a similar piece of apparatus was presented in Austria by Simon Stampfer and in the Czech Republic by Purkinje. They both used rotating discs with a series of geometric designs and depictions of subjects such as dancing couples, cyclists, and jugglers. Plateau also used some of these elegant motifs, but it is clear that he favoured the slightly more macabre, or at least more fantastic images: a girl turning into a witch, a mouse being eaten by a cat. Plateau was relatively unconcerned about the name given to his turning wheel, and accepted the names that commercial editors gave it: phantasmascope, fantascope and finally phénakistiscope.

Demonstration of the operation of an anorthoscope by a devil. J.B. Madou, red chalk drawing, n.d., from: M. Dorikens, D. Robinson and L. Mannoni, Joseph Plateau (Ref. 1684) (Ghent: Provincie Oost-Vlaanderen, 2001)

Two of his least known discs are semitransparent, and designed for use as see-through images instead of in front of a mirror. One depicts a baby devil blowing into some flames, the other a ghost disappearing behind the wall of some sort of ruin.

Both, designed by Plateau himself and perhaps even executed by him, suggest that he might have been familiar with the phantasmagorical shows of his fellow countryman Robertson, who was still alive and active at the time. This might also be the reason why Plateau readily adapted the same name of 'fantascope' to his new invention: to inscribe it in the same tradition of fantastic moving images. As far as I know, Plateau did not work on projection apparatuses as such to evoke ghosts, but he was definitely familiar with the iconography of the phantasmagoria: devils and demons. The artist who executed most of his designs for him, the painter Jean-Baptiste Madou, has at least once depicted Plateau himself in the guise of a devil, while demonstrating an anorthoscope. Of politics however, there is no trace in the iconography of Plateau, unless we care

to interpret his depictions of men performing endlessly repetitive work as a plea for industrialized labour. At a young age, Plateau was confronted with the morbid consequences of world politics. At the age of fourteen, he witnessed the direct aftermath of the battle of Waterloo. The earliest known drawing by Plateau is of this bloody scene. As it happens, Waterloo takes a special place in the cartography of the archaeology of multimedia, offering as it does a panorama painting, a wax museum and more contemporary multimedia spectacles all under one roof.

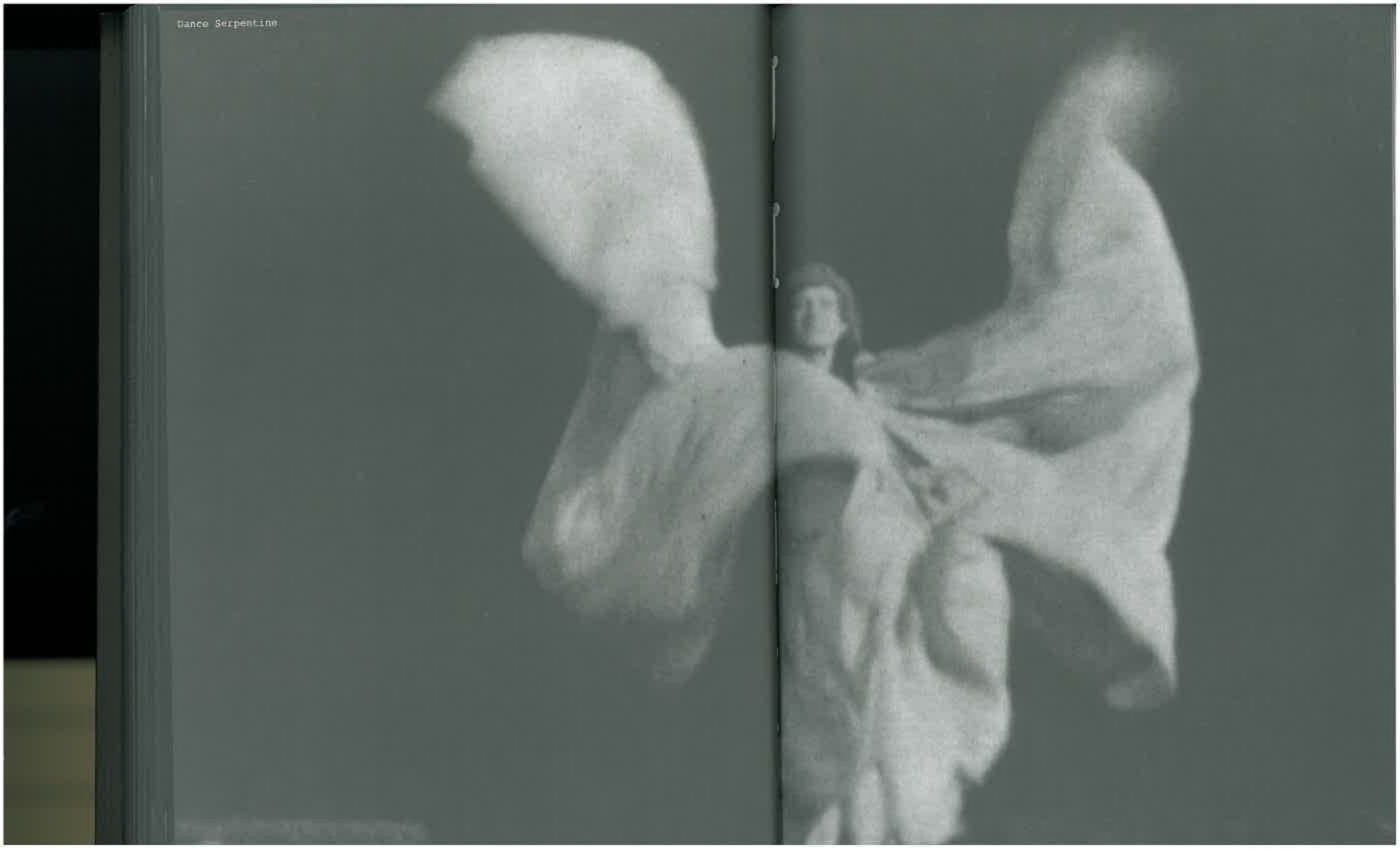
Happy Skeletons

Le squelette joyeux (cat. 831) from: *Auguste et Louis Lumière, Les 1000 premiers films* (Paris: Philippe Sers, 1990)

In the nineteenth century, the technology of the fantastic was flourishing and inventors often proved more inventive with the mechanics of their apparatus than with words. A projection-phénakistiscope designed by T.W. Naylor, published in 1843, was also named the phantasmagoria. The fact that a similar name was given to what were very different inventions could be interpreted (particularly by those who prefer to call this archaeology of the moving image the era of pre-cinema) as proof that they had a common purpose, and that each improvement was a step closer to the final invention of cinema. That every technology was a fantasmagoria, a wild, excessive dream of what would later become the cinema. Indeed, in September 1895, public projections before a paying audience were organized in Atlanta, USA. The films were tinted versions of films by Edison, the apparatus by a certain Armat and Jenkins. The name of their projection apparatus (once again): the phantoscope.[19]

But even if they did find original names for their innovations and improvements, the iconography of death and resurrection remained a prominent feature. One key example was the choreutoscope, invented in 1866 by L.S. Beale and the first application of the Maltese cross for

Dance Serpentine



transporting film (in this case a glass plate) thirty years before the Lumières would apply the same principle to their cinématographe. The best-known application is that of a skeleton removing its own head. In the early days of the stereoscopic process applied to photography, the *diableries* were the biggest craze: an extensive collection of grotesque and funny depictions from hell, filled with skeleton puppets. When cinema finally 'happened' in 1895, another technology with an equally revolutionary expansion of the visual experience entered the scene: the X-ray. In the first few decades of its existence, it was very common for people to collect X-rays of the hands of friends and famous people. Perhaps this explains why even the Lumière Brothers, 'realists' that they were, added a film of 'The Happy Skeleton' to their collection?[20]

Danse Serpentine
from: Auguste et Louis Lumière,
Les 1000 premiers films
(Paris: Philippe Sers, 1995)

In the process of all this popularization of new technology, the impact became less and less macabre, and the entertainment value increased. The evocation of death or the devil had lost much of its capacity to instil fear, and contained no serious moralistic message. The grim reaper failed to cause the same sense of panic, as the audience realized its appearance was merely an illusion that could be resurrected at will.

How should we understand this perpetuating of the *Danse Macabre*, the constant return of the skeleton as a key figure throughout the evolution of the animated image? In his article 'Säkularisierungstendenzen seit der Aufklärung' Uli Wunderlich notes that the new *danse macabres* created in the second half of the eighteenth century are in most cases symptoms of an ongoing secularization process.[21] They were created without any direct relationship to the debate surrounding the representations of death during the enlightenment. Gotthold Ephraim Lessing's essay published in 1769, *Wie die Alten den Tod gebildet* and an essay with the same title by Johann Gottfried Herders published in 1774, both suggested that death need not be represented as something despicable, that fear of life coming to an end should not be presented as

something worse than it is. This raised questions about the personification of Death as a skeleton and also about the *danse macabres*. Others disagreed. It was not the Grim Reaper who needed to disappear, only his negative image.

The French revolution not only radically changed politics, society and economy, but also the spheres of culture and religion. It even led to a boom in *danses macabres*. Following the French Revolution, more and more people became interested in the Middle Ages, according to Uli Wunderlich, considering it a kind of golden age, when the nation was not divided in small rival states, but unified by Christianity.[22] The romantics not only discovered medieval textures, songs and sayings, but also the power of the subconscious, and the supernatural; nightly ghosts and the dance of death.

In this context Uli Wunderlich also talks about the *laterna magica* and fantasmagorias. The lanternists and phantasmagorians of the eighteenth century no longer addressed the religious, but rather the profane public, and more in particular, the paying public.

More than two centuries after Robertson's first fantascope performances, the apparatus is clearly extinct, but the word 'fantasmagoria' is still very much alive. So what better way to describe the status of this phenomenal medium, other than 'undead'?

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1. Newspaper article in *De Morgen*, Saturday, 20 April 2002, 34.

2. Francis Ford Coppola and James V. Hart, *Bram Stoker's Dracula – the Film and the Legend* (New York: Newmarket Press, 1992).

3. Ibid., 54.

4. Ombres chinoises – In the 1770s a showman named François Séraphin produced what he called Shadow Plays or Ombres Chinoises, introducing a magic lantern at Versailles. Cf. F. Marion, *L'opique* (Paris: L. Hachette, 1867), 330.

5. Max Milner, *La Fantasmagorie – essai sur l'opique fantastique* (Paris: Presses Universitaires de France, 1982), 5.

6. Laurent Mannoni, *Le grand art de la lumiere et de l'ombre – archeologie du cinema* (Paris: Nathan Universite, 1994).

7. Joscelyn Godwin, *Athanasius Kircher. A Renaissance Man and the Quest for Knowledge* (London: Thames and Hudson, 1979), 78.

8. Gunther Holzhey, 'Spielerei mit dem Tod – die Medialisierung des Totentanzes durch die Laterna Magica', in: *Ars Macabre 3* (Dusseldorf: Europaische Totentanz-Vereinigung, 2002), 91.

9. Mannoni, *Le grand art*, op. cit. (note 6), 135.

10. Mannoni, *Le grand art*, op. cit. (note 6), 143.

11. E.G. Robertson, *Memoires recreatifs, scientifiques et anecdotiques d'un physicien-aeronaute* (Paris: E.G. Robertson, 1831), vol. 2.

12. Mannoni, *Le grand art*, op. cit. (note 6), 160.

13. Mannoni, *Le grand art*, op. cit. (note 6), 139.

14. Françoise Levie, *Etienne-Gaspard Robertson – la vie d'un fantasmagore* (Quebec: Le Preambule, 1990), 113.

15. See the documentation in Thomas Weynants, 'The Fantasmagoria', in: Dennis Crompton, Richard Franklin and Stephen Herbert (eds.), *Servants of Light, the Book of the Lantern* (Yorkshire: Magic Lantern Society, 1997).

16. Levie, *Etienne-Gaspard Robertson*, op. cit. (note 14), 79. The comparison with a 'guillotine in reverse' occurs more explicitly in a documentary, directed by Françoise Levie, *Thank you Mr. Robertson*, 85 min., 1986.

17. Roger Baschet, *Le monde fantastique du musee Grevin* (Paris: ed. Talandier/ Luneau-Ascot, 1982).

18. Mannoni, *Le grand art*, op. cit. (note 6), 201.

19. Mannoni, *Le grand art*, op. cit. (note 6), 398–399.

20. Auguste and Louis Lumiere, *Les 1000 premiers films* (Paris: Philippe Sers editeur, 1996), 56.

21. Ulli Wunderlich, 'Säkularisierungstendenzen seit der Aufklärung', in: idem, *Der Tanz in den Tod – Totentanz vom Mittelalter bis zur Gegenwart* (München: Eulen Verlag, 2001).

22. Ibid., 101.

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Roger Baschet, *Le monde fantastique du musee Grevin* (Paris: Talandier/Luneau-Ascot, 1982)

David Bordwell and Kristin Thompson, *Film Art. An Introduction* (New York: McGraw-Hill, 1993)

J.H. Brown, *Spectropia, Surprising Spectral Illusions Showing Ghosts Everywhere and of Any Colour* (1863, republished Kent: Pryor Publications, 1993)

Noël Burch, *Life to those Shadows* (London: BFI Publishing, 1990)

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Thomas Weynants, 'The Fantasmagoria', in: Dennis Crompton, Richard Franklin and Stephen Herbert (eds.), *Servants of Light, the Book of the Lantern* (Yorkshire: Magic Lantern Society, 1997)

'I aim to connect the present with the past, to create new visual languages where modern media will once again be invested with the uncanny.'

Towards a Spectral Cinema

Zoe Beloff

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My work investigates a space where technology intersects with unconscious desire. I am inspired by case histories of mediums and mad women from a hundred years ago. Their apparitions and hallucinations open up new ways of conceptualizing the moving image.

My project is 'Frankensteinian'. I wish to bring these women back to life, to conjure them up so that they can speak to us in a new way. I want to highlight contradictions in their stories, allow space for different mental states, different forms of perception to exist simultaneously. I use apparatuses that are clunky, fragile and cumbersome. Their very lack of seamlessness, their hybrid nature, is important in contrast to classical cinema that makes the flow of images appear natural and inevitable.

I believe that to enter into a dialog with the past, it is important to

engage with the media of the period. I want to understand how people pictured themselves. Thus, I am engaged in reinvigorating, or one might say, reanimating technologies such as stereoscopic imagery and frame by frame motion studies that have largely been abandoned since the invention of the cinematographe. Sometimes I use archaic apparatuses, sometimes new analogue/digital hybrids. I work with film, live stereoscopic projection performance, interactive cinema on cd-rom and installation. I aim to connect the present with the past, to create new visual languages where modern media will once again be invested with the uncanny.

I will begin very simply with a brief outline of my recent projects and the case histories that inspired them.

Shadow Land or Light from the Other Side is a black and white stereoscopic film based on the 1897 autobiography of the English medium Elizabeth d'Espérance, who was known for her ability to conjure up full body apparitions. She grew up all alone in a rambling old house. Her mother was an invalid, her father a sea captain. Is it any wonder that she had imaginary friends, 'shadow people', who kept her company through a lonely childhood? Reaching adolescence she had the traumatic experience of being diagnosed as mad on account of the fact that she saw people who were not really there. Later in life, her involvement with Spiritualism grew from playful parlour games to a profound belief that the world we perceive as real is merely a shadow of the one beyond.

Still from *The Ideoplastic Materializations of Eva C.* 2004

The Ideoplastic Materializations of Eva C. is a black and white, stereoscopic, surround-sound installation. It is based on accounts of séances with the French medium Eva C. In 1904 a well-known French scientist, Charles Richet, went to Algiers to investigate her. He was captivated. However, when rumour surfaced that the coachman was playing the ghost, she disappeared. A few years later, she resurfaced in Paris living with the wealthy sculptress and

psychic researcher Juliette Bisson. Her manifestations took the form of misshapen ectoplasmic hands and what looked like flimsy drawings of faces. Her highly theatrical and at times erotic séances fascinated savants.

I'm currently developing *Charming Augustine*, a stereo slide/16mm projection performance. It is based on a case history from the *Iconographie photographique de la Salpêtrière*, of a young girl referred to variously as 'Augustine', 'Louise', 'X', 'L' and 'G'. Here's what we know. At thirteen she was sent to the home of a Monsieur C. to learn singing and sewing. He raped her. Subsequently she discovered he was her mother's lover. At fifteen she was admitted to the Salpêtrière suffering from hysterical paralysis. Her doctors were captivated by her frequent hysterical attacks that appeared extraordinarily theatrical. Her physician Bourneville had her photographed extensively while in the throws of her crisis. He wrote down her thoughts, her dreams, her nightmares. She became the star, the Sarah Bernhardt of the asylum. She performed the 'demonic attack' every year at gala benefits for the institution.

The Influencing Machine of Miss Natalija A. is an interactive video installation inspired by a case history by Victor Tausk, a psychoanalyst and early follower of Freud in Vienna. In 1919, the young Natalija A. came to see Tausk, complaining that a mysterious electrical apparatus in Berlin was influencing her mind and body. Therapy did not last long. After three sessions she was convinced that Tausk too had fallen under the spell of the 'diabolical apparatus' and could no longer be trusted. She never returned.

Reanimation Machines

Media technology is not neutral. The way we conceptualize it influences the meaning of what we see or hear. Early mechanical media like the phonograph were considered almost uncanny. Not only was the voice severed from the body but for the first time one could

hear the voices of the dead that had been stored on wax cylinders. It was as though the phonograph could bring them back to life. Similarly, a reviewer of the first public film shown in Paris in 1895 pointed out that when motion picture cameras were in everyone's hands, when they could capture people with both movement and sound, 'death will have ceased to be absolute'.[1]

I believe that this conflation of mechanical reproduction with resurrection was deeply influenced by the figure of the spirit medium. I am interested in the séance specifically as proto-cinematic event in which the medium appeared to be a kind of 'mental projector', an almost mechanical conduit through which forces from the other side manifested themselves. For example, when the medium cursed like a drunken sailor it was assumed that there was a drunken sailor on the 'other side' who was using her mouth as an uncanny microphone. The medium appeared to conjure up the deceased in an act of projection not unlike the one that people paid to see at the theatre, where Hamlet might be a live actor but his ghost floating on stage was an apparition.[2]

The Séance as Proto-Cinema and Post-Cinema

Y. de M photographed at 3pm 12 February 1897—spirit photograph reproduced in Elizabeth d'Esperance's *Shadow Land or Light from the Other Side*

From the start I was fascinated by the extraordinarily cinematic title of Elizabeth d'Esperance's autobiography, *Shadow Land or Light from the Other Side* and by her subjective descriptions of mediumship: 'my brain becoming a whispering gallery where the thoughts of other persons resolve themselves into an embodied form and resound as though actual substantial objects.'[3] In my film I represent her story as a complex interaction between conjuring, mediumship and the birth of

Ghost from: J H Brown Spectropia, or *Surprising Spectral Illusions: showing ghosts everywhere, and of any colour*

cinema. I relate these phenomena to the Victorian fascination with seeing things that were not really there.

To show how Elizabeth might have pictured the world and come to see things that did not actually exist, I worked with media that she would have been familiar with. I used lantern slides and figures from a book called *Spectropia* to represent her 'Shadow People', the imaginary friends that kept her company as a child. *Spectropia* was published in 1863 with the express purpose of debunking Spiritualism by demonstrating that ghosts were simply afterimages. 'One thing we hope in some measure to further in the following pages, is the extinction of the superstitious belief that apparitions are actual spirits by showing some of the many ways that the eye can be deceived.'[4] The idea was to stare at a picture of a ghost for a long time and then look away and see its afterimage floating in space.

In her book *The Female Thermometer*, Terry Castle writes that *Spectropia*, as well as many other Victorian philosophical toys, concealed a profound epistemological confusion. 'The confusion derived from the ambiguous notion of the ghost. What did it mean to see a ghost? Were ghosts themselves real or imaginary, inside the mind or outside it? The subliminal power of these illusions lay in the fact that they induced in the spectator a kind of maddening, irrational perception. One might believe ghosts to be afterimages, present in the mind's eye alone, but one experienced them here as real entities existing outside the boundary of the psyche. The effect was unsettling, like seeing a real ghost!'[5]

My point is that these devices were quite contradictory, while purporting to unmask apparitions, they actually encouraged seeing them. This was certainly true of the stereoscope invented by David Brewster with the explicit purpose of showing how the eye could be deceived.[6] Ghosts were everywhere in popular culture.

Since Elizabeth d'Espérance wrote her book in 1897, I used

Frame from *Ella Lola a la Trilby* 1898

contemporary figures from early Edison films, *Ella Lola a la Trilby* (1898) and *Bowery Waltz* (1897) to stand in for the spirits that she materialized as an adult. The original performers in the films were photographed against a black background. There is no sense of depth or perspective. Thus when they are superimposed in my stereoscopic film, they appear to float in space, in a way that closely resembles Elizabeth's spirit photographs.

Even if I had access to all the digital tools of *Industrial Light and Magic*™, I would not have used them. I preferred to do all the special effects for my film in camera. I simply rewound the film and photographed one image over another in the same way trick photography was done in early cinema. My superimpositions are awkward. The illusions I created are intentionally far from seamless. Of course this is in tune with a time when professional spirit photographers had to resort to primitive darkroom techniques. Just as importantly, my special effects give the viewer a space to contemplate metaphoric juxtapositions.

For example, my film opens with Elizabeth as a little girl playing with a magic lantern. As she projects, the figures from the lantern slides seem to take on a life of their own. They stand in for the 'Shadow People' she describes in her book. These characters function as both real lantern-slide projections and imaginary friends. One interpretation does not cancel out or explain away the other one. For a moment, both interpretations are equally valid.

I decided to shoot the film in 3D for two reasons. The first is formal. For me, *Shadow Land* opened up a whole new way of thinking about moving images in relation to space.

Since the advent of classical narrative cinema, we conceptualize the screen as a window leading into another world, which is self-contained and oblivious of the audience. If one is to enter into this world, one must do so imaginatively by leaving one's body behind. However, in the nineteenth century, virtual images were conceptualized differently. A

3D frame from the film *Shadow Land or Light from the Other Side*, 2000, showing Ella Lola a la Trilby superimposed

3D frame from the film *Shadow Land or Light from the Other Side*, 2000

key concept that links together the parlour phantasmagoria, the ghost show, the stereoscope and the medium is that they all created images that appeared to coexist with the observer in real three-dimensional space.

A hundred years later there are a number of new technologies currently in development that pick up where the Victorians left off. The Fog Screen and the Heliodisplay both project virtual images into thin air in the same space as the viewer. These are the clean corporate versions of the old smoke and mirrors phantasmagorias.

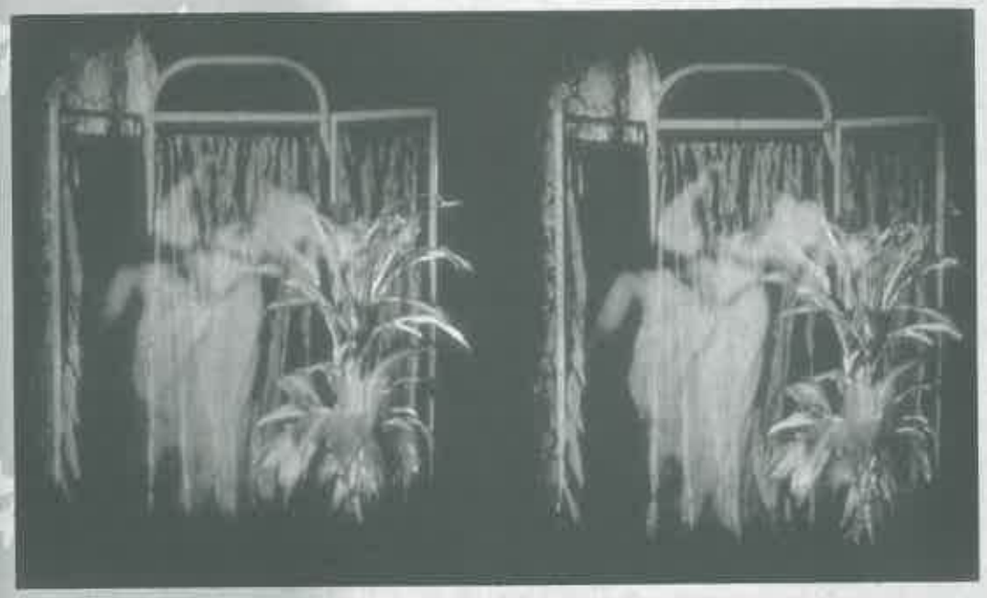
I used stereo photography to create the illusion that the figures in *Shadow Land* could cross over into our world. I also wanted to use 3D to create a formal analogy to the suspension of disbelief that perhaps held sway over the seance room. The sitters knew that the spirits were just a clever trick, but believed in them anyway. In a similar way, the audience watching *Shadow Land* is aware of the photographic trick, yet nonetheless they see figures floating in space that are simply not there.

Shadow Land, with its vertical format and fragile 3D, has a certain quality of a vision. Ultimately however, it remains just a film in that it transports the viewer somewhere else. I felt I had not gone far enough towards creating an environment that was akin to the seance in which the viewer could commune in an intimate way with the virtual characters. It was this desire that led me to make *The Ideoplastic Materializations of Eva C.*, ten scenes based on accounts of seances with the medium Eva C.

The project is designed for a small room, not a cinema. Technically it is a four channel stereoscopic surround-sound installation. 3D projections create the illusion of life-size black and white figures that appear to inhabit a continuation of the real space. It was filmed like

3D frame from the film Shadow Land or Light from the Other Side, 2000, showing Ella Lola a la Trilby superimposed

3D frame from the film Shadow Land or Light from the Other Side, 2000



theatre. There are no cuts in the scenes. The viewer sees the actors, full body, from the tops of their heads to their feet. To the side and in front of the 3D characters are two translucent wings onto which related images are projected. These wings create a layering of images in space and a box-like structure that brings to mind a diorama one might see at a waxwork museum or natural history museum.

Science as Side Show

The Ideoplastic Materializations of Eva C. – diagram of the installation, 2004

The scientific diorama gained popularity with the work of taxidermists like Carl Akeley, who in 1908 was hired by the American Museum of Natural History to make dioramas that seemed unnervingly lifelike to contemporaries. What he actually did was to attempt to make something cultural appear natural. He brought his bourgeoisie prejudices to the wild. For example, he made gorillas conform to the dictates of the nuclear family. According to Hillel Schwartz, 'What Akeley perpetuated was a Second Nature of animals reconstituted into tableaux of societal utopias.'[8] The diorama became a formal structure that enclosed a world where science merged with sideshow. Since this was very much what happened in the séances of Eva C., the diorama seemed an important reference for the project.

Photographs as Documents of the Imagination

The most important way that science claimed legitimacy over both the psychological and the supernatural was through photography. This merging of science, sideshow, and cultural prejudices is nowhere more evident than in the photographs that accompanied the case histories that I based my projects on. I found these images enormously inspiring.

Elizabeth d'Espérance took spirit photographs and had them reproduced in her autobiography. Eva C.'s séances were extensively documented, often with several stereo cameras by Charles Richet, Baron von Schrenck-Notzing and Juliette Bisson.[9] The hysteric, Augustine, was extensively photographed by Paul Régnard at the Salpêtrière.[10]

In each case the photographs were considered hard evidence in the sense that Albert Londe stated in the 1880s: 'The photographic plate is the scientist's true retina.'[11] Yet when we look at the pictures something very different develops before our eyes and it is this that fascinates me. Under cover of the concept that the camera could not lie (as we say under cover of darkness), the scientist embraced fiction and the doctor staged illness as drama.

Exotic Specimens

Some of the most bizarre manifestations are those photographed by Doctor Charles Richet who had the impeccable scientific credentials of a Nobel Prize in physiology. He traveled to Algeria specifically to investigate the séances of Eva C. Here he apparently witnessed a phantom known to the circle as Bien Boa, floating above the floor wrapped in a sheet, crowned with a helmet and sporting what Richet described as 'a thick black artificial beard covering his mouth and chin',[12] as well as 'The Egyptian Queen', a young and beautiful woman who apparently laughed heartily and seemed greatly amused by the French professor.

Mme Bisson's flashlight photographs of 23 February 1913. First photographs of a native phantom, together with nude medium (retouched) – from Baron von Schrenck-Notzing, Phenomena of Materialization. A Contribution to the Investigation of Mediumistic Teleplastics (1914)

These pictures are rivalled only by nude photographs of Eva with a phantom that might be most accurately described as a cardboard cut-out in a bathrobe. If this did not tax our credulity, Baron von Schrenck-Notzing had them meticulously retouched to remove all trace of Eva's breasts. Thus, in an extraordinary twist of logic, he asks us to accept the photographic proof of phantoms in bathrobes but not of the bodies of young ladies.

These pictures are important precisely because they are graphic manifestations, not the scientific proof of paranormal forces, but of the desires of the participants.[13] In theses cases they are clearly an outrageous embodiment of French colonial fantasies of the exotic orient, and Victorian prudery.

Home Theatre – Setting the Stage for Desire

Still from The Ideoplastic Materialization of Eva C. (2004)

The seances of Elizabeth d'Esperance and Eva C. were conducted at home. They were far from solemn or morbid affairs. To rouse the spirits the sitters sang songs and played music. In this highly charged atmosphere, anything was possible. The female spirits that Elizabeth conjured up gave license to a voyeurism that went beyond anything that would have been acceptable in polite Victorian society. Alex Owen put it well in her book, *The Darkened Room*. 'The spirit whose bare feet, arms and throat gave the suggestion of alluring nakedness was uncannily reminiscent of the naughty theatrical tableaux which heralded the

public appearance of the nude and the pornographic stereoscopic views that circulated in London . . . In this case, however, the long flowing draperies, the prerequisite of a female spirit's wardrobe, obscured the ultimate. The spirit form hinted, tempted but finally disclosed nothing.'[14]

Eva C. was photographed in the nude by her female 'protectress' Juliette Bisson. In an oddly carnal display of spiritual forces, ectoplasm oozed from her nipples when the two ladies held a private séance. Eva's special talents allowed her a space or fissure to operate outside the social rules. I suggest in my installation that her lovers included Arabs and women. Her séances were extravagant, artistic and sexual displays.

These were dramas of longing and desire, played out in the home, a space where women could take centre stage. It was a world that would later, in a far tamer fashion, be projected in home movies and in melodrama. What is remarkable is that this extraordinary sexual energy was never remarked upon. I believe that because it could not be spoken about, it could only be acted out.

Ultimately, beyond formal considerations, what captivates me about the materializing mediums was the way that they opened up a space where the unconscious could be graphically manifested. To quote Alex Owen: 'A spirit perhaps constituted an elusive reality which was by definition unmeasurable and unobtainable; the tantalizing "other" of the unconscious.'[15]

Manifestations

Elizabeth, Eva, and Augustine's stories are extravagant in part because they existed before cinema and before psychoanalysis. I've often wondered if cinema didn't ultimately put the materializing medium out of business, because it could fulfil in a repeated and certainly more profitable way the desires of Eros and Thanatos.

Similarly perhaps, the hysteric Augustine could be so free, so theatrical in her delirious monologs because her physician Bourneville was not interpreting them the way Freud would a few years later. He wrote down her words but *he didn't listen to them*. To him, they were simply effluvia that poured from her body, to be recorded in the same dispassionate way that he took her temperature. Indeed, Augustine was able to act out her transference to her doctor whose first names were after all 'Désiré Magloire' in a way that can only make us blush. Because something could not be spoken about, it could be manifested – outrageously.

Woman as Intermittent Motion Machines

In certain important respects there were affinities between the women mediums and hysterics of the late nineteenth century. I have described how the trance mediums can be thought of as uncanny projectors. The hysterics, acting out their most traumatic moments over and over again could be described as intermittent motion machines.

I have referred to young, beautiful Augustine as a 'star' hysteric. But in truth her case history is far from glamorous. There were long periods where she was seriously disturbed, she might have forty or fifty attacks every day where her body was out of control, jumping, twitching, lurching from pose to pose. If we want to understand cinema not simply as a technology, but as also a kind of mental apparatus, I think it is instructive to think of these women as living 'cinematic bodies' specifically in relation to the photographic machines that were documenting them.

The role of motion studies by Marey and Muybridge in the birth of cinema is well known. What is less well known is that Albert Londe worked with very similar devices at the Salpêtrière, both the stereo camera and a chronophotographic camera that could take twelve

Albert Londe's Chronophotographic camera
From: Albert Londe 'Photochronography in the Medical Sciences', *Scientific American*, 30 December 1893

pictures in more or less rapid succession.[16] However, their agendas were very different.

While Marey was interested in analysing the body as machine with the goal of making it operate more efficiently, the doctors at the Salpêtrière wished to document their patient's psychological states, to unlock the secrets of their minds. I believe that while Marey may have given birth unintentionally to the mechanics of cinema, equally unwittingly the doctors and patients at the Salpêtrière gave birth to its psychological component that we might call 'melodrama in embryo'. I think of the school of the Salpêtrière as the other half of the Marey/Muybridge equation. They supplied the psychic drive that would come to flower in the works of D.W. Griffith.[17]

Still from *"Charming Augustine"* 3-D 16mm film by Zoe Beloff

Melodrama in Embryo

Let's look more closely at what was actually being recorded in the asylum. Augustine was given ether and amyl nitrate. She had visions and heard voices. She hallucinated. She found herself compelled to act out her rape at the hands of her mother's lover Monsieur C. over and over again. She didn't know were her body began or ended. She didn't know who she was. Was she the rapist or the victim? Was this man her doctor or her lover? Everything was unstable. She tried to play all the roles. She was everyone and no one. A brief excerpt from her case in

the *Iconographie volume II* – I quote both the doctor's remarks and her transcribed speech:

2 April 1878
Inhalations of ether.
Right away she begins to talk.

'I'm telling you tonight I can't.'
(She's agitated, she looks around, she smiles.)
'I thought that I had inhaled ether; it's very funny; I find myself in one world and then in another ...'
'I can't its impossible and so no; I'll do the wrong thing and then Papa will scold me ...'
'And then I have Monsieur C. and after that, it would be good for me to tell Madame ...'
'To Papa ...'
'But Monsieur C. said he would kill me ...'
'What he showed me, I didn't know what it meant...'
'He spread my legs ...'
'I did not know that it was a beast that was going to bite me ...'
'And it's a sin ...'
'No I don't love him, but you, I love ...'[18]

Liminal States of Conciousness

One wonders, was she putting her doctor on, or was she really speaking from her unconscious or both at once? Genuine or fake, is of course a question asked over and over again about mediums. I, however, am not concerned about either/ or, true/ false but rather I'm looking for a form of representation that can encompass both/ and, a layered representation

where different ideas, states of mind can exist at the same time. I think this is important and perhaps closer to a psychological truth than our reductive scientific culture is prepared to accept.

In *Shadow Land*, Elizabeth recounts a strange and terrifying moment when she could not tell if she were indeed the spirit or the medium, 'Am I the white figure or am I the one on the chair? Certainly they are my lips that are being kissed. It is a horrible feeling, thus loosing hold of one's identity . . . I wonder in an agony of suspense and bewilderment, how long will there be two of us, which will it be in the end?'[19]

In his essay Haunting Images,[20] Tom Gunning discusses how the Spiritualist's belief in what looks to us now as mere darkroom trickery was not simple naiveté or gullibility. Rather it was the outcome of a melancholy if wilful suspension of disbelief, clinging against all odds to spirit photographs as evidence of a life beyond death. 'Perhaps the Spiritualists, realizing that the worldwide scientific acceptance of their manifestations they had expected no longer seemed forthcoming, expressed a certain desperation in these images, clinging to a desire no longer at home in a world whose promises of progress became increasingly inhuman.' In a much milder fashion, that same suspension of disbelief is at work when we go to the movies. We know what we are seeing is fiction, but still we can be moved to tears.

I want to find a way to conjure these women's stories up in such a way that the contradictions real/ imaginary coexist in a heightened way rather than being resolved or smoothed over. This is why it is not enough to simply restage Augustine's story as a film. To reproduce it as a costume drama would be to construct a seamless representation of something that was in fact far from seamless. The original photographs, often reproduced, already remove her into the picturesque, like movie stills.

If I'm fascinated by these women as actresses, it is because they blur the boundaries of what we call acting. They raise questions about the nature of performance in a way that a great star like Sarah Bernhardt does not. Their dramas also foreground power structures built around class and gender. The psychic researchers and doctors were much wealthier and better educated than the mediums and mental patients, whom they treated with extraordinary condescension. Elizabeth described the

indignities of being stripped to the skin by investigators who believed that she carried on her person the means to deceive them. Eva was searched with 'gynecological thoroughness' by the Baron von Schrenck-Notzing to make sure she was not hiding any fake phantoms in her vagina.

At the Salpêtrière, the great neurologist Jean Marie Charcot, who exhibited Augustine on stage during his lectures, was not above inducing painful symptoms through hypnosis. Sometimes rather awkwardly, the symptoms stuck and took days to get rid of.[11] She was literally held captive in the hospital. It's perhaps fitting that after numerous attempts to escape she was finally able to flee the asylum disguised as a man.

Too Much

3D frame from the film *Shadow Land or Light from the Other Side*, 2000

Stereo view of Charcot with a patient on stage

Rather than deconstruct, I want to exaggerate. The women in the case histories lead me in this direction. Augustine in her delirious acting out of the traumatic events of her life was always 'too much'. She lost herself, she went too far, crying out, foaming at the mouth. She offered herself up, arms stretched out, crucified. During this period she saw only in black and white. Her world was without a fixed sense of time as she found herself flung from pose to pose, from mockery to dread to desire in minutes, repeating her performances in an endless loop. I want to conjure up what it felt like to be Augustine with all the terror and confusion that this entailed. Indeed, I want to reanimate her, using photographic apparatuses that are not so different from those at the Salpêtrière. I will create an extremely slow, frame-by-frame, stereoscopic motion study. The audience will see 3D slides of Augustine and her doctors in an abandoned nineteenth-century asylum. At the

same time I will project 16mm film of Augustine into the virtual space opened up by the slides. Thus the audience will see her simultaneously in both slides and film. Augustine will appear doubled, literally 'beside herself', as a phantom-like figure in film hovering over her three dimensional self in the slides. On the one hand she is the awkward, jerkily moving body that the doctors examine, on the other she is a free-floating entity who speaks, but whom the doctors cannot hear.

Since the days of silent cinema, there have been numerous films where superimposition has been used to show people's 'souls' departing from their bodies, *Vampyr* being one of the most famous. But in my work, the use of different media create a much greater splitting: film and 3D slides, different orders of space and time – one fluid and two-dimensional, the other three-dimensional and frozen. In my work, this very awkwardness, this disjunction, highlights the contradictions and ultimately irreconcilable 'stories' that make up the case of Augustine. At first I'm horrified by her attacks, her suffering. Yet at times she seems so smart, seducing the doctors so that they were at her beck and call night and day. At yet other times she was so alone and at the mercy of their cold-blooded experiments. I want to express all these scenarios at once. I aim to create an ambiguous space between consciousness and unconsciousness, movement and stasis, morgue and movie theatre. As always in my work, the viewer must contemplate pieces of a puzzle that don't quite fit, both visually and psychologically.

A Machine That Is Also a Body

In 1919 Natalija A., a former student of philosophy living in Vienna, complained to the psychoanalyst Victor Tausk that a mysterious electrical apparatus in Berlin was controlling her thoughts. As I briefly mentioned earlier, her case history is also born of the collision of forces both psychic and technological.

Close-up of the *Influencing Machine of Miss Natalija A.* installation showing 3D diagram and small screen with video projection, 2001

My project *The Influencing Machine of Miss Natalija A.* attempts to materialize Natalija's description of this experience. In this work I wanted to make connections between the experience of hallucination, transference in psychoanalysis and the development of real influencing machines in the form of radio and television in 1930s' Germany – extending the definition of psychosis from the individual to society.

I was initially inspired by two quotes. The first by Natalija's analyst, Victor Tausk: 'Machines produced by man's ingenuity and created in the image of man are unconscious projections of man's bodily structures.'[22] The second by the Nazi in charge of the nascent television industry in Germany, Eugen Hadamovsky, who declared in 1935: 'Now in this hour broadcasting is called upon to fulfil its biggest and most sacred mission, to plant an image of the Fuehrer indelibly in all German hearts.'[23] I imagine Natalija taking this statement completely literally.

I wanted to find a way to project her lonely and terrifying hallucinations. She described a machine that was also a body, its limbs drawn on a coffin-shaped trunk, whose inner parts consisted of electric batteries. She believed that waves, rays and mysterious forces emanated from this machine/ body plaguing her with disgusting smells, dreams, thoughts and feelings. It was a torture apparatus. Natalija believed that when someone struck it, she felt a corresponding blow to her body.

My installation consists of a large stereoscopic diagram based on Natalija's description of her influencing machine, as well as on early television apparatuses. Inside the diagram is a small panel onto which video is projected. When the viewer, wearing red/ green glasses, looks down at the diagram, he or she sees an actual three-dimensional structure. The viewer touches a designated point on this virtual machine with a wand and all at once moving images appear on the screen, sound

Two video stills from the *Influencing Machine of Miss Natalija A, 2001*

blares from the apparatus. By removing the wand the projections vanish. Different points on the diagram trigger different movies.

From the moment the viewer puts on the glasses, he or she sees things that others in the room cannot see, almost as though he or she were actually hallucinating. Through interacting with the apparatus, viewers find themselves viscerally implicated, placed in the position of the sinister physicians/ technicians (always male) whom Natalija thought were probing her mind.

I created Natalija's video 'hallucinations' from fragments of German home movies from the 1920s and '30s, subtly altered by fragments of early medical and technical films, like *Extirpation of a Mediastinal Teratoma: A Training Film Shot on the Surgical Division of the 'Wilhelminen Spital*, Vienna 1927[24] and *Transmitting Pictures by Wire*, 1928.[25] I collaged sounds from short-wave 'Numbers Stations'[26] believed to be coded intelligence messages, recordings of atmospheric and geomagnetic radio interference and popular German songs from the period.

Fantastic Hybrids

Caught in a lonely loop of hallucination, Natalija imagined her machine's influence broadcasting outwards to control friends, family, suitors and her doctor. Perhaps she was no more than an extraordinarily sensitive antenna. Her 'diabolical apparatus' was both real and metaphoric. It was in part her own

flesh-and-blood self, in part psychosis and perhaps also an awareness of the encroachment of real influencing machines. Indeed, all the case histories I explore are similarly constructed of technology, bodies and psyches. It is these fantastic hybrids that I want to conjure up and reanimate.

video still from the influencing machine of ms natalija a, 2001

more pp. 63, 28

1. Noel Burch, *Life to those Shadows* (Berkeley: University of California Press, 1990), 21.

2. This type of illusion was known as Pepper's Ghost, after the showman Professor John Henry Pepper who popularized it. It relied on a huge sheet of plate glass in front of the stage. A magic lantern slide was projected through it so that the figure of the ghost appeared to float over the stage as far in front of the stage as the projected image was behind it.

3. Elizabeth d'Esperance, *Shadow Land or Light from the Other Side* (1897), 272.

4. J.H. Brown, *Spectropia, or Surprising Spectral Illusions, Showing Ghosts Everywhere, and of any Colour* (London: Griffith & Farran, 1863), Introduction.

5. Terry Castle, *The Female Thermometer* (Oxford: Oxford University Press, 1995), 154.

6. Jonathan Crary discusses how David Brewster, a Scottish Calvinist, wished to undermine the power of the Catholic Church by showing how they used optical and acoustic secrets to hold people in awe. He believed that the Stereoscope would demonstrate how easily the eye could be tricked. However his device simply transformed each observer into simultaneously the magician and the deceived. *Techniques of the Observer. On Vision and Modernity in the Nineteenth Century* (Cambridge: MIT Press, 1990), 133.

7. See http://www.fogscreen.com/ and http://www.mxrtechnology.com/...

8. Hillel Schwartz, *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles* (New York: Zone Books, 1996), 162.

9. Most of these photographs are now in an archive at the Institut fur Grenzgebiete der Psychologie und Psychohygiene e.V. in Freiburg. A great many are reproduced in the book by Baron von Schrenck Notzing, *Phenomena of Materialization: A Contribution to the Investigation of Mediumistic Teleplastics*, translated by E. E. Fournier d'Albe (London: Kegan Paul, Trench, Turbner and Co. 1920).

10. These photographs can be found in Bourneville and Regnard, *Iconographie Photographique de la Salpetriere* Volume II (Paris: Bureaux du Progrès medical/ Delahaye and Lecrosnier, 1878) and Volume III (Paris: Bureaux du Progres medical/ Delahaye and Lecrosnier, 1879-1880).

11. Albert Londe quoted in: Georges Didi-Huberman, *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpetriere*. Translated by Alisa Hartz (Cambridge: MIT Press, 2003), 32.

12. Charles Richet, *Thirty Years of Psychical Research, being a treatise on metapherics*. (New York: The Macmillan Company, 1923), 508.

13. These phantoms are just what Gustave Geley, of the Institut Metaphysique described them to be when he wrote: 'It is the idea that moulds matter and gives form and attributes to it. The only difference is that the 'idea' may have needed a little practical help along the way'. See Gustave Geley, *From the Unconscious to the Conscious*. Translated by S. De Brath (Glasgow: William Collins Sons, 1920), 66.

14. Alex Owen, *The Darkened Room: Women, Power and Spiritualism in Late Nineteenth Century England* (London: Virago, 1989), 227.

15. Ibid., 222.

16. For a detailed description of the photochronograhic apparatus see: Albert Londe, 'Photochronography in the Medical Sciences', *Scientific American* 30 December 1893, 424.

17. One of the most poignant and beautiful depictions of a woman's decent into madness is D.W. Griffith's *The Painted Lady* (1912).

18. Bourneville and Regnard, *Iconographie* Volume II, op. cit. (note 10), 161.

19. d'Espérance, *Shadow Land*, op. cit. (note 3), 346-347.

20. Tom Gunning, *Haunting Images: Ghost, Photography and the Modern Body in The Disembodied Spirit*, catalogue for an exhibition curated by Alison Ferris (Maine: Bowdoin College, 2003), 14.

21. Bourneville recounts on incident where Charcot induced an artificial contracture of the tongue and larynx by means of hypnotism. This painful contracture remained for five days, despite the best efforts of the doctors applying magnets, electricity, hypnotism and ether to the girl. Bourneville and Régnard, *Iconographie* Volume II, op. cit. (note 10), 165.

22. Victor Tausk (1919) 'The Influencing Machine', in: Jonathan Crary and Sanford Kwinter (eds.), *Incorporations* (New York: Zone, 1992), 569.

23. Eugen Hadamovsky quoted in William Uricchio, 'Rituals of Reception, Patterns of Neglect Nazi Televison and its Postwar Representation', *Wide Angle* vol. 10 no. 4, 51.

24. This film is in the collection of the National Library of Medicine in Bethesda Maryland.

25. This film is in the collection of the National Archives in Washington DC.

26. For further information on Number Stations see http://www.ibmpcug.co.uk/~irdial/conet.htm.

'What is most necessary for the field of 'media archaeology' is to both distinguish it as a nascent discipline and to set some boundaries in order to avoid its subjectivization.'

Imaginary Futures...

Timothy Druckrey

There's little argument that the history of 'media art' is not limited to the deployment of specific 'media' – electricity, the development of the telegraph, the recording of sound, the pre-cinema and the introduction of cinema, the launch of radio, the blast-off of television, the emergence of video, the reverberations of the computer, or the growth of networks. To think of this history as a mere archaeology of the apparatus linked with progressive notions of technical sophistication avoids the oddly 'punctuated equilibrium' – and social complexity – that forms much of the 'evolution' of communicative systems that break free from the limited teleologies (and telephobias) of modernity and find expressive functions unimagined by the engineers of systems integration.

To think of a history of media art without rooting it, as Friedrich Kittler would say, in the 'discourse networks' of prior periods, would be to mistake the present as a logical outcome, it would be to miss the

ruptures and constitute an underestimation of disorder. Yet, the erratic history of the media arts, still waiting for comprehensive treatment, cannot avoid some accounting of its legitimate – if erratic – lineage. Kittler writes: 'We must be able to pass on to the coming generations – if not as a legacy of these times then as a kind of message in a bottle – what computer technology meant to the first generation it effected.'

Rather than a mapping of events, the history of media calls for the investigation of the scenes in which development might emerge (or fail to emerge), in which determinism is undermined by probability, or in which possibility outdistances expectation. Because 'the media' have been largely conceptualized within technical imperatives, and particularly as an aspect of modernity (as it is conventionally conceived), or, more recently, a tenet of post-modernism (with its ubiquitous interest in information), it galvanizes some misconceptions concerning its echoing effects. 'Not', as Regis Debray, asks in *Media Manifestos*, 'where does this information come from and what does it mean?' but 'what has this new information transformed in the mental space of this collective and its devices of authority? 'It is impossible', he continues, 'to make technological history enact the role of philosophical history and to presuppose that "technology governs the world" as "reason governs the world"(...) The causal link between a technology and a culture is neither automatic nor unilateral.'

The contemporary sphere of 'media art' is enveloped in unique relationships to a broad range of histories, technologies and artistic practices. Often linked to specific technologies (so-called photographic art, cinematic art, sound art, video art, net art, software art . . .) the field is at risk in delineating microhistories or limited specialties so distinct as to be uprooted from the implicit larger histories they occupy. Though it is convenient to trace the development of 'media art' in relation to particular technologies (and more and more specific software), a more reasoned approach is evolving as a media archaeology that attempts to understand the historical phases in which technologies (broadly defined) have coincided with social and artistic transformations and to realize the reverberating effects these have had on contemporary practices.

Rethinking these phases and articulating them within broader terms necessitates the re-grounding of media practices in spheres where linearity, integration, uniformity or predictability are abandoned in favour of a kind of historical reconnaissance into territories in which a re-reading of the record indicates possibilities or differentiated readings that can be reintegrated into a lineage that, for better or worse, articulated successes and ignored 'failure'. 'When traced backwards', an archaeology, as Tom Gunning writes, 'fragments and multiplies, unraveling a skein of influences and practices that move back into centuries-thick layers of culture and history'.

As Siegfried Zielinski adds: 'I do not proceed on the assumption of a coherent praxis in artistic production and reception with and through the media in the expanding present, and likewise I try not to homogenize or universalize the historic development of the media. Thinking further along the lines traced by others, Georges Bataille for example, I attempt to think and write about the previous technical and aesthetic and theoretical richness of the development of artifacts of media articulation hetero-logically. In this concept both re-construction and the conception of possible future developments rub together. Against the enormously growing trend toward the universalization and standardization of aesthetic expression, particularly in the expanding telematic nets, the only strategies and tactics that will be of help are those that will strengthen local forms of expression and differentiation of artistic action, that will create vigorously heterogeneous energy fields with individual and specific intentions, operations, and access in going beyond the limits that we term mediatization.'

And yet it is certain that the 'rubbing together' of histories is a precise metaphor for contemporary 'media culture', with its admixtures of old and new technologies, its seamless blending of contents, its fascination with the borders between bodies and systems, its re-functioning of narrative, its abandonment of singularity, its openness to incompletion, its empowerment and re-conceptualization of audiences, its regard for the imagination of a public infantilized by 'user-friendly' interfaces, its willingness to counter efficiency with meaning, its assimilation and usurpation of expertise, its countering of empty surface effects within

immersive environments, and ultimately its investigations of the integrated traces of histories that remain vital in evoking the undeniable significance of media that leads to a reformulation of the monolithic perpetuation of modern necessity or mere empty technical progress.

The panoply of expressions currently in vogue to describe 'media art' – virtual, immersive, robotic, experiential, hypermedia, networked – are far from tropes vanquishing often distinct historical trajectories. Instead, they provoke a discourse in which it is ever more urgent to understand – no less constitute – practices whose persuasiveness, subtlety, intensity, fragility, thoughtfulness, defiance, playfulness, even marginality – if not ephemerality – is fundamentally related to a contemporary world fuelled less by coherence than by incessant transformation. To look, for example, at the last decades of 'media art' as incremental phases in evolving techniques, would be to obviate much of the work of several generations of artists that has led to the use of it as a way of investigating and extending the stability of systems of representation, the specificities of subjectivity, the interrelationship between communicative systems and social systems, to reconsider the intricate links between local and global concerns, to investigate the possibilities of communities without hierarchies, to expose systems of authority by outperforming – really out-imagining – appropriate operations by, in the words of Perry Hoberman, 'misbehaving' in 'tamper-resistant worlds', to heighten the stakes by inverting the top-down models of specialization, to demystify systems by opening them to broad interventions, to pry from information more than can be mined for profiling, or to conceptualize systems whose function is not limited to inconsequential renderings or simple visualizations of computational processes.

The many histories of media bring to bear some pivots on which contemporary media practices revolve. The efficacy of the net, the experiential spaces of immersion, the non-linear strategies of hypermedia, are less 'new media' than old media emerging in electronic forms. Because these histories directly relate to current media culture and because they can demonstrate that some of its central issues – immersion, virtuality, networks – might serve to exemplify that the media systems and institutions that have evolved are already deeply

embedded in conceptualizing experiences, representations, artistic practices, speculative worlds, and technologies that are fundamentally related to the efforts of existing initiatives.

Television, video, sound, cybernetics, software, telecommunications, 'expanded cinema', the internet, synthesizers and 'systems aesthetics' matured on the heels of a plethora of post-war electronic technologies revolving around the transistor, the computer, information theory and the establishment of networks, but the soft apparatuses of the electronic age also emerged amid Cold War ideologies, the space race, the military-industrial complex, the atomic bomb, 'the family of man', mystified 'global villages' and the student, civil rights, women's, anti-war and environmental movements. Rather than lulled into complacency, the 'new media' were mobilized in extraordinary forms, 'appropriated' in the service of a generation witnessing a crumbling modernity and an information age.

Widely ignored in histories of twentieth-century art, a telephobic modernity revealed its resistance to communications technologies that shattered its hermetic aestheticism. The recovery of this complex history is slowly emerging in a revaluation of the technical imperatives of twentieth-century art after the boom of so-called 'new media' in the 1990s. Though deeply rooted in post-war aesthetics, the links and reciprocities between mainstream art and its reflexive relationship with an increasingly mass media still seems like a cross between a mediated novelty and a vague attempt to legitimate 'new media' as a viable 'avant-garde' to be retroactively form-fit into late modernity's unruly canon.

II.

> 'It is the analysis of silent births, or distant correspondences, of permanences that persist . . . of slow formations that profit from the innumerable blind complicities . . . Genesis, continuity, totalization: these are the themes of the history of ideas.'

'But archaeological description is precisely such an abandonment of the history of ideas, a systematic rejection of its postulates and procedures ...' (Foucault, 138)

Foucault's *The Archeology of Knowledge* is defiant in distinguishing archaeology from other forms of historiography. Archaeology is 'the systematic description of a discourse-object', (p. 139) it 'tries to establish the system of transformations that constitute change' (p. 173), it 'does not have a unifying, but a diversifying effect' (p. 160), it 'is not supposed to carry any suggestion of anticipation' (p. 206). As such, archaeology is not a substitute for 'the history of ideas' (as defined above), not a proxy for iconography, not an alternative for eccentric discovery or collecting, not a surrogate for rigorous research. With this in mind it seems imperative to delineate an approach to 'media archaeology' that, on the one hand, avoids idiosyncrasies or subjectivities, and, on the other, doesn't lull itself into isolating media history as a specialized discipline insulated from its discursive historical role.

There's little doubt that the multi-threaded developments of media have numerous unresolved histories and that an enormous task of retrieval and conceptualization has yet to be achieved. How a 'media archaeology' can constitute itself against self-legitimation or reflexivity is crucial if it is to circumvent the reinvention of 'unifying', progressive, 'cyclical', or 'anticipatory' history – even as it is challenged to constitute these as yet very vague histories as an antidote to the gaping lapses in traditional historiography. Indeed, it is this very problem that afflicts 'media archaeology'. The mere rediscovery of the 'forgotten', the establishment of oddball paleontologies, of impractical genealogies, uncertain lineages, the 'excavation' of antique technologies or images, the account of erratic technical developments, are, in themselves, insufficient to the building of a coherent discursive methodology. In this sense the notion of 'resurrecting dead media' could prove either farcical or futile. Merely reconstituting or retrofitting 'old' media into 'new' contexts could only emerge as techno-kitsch. Similarly, the rediscovery of uncommon or singular apparatuses, novel as they might be, is neither decisive nor adequate to formulate an inclusive approach that distinguishes it from connoisseurship.

What is most necessary for the field of 'media archaeology' is to both distinguish it as a *nascent* discipline and to set some boundaries in order to avoid its subjectivization. 'Archaeology', as Foucault writes, 'is not a return to the innermost secret of the origin', rather it 'describes discourses as practices specified in the element of the archive'. Without evolving coherences that are neither reductive nor dogmatic, 'media archaeology' faces numerous issues: to evolve histories of technologies, apparatuses, effects, images, iconographies, etcetera, within a larger scheme of reintegration in order to expand a largely ignored aspect of traditional history. Already many cogent examples of this exist, from Siegfried Giedion's *Mechanization Takes Command* or E.J. Dijksterhuis's *Mechanization of the World Picture* to Friedrich Kittler's *Gramophone, Film, Typewriter* or Wolfgang Schivelbush's *Disenchanted Night: The Industrialization of Light in the 19th Century*, from Siegfreid Zielinski's *Un-Archaeology of the Media* to Norman Klein's *Vatican to Vegas: A History of Special Effects*. Not under the spell of linearity, these books stand as guidebooks, along with Sartre's *Search for a Method* and Foucault's *Archaeology* (among many others), for the establishment of diversified approaches to a media history and, more specifically, a media archaeology that stands as a decisive field if it can develop forms that extrapolate more than missing links.

III.

'The obscure mystery of the ability to resist nature's tendency toward decay, as well as the desire to do so, will become even obscurer. More so than ever before, it will become evident that this ability (and this desire) is doomed to fail in the end.' (Flusser)

The crucial issues of a historical discourse analysis are vital to a critical approach to contemporary media (and its art). In this, specific histories (and techniques) are often pivotal. Too broad an issue to tackle in detail in this essay, a few hints and references can stand as pointers. In

Kittler's magisterial *Gramophone, Film, Typewriter* he establishes the links between the technical 'apparatus' and the 'psychic' apparatus as they are contextualized in the sweeping effects of technology. Writing on the phonograph, Kittler writes: 'Thanks to the phonograph, science is for the first time in possession of a machine that records noises regardless of so-called meaning . . . the epoch of nonsense, our epoch, can begin.'

This view is complemented by Siegfried Zielinski's distinguished *Audiovisions, Cinema and Television as Entr'actes in History*. A sweeping assessment of the history of audiovisual technologies beginning with Magic Lanterns and extending to the network initiatives of Knowbotic Research, Zielinski brings considerable cogency to the development of the visual culture industries. 'The first seventy years of the nineteenth century', he writes, 'gave expression to the growing need and technical ability to grasp and appropriate the visible surface of the world through its re-visualization and the ability to play around with it: the cinematization of the eye and of perception as a counterpart and complement to the extensive acquisition of natural and technical processes for other areas of the production of commodities and meaning.' Zielinski's more recent work into *Deep Time* is surely an extension of apparatus theory into imaginative territories of the historical record largely missing from media history and one in which an imaginative re-examination of the record opens vast conceptual frameworks.

The many histories that are weaving their way through contemporary media artists working with so-called 'electronic cinema' retrieve, reclaim, and reframe discourses and technologies with reverberating influences as both precedents and as models. The evolving systems for immersing audiences in 'fugitive', 'situated' and 'situational' realities has come face-to-face with radically transformed expectations that can reframe the cinematic imaginary as one differentiated from localized 'effects' and, instead, as complex configurations of intention and experience.

Our theatres of the artificial have generated phantasmatic experiences whose effects strain to induce sensations of affinity with incredulous 'realities'. So deeply has the relationship to 'photographic resolution' (a

kind of epistemological plateau) engrained itself in the imaginary that even the 'virtual' worlds of computer graphics substitute themselves – if fleetingly – for existing worlds untethered from history, unfettered by the forces of physics, and liberated from any banal correspondence to actuality. The 'cinema of attractions', and the 'epic cinema' no longer capture or envelop the imagination.

Instead, we find a vital generation of artists deeply involved in rethinking schemas of perceptibility, the formation of temporalities, in the anomalies of differentiation, image extension, image compression, and re-imagined forms of illusion. These illusions are, as Zoe Beloff remarked, extraordinarily fragile and remind us that the imaginary is a special condition in which we can jettison the fallacies of the 'as if' world (the one which haunts virtual reality) and instead propose our expression as 'what if' or 'why not'.

Brief commentaries on the works shown:

VinylVideo

Vinyl Video, Image 1, video image
VinylVideo™ video still

Vinyl Video, Image 2, the record itself
VinylVideo™ Video Record

'As a hybrid of different technologies, *VinylVideo™* reveals and connects a variety of media history alignments, combining art, science and technology, low- and high-tech and analog and digital elements to create a new vision (a breaking-open) of the limits of a medium, of consumer technology and of the artifacts of everyday life that quotes the contemporary renaissance of vinyl at the same time that it questions the expiration of technologies.' Video, encoded as sound, is pressed onto vinyl records. A 'black box' between the record player and a conventional TV interprets and plays

the video. Usable as an element of a home entertainment system, *VinylVideo*™ can be understood as a gadget that can redeem archaic analogue playback while integrating itself with notions of the set-top-box and its intimations of interactivity. Yet the use of the system is also linked with the use of scratch techniques in current music.

Posed as a 'fake archeological relic of media technology', *VinylVideo*™ provokes a range of questions around the expectations of 'a fictitious technological past' (as Charles Gute suggested), the faux-status of innovation, the ploys (and plots) of advertising, the quotidian benefits of aesthetics, the esteem of media theory, the vacuous venture of investment, and the participation of artist collaborators (Heimo Zobernig, Oliver Hangl, Annika Eriksson, Monoscope, Harald Hund, Visomat Laboric/Gereon Schmitz, Cut-Up/Geert Mul, Vuk Cosic/Alezej Shulgin, Andrea Lumplecker, Peter Haas, JODI, Lampalzer-Oppermann and Olia Lialina).

Julien Maire, Demi-Pas (Half Step)

Julien Maire, *Demi-pas* (Half-step), projection-performance, 20 minutes, 2002

Julien Maire, *Demi-pas* (Half-step), projection-performance, 20 minutes, 2002

Julien Maire's performances using proto-cinematic micro-machines both evoke and outdistance the illusions of the phantasmagoric projectionists of the pre-cinema. His intricate archaeology though, seems not primarily concerned with retrieving the effect ploys of optical illusion, but of re-imagining the apparatus as itself as illusory, one in which the image and its operation are meticulously intertwined. In this sense, rather than allegorizing the image, Maire allegorizes the machine.

Maire's *Demi-Pas* (Half-Step) transforms the image machine into a time machine by evoking both mechanical

and physical movements. The adapted projector of his earlier work becomes a computer-assisted one in this work. The 'stepper motors' and the 'half steps' of human motion are linked as the projected images establish a dynamic relationship between image and movement, sensation and narrative. By layering image and performed interventions into the projected scenes, the images and operations differentiate themselves spatially with perceived realities weaving in and out of perceptibility. Maire's performances play in the interstices between machine and image and provoke a serious reconsideration of the 'cinemaginary' interface.

Paul Demarinis

Paul DeMarinis, *The Edison Effect*, sound installation, detail: *Fragments of Jericho*, 1989-1993

Paul DeMarinis, *The Edison Effect*, sound installation, detail: *Fragments of Jericho*, 1989-1993

Like many of his generation, Demarinis tinkered with circuits and synthesizers as the first computers surfaced outside of institutional settings. From the start, his work with technology was less about calculated sound and more about performative, installation, reflective, collaborative – and what might be called electronic event sounds. By the mid 1980s this expanded into speech synthesis, signal processing and, importantly, into the archaeology of media. Understanding the reciprocity between technologies and their histories is an essential aspect of DeMarinis's works, ranging from numerous performances to installations

He writes: 'Exploring alternative technologies, using physical principles that have not found any place in the dominant technology, re-connecting the dream and the mechanism. Thus, phonograph recordings in holograms and clay pots; music made by stroking electrified bathtubs. Stood on their heads, the technologies reveal

absurd aspects in the manner of pataphysics or bachelor-machines, but inasmuch as my pieces actually function, they also reveal some part of the original – the dream – that lies beneath the technology.' *The Edison Effect* (as so much of DeMarinis's work) is stunning in its careful balancing of acoustic and visual representation. But rather than evoking some kind of rendered terrain of virtualization, DeMarinis reminds us that, in his words, 'the real illusions are the ones that still mystify even when the technology is revealed and explained'.

Jim Campbell

Illuminated Average of Hitchcock's Psycho 2000
Averaged over a hour
50 minutes (entire film)
Light-box with Duratrans print
76 x 43 cm

Jim Campbell's works measure our relationships with perceptibility. In *Psycho*, a 'still' frame that contains the 'average' of every frame of Hitchcock's film, temporal and spatial compression are linked as the 'image' is strained to contain vast amounts of information. In the dense layers of visual data the film both resides and is potentialized. Examining it conjures up the mental fragments of memory and slowly elements strain to be realized, discharged as mnemonic.

Similarly, the works from the series *Ambiguous Icons* are skilfully reductive and propose a kind of compression not of the temporal (as in *Psycho*), but of the realizable, a Turing test of the limits of recognition. These elegant micro-cinemas are delicately subversive, shattering the special effect as a spectacle of visibility and proposing instead that our schemas of imagination can be probed with very small amounts of data.

Sachiko Akama

The shadow-play perhaps stands as one of the original projections. Sachiko Akama's subtle shadow eroticisms weave between the performative and ritual. Elegant, if nearly invisible, tracings resolve into elusive apparitions as the user draws the images with a small flashlight. These images are a subtle form of inversion of photography as they replace the 'pencil of nature' with the beam of light. And rather than attempt to record the image, they ephemeralize it as fleeting, as in Talbot's early lament, 'destined as rapidly to fade away'. These small ephemera demand memorization and mobility, they flicker only as phantoms, but provoke rapt attention.

'Not surprisingly, contemporary boosters of artificial intelligence rarely acknowledge the antiquity of the concept itself.'

New York Prophecies

Richard Barbrook

notes p. 274

The Future Is What It Used To Be

'Biological intelligence is fixed, because it is an old, mature paradigm, but the new paradigm of non-biological computation and intelligence is growing exponentially. The crossover will be in the 2020s and after that, at least from a hardware perspective, non-biological computation will dominate.'[1]

At the beginning of the twenty-first century, the dream of *artificial intelligence* is deeply embedded within the modern imagination. From childhood onwards, people in the developed world are told that computers will one day be able to reason – and even feel emotions – just like humans. In science fiction stories, artificial intelligences have long been favourite characters. Audiences have grown up with images of loyal

robot buddies like Data in *Star Trek TNG* and of pitiless machine monsters like the cyborg in *The Terminator*.[2] These science fiction fantasies are encouraged by confident predictions from prominent computer scientists. Continual improvements in hardware and software will eventually lead to the creation of artificial intelligences more powerful than the human mind. Commercial developers are looking forward to selling sentient machines which can do the housework and help the elderly.[3] Some computer scientists even believe that the invention of artificial intelligence is a spiritual quest. In California, Ray Kurzweil and his colleagues are eagerly waiting for the Singularity: the First Coming of the Silicon Messiah.[4] Whether inspired by money or mysticism, all these advocates of artificial intelligence share the conviction that they know the future of computing – and their task is to get there as fast as possible.

Despite its cultural prominence, the meme of sentient machines is vulnerable to theoretical exorcism. Far from being a free-floating signifier, this prophecy is deeply rooted in time and space. Not surprisingly, contemporary boosters of artificial intelligence rarely acknowledge the antiquity of the concept itself. They want to move forwards, not look backwards. Yet, it's over forty years ago since the dream of thinking machines first gripped the American public's imagination. The future of computing has a long history. Analysing this original version of the prophecy of artificial intelligence is the precondition for understanding its contemporary variants. With this motivation in mind, let's go back to the second decade of the Cold War when the world's biggest computer company put on a show about the wonders of thinking machines in the financial capital of the most powerful and wealthiest country on the planet ...

A Millennium Of Progress

On 22 April 1964, the New York World's Fair was opened to the general public. During the next two years, this modern wonderland welcomed over 51 million

New York World's Fair, 1964, postcard

visitors. Every section of the American elite was represented at the exposition: the federal government, US state governments, large corporations, financial institutions, industry lobbies and religious groups.[5] The World's Fair proved that the USA was the leader in everything: consumer goods, democratic politics, show business, modernist architecture, fine art, religious tolerance, domestic living and, above all else, new technology. A 'millennium of progress' had culminated in the American century.[6]

Not surprisingly, this fusion of hucksterism and patriotism was most pronounced among the pavilions of big business. Pepsi hired Disney to build a theme-park ride.[7] The U.S. Rubber Company built a Pop Art big wheel in the shape of 'a giant whitewall tire'.[8] Although they were very popular, these exhibits never became the stars of the show. What really impressed the millions of visitors to the exposition were the awe-inspiring displays of new technologies. Writers and film-makers had long fantasized about travelling to other worlds. Now, in NASA's Space Park, visitors could admire the huge rockets which had taken the first Americans into earth orbit.[9] Ever since the Russians launched the Sputnik satellite in 1957, the two superpowers had been engaged in the 'space race': a competition to prove technological supremacy by carrying out spectacular feats outside the earth's atmosphere. By the time the first visitors arrived in NASA's Space Park, America was on the verge of overtaking its rival.[10] Despite its early setbacks, the USA was still Number One.

The corporate exhibitors also promised that the technological achievements of the present would soon be surpassed by the triumphs of tomorrow. General Motors' Futurama looked forward to a world of giant skyscrapers, underwater settlements and, best of all, holiday resorts on the moon.[11] At its Progressland pavilion, General Electric predicted that electricity generated by nuclear fusion would be 'too cheap to meter'.[12]

For many corporations, the most effective method of proving their technological modernity was showcasing a computer. While most of the mainframes at the World's Fair were used as hi-tech gimmicks, IBM dedicated its pavilion exclusively to the wonders of computing as a distinct technology. For over a decade, this corporation had been America's leading mainframe manufacturer. In 1961, one single product – the IBM 1401 – had accounted for a quarter of all the computers operating in the USA.[17] In the minds of most visitors, IBM and computing were one and the same.[17]

Just before the opening of the World's Fair, the corporation launched a series of products that would maintain its dominance over the industry for another two decades: the System / 360.[17] Seizing the opportunity for self-promotion offered by the exposition, the bosses of IBM commissioned a pavilion designed to eclipse all others. Eero Saarinen – the renowned Finnish architect – supervised the construction of the building: a white, corporate-logo-embossed, egg-shaped theatre which was suspended high in the air by 45 rust-coloured metal trees. Underneath this striking feature were interactive exhibits celebrating IBM's contribution to the computer industry. For the theatre itself, Charles and Ray Eames – the couple who epitomized American modernist design – created the main attraction at the IBM pavilion: 'The Information Machine'. After taking their places in the 500-seat 'People Wall', visitors were elevated upwards into the egg-shaped structure. Once inside, a narrator introduced a 'mind-blowing' multimedia show about how the mainframes exhibited in the IBM pavilion were forerunners of the sentient machines of the future. Computers were in the process of acquiring consciousness: artificial intelligence.[17]

New York World's Fair, 1964, postcard

For over a decade, prominent computer scientists in the USA had been convinced that machines would sooner or later become indistinguishable from humans. Language was a set of rules which could be codified as software. Learning from new experiences could be programmed into computers.[17] With

New York World's Fair, 1964, IBM pavilion

the launch of the System / 360 series, mainframes were now powerful enough to construct the prototypes of thinking machines. At the 1964 World's Fair, IBM proudly announced that the dream of artificial intelligence was about to be realized. In the near future, every American would have their own Robby the Robot.[18]

'Duplicating the problem-solving and information-handling capabilities of the [human] brain is not far off; it would be surprising if it were not accomplished within the next decade.'[19]

The IBM pavilion's stunning combination of avant-garde architecture and multimedia performance was a huge hit with both the press and the public. Alongside space rockets and nuclear reactors, the computer had confirmed its place as one of the three iconic technologies of modern America. Most visitors to the New York World's Fair understood the ideological message of the machines on display: the present was the future in embryo. Within the IBM pavilion, computers existed in two time frames at once. On the one hand, the current models on display were prototypes of the sentient machines of the future. On the other, the dream of artificial intelligence showed the true potential of the mainframes exhibited in the IBM pavilion. At the New York World's Fair, new technology was displayed as the fulfilment of science fiction fantasy: *the imaginary future*.

Exhibiting New Technology

When the New York World's Fair opened, Americans had good reasons for feeling optimistic about their prospects. During the previous fifty years, their nation had outfought, out-produced and outsmarted all of its

imperial rivals. By 1964, the USA had become an economic and military superpower without comparison.[22] Above all, America was the global leader in the three most important new technologies: space rockets, nuclear reactors and mainframe computers.

New York World's Fair, 1964 postcard – child's ticket of admission

The New York World's Fair demonstrated that the USA not only owned the future, but also the past. For over a century, cities across the world had been organizing international expositions. Some were little more than glorified trade fairs. Others had been major cultural events. What united all of them was their common inspiration: the 1851 Great Exhibition of the Works of Industry of All Nations. Flush with the wealth and power which flowed from owning the 'workshop of the world', the British elite had organized an international celebration of the wonders of economic progress. The Crystal Palace – a futuristic iron and glass building – was erected in a central London park.

New York World's Fair, 1964 postcard – adult's ticket of admission

During its six months of operation, around one-fifth of the entire British population went to see the Great Exhibition.[23] Once there, visitors were treated to a dazzling display of new products from the factories and exotic imports from the colonies. For most visitors, the stars of the show were the machines which were powering the world's first industrial revolution: cotton looms, telegraphy systems, farm equipment, rotary printing presses and, best of all, steam engines.[24] The message of the technology exhibits was clear. Britain was the richest and most powerful nation on the planet because the British invented the best machines.

The promoters of the 1851 Great Exhibition declared that their event would give 'coherence to the idea of liberalism'.[23] By wandering around the Crystal Palace, visitors would learn to admire the achievements of British industry. The layout of the exhibits of raw materials, machinery and finished goods was designed to give an overview of the manufacturing process. Despite this pedagogical intent, the displays at the Great Exhibition systematically ignored the lives of the people who had created the products on show. The silk dresses betrayed no traces of the horrors of the sweatshops where they were made.[24] The glassware from Ireland contained no reminders of the terrible famine which had recently devastated the country.[25] Public display was – paradoxically – the most effective method of social concealment: 'World exhibitions were places of pilgrimage to the fetish Commodity.'[26]

Although the Crystal Palace was filled with manufactured goods, none of them were directly on sale to the general public. Commodities became more than just commodities when on show at the Great Exhibition. With their labour hidden and their price irrelevant, their symbolic role of industrial products took centre stage. The commodity was transformed into an artwork. Use value and exchange value had been temporarily superseded by a more esoteric social phenomenon: *exhibition value*.[27]

Within the space of the Crystal Palace, new technologies easily won the competition for public attention. Yet, the organizers of the Great Exhibition had originally envisaged a very different focus for their event: the promotion of high-quality British design. When the Crystal Palace was laid out, the prime location in the middle of the main hall was allocated to an exhibit of Gothic Revival furniture and religious items.[28] Although inspired by English patriotism, this faux-medieval look deliberately avoided any aesthetic affinity with the foundations of the nation's domination over the world: the industrial revolution. Crucially, this retro-style also shaped the politics of Victorian England. The ruling elite took delight in disguising their hi-tech commercial republic as a romantic medieval monarchy. In the most modern nation in the world, the latest industrial innovation masqueraded as an archaic feudal custom: *the invented tradition*.[29]

'England's essence is strong with the strength of modern simplicity;

its exterior is august with the Gothic grandeur of a more imposing age.'[30] For its organizers, the Great Exhibition's primary purpose was the promotion of aesthetic nostalgia. Like the railway stations of Victorian England, new products in the Crystal Palace were supposed to be disguised as ancient artefacts. Yet, despite the best efforts of the organizers, it was the machinery hall which became the most popular section of the Crystal Palace. Gothic Revival furniture couldn't match the emotional impact of the noise and energy of working steam engines. More importantly, the machinery hall proudly celebrated the new technologies which had turned England into an economic and military superpower. Instead of disguising innovations as antiquities, the present was identified with better times to come. Invented tradition had lost out to the imaginary future.

Inside the Crystal Palace, new technology became the icon of modernity. Separated twice from its origins in human labour, first through the market and then through the exposition, machinery was materialized ideology. Since the moment of production had disappeared from view, the specific ideology materialized in new technology was open to interpretation. Both bourgeois liberals and working class socialists found confirmation of their political beliefs in the steam engines of the Great Exhibition. Despite their deep differences about the ideological meaning of new technologies, the two sides agreed on one thing: defining the symbolism of machinery meant owning the imaginary future.

This political imperative also provided the impetus behind the world exposition movement. After the triumph of the Great Exhibition, other countries quickly organized their own industrial festivals to break the British ideological monopoly over the future. Within only two years, New York had held its first World's Fair and, a couple of years later, Paris had hosted its inaugural exposition. Like the Great Exhibition, these imitators were much more than just trade fairs. The 1893, the Chicago Columbian Exposition had more than 21 million visitors and the 1900 Paris Universal Exposition attracted nearly 48 million spectators.[31] Whether as tourists, professionals or activists, huge numbers of people from many different nations and cultures came together at these events. World expositions were prefiguring world peace.

Despite these hopes, these expositions were also intensely nationalistic occasions. The main motivation for inviting foreigners to the Great Exhibition was so they could witness the economic supremacy of the British Empire with their own eyes.[32] When other countries subsequently put on their own expositions, the organizers always prioritized demonstrations of national technological excellence. The 1889 Paris Universal Exposition was immortalized by the superb engineering achievement of the Eiffel Tower.[33] However, by the time that this exhibition opened, the European powers were already falling behind the rapid pace of innovation taking place in the USA. Only a few years after the Eiffel Tower was built, the *Palace of Electricity* at the Chicago Columbian Exposition provided spectacular proof of the technological superiority of US industry over its European rivals.[34] America was taking ownership of the future.

During the first half of the twentieth century, the disparity between the two continents became ever more obvious. In the late-1930s, their diverging fortunes were dramatically demonstrated by the expositions held in Paris and New York. Visitors to the 1937 Paris International Exhibition were confronted with a sombre image of the world: the two massive pavilions of Nazi Germany and Stalinist Russia championing their rival versions of the totalitarian imaginary future. The political and ideological divisions driving Europe towards catastrophe were starkly symbolized in brick and concrete.[35] In complete contrast, the icons of the 1939 New York World's Fair were Democracity – the main attraction of the organizers' Perisphere building, and Futurama – a diorama inside the General Motors pavilion. Both exhibits promoted a utopian vision of an affluent and hi-tech America of the 1960s. In this imaginary future, the majority of the population lived in family homes in the suburbs and commuted to work in their own motor cars. The USA was about to become a consumer society.[36]

Facing such strong competition for the attention of visitors, other corporations resorted to displaying sci-fi fantasy machines. The star exhibit of the Westinghouse pavilion was Electro: a robot which 'could walk, talk, count on its fingers, puff a cigarette, and distinguish between red and green with the aid of a photoelectric cell'.[37] This gimmick provided the inspiration for the imaginary future of artificial

intelligence. Until the 1939 World's Fair, robots in science fiction stories were usually portrayed as emotionless monsters intent on destroying their human masters.[38] Only a year after the exposition closed, Isaac Asimov decided to change this negative image. Just like Electro in the Westinghouse pavilion, his fictional robots were the safe and friendly products of a large corporation.[39] During the 1950s, this change of image led to artificial intelligence becoming one of the USA's most popular imaginary futures. In both science fiction and science fact, the robot servant was the symbol of better times to come.

Cold War Computing

For most visitors to the 1939 New York World's Fair, its imaginary future of consumer prosperity must have seemed like a utopian dream. The American economy was still recovering from the worst recession in the nation's history and Europe was on the brink of another devastating war. Yet, by the time that the 1964 World's Fair opened, the most famous prediction of the 1939 exposition had been realized. The Democracity and Futurama dioramas had portrayed a future where most workers were living in the suburbs and commuting into work in motor cars. However sceptical visitors might have been back in 1939, this prophecy seemed remarkably accurate twenty-five years later. By the early-1960s, America was a suburban-dwelling, car-owning consumer society. Exhibition value had become everyday reality.

'The motor car (...) directs (social) behaviour from economies to speech. Traffic circulation is one of the main functions of a society (...) Space [in urban areas] is conceived in terms of motoring needs and traffic problems take precedence over accommodation (...)It is a fact that for many people the car is perhaps the most substantial part of their "living conditions".'[40]

New York World's Fair, 1964, postcard

Since the most famous prophecy of the 1939 exposition had largely come true, visitors to the 1964 New York World's Fair could have confidence that its three main imaginary futures would also be realized. Who could doubt that – by 1989 at the latest – the majority of Americans would be enjoying the delights of space tourism and unmetered electricity? Best of all, they would be living in a world where sentient machines were their devoted servants. The American public's confidence in these imaginary futures was founded upon a mistaken sense of continuity. Despite being held on the same site and having many of the same exhibitors, the 1964 World's Fair had a very different focus than its 1939 antecedent. Twenty-five years earlier, the centrepiece of the exposition had been the motor car: a mass produced consumer product. In contrast, the stars of the show at the 1964 World's Fair were state-funded technologies for fighting the Cold War. Computers calculated the trajectories which would send American nuclear missiles to destroy Russian cities and their unfortunate inhabitants.[41] While its 1939 predecessor had showcased motorized transportation for the masses, the stars of the 1964 World's Fair were the machines of atomic Armageddon.

In earlier expositions, the public display of new products had intensified the effects of commodity fetishism. Exhibition value added another degree of separation between creation and consumption. Above all, this social phenomenon concentrated the public's attention on the symbolic role of new technologies. The present was portrayed as the immediate precursor of the imaginary future. Inside its 1939 pavilion, General Motors' latest products played a supporting role to the Futurama diorama which portrayed the corporation's ambition to turn the majority of the US population into suburban-dwelling, car-owning consumers. But, despite its prioritization of exhibition value, this exposition couldn't totally ignore the use value of new technology. Almost everyone at the 1939 World's Fair had at some point travelled in

a motor car. Although it might obscure the social origins of products, the imaginary future expressed the potential of a really-existing present.

The 1964 New York World's Fair needed a much higher level of fetishization. For the first time, exhibition value had to deny the principle use value of new technologies. Whatever their drawbacks, motor cars provided many benefits for the general public. In contrast, space rockets, nuclear reactors and mainframe computers had been invented for murdering millions of people. Although the superpowers' imperial hegemony depended upon nuclear weapons, the threat of global annihilation made their possession increasingly problematic. Two years earlier, the USA and Russia had almost blundered into a catastrophic war over Cuba.[45] Despite disaster being only narrowly averted, the superpowers were incapable of stopping the arms race. In the bizarre logic of the Cold War, the prevention of an all-out confrontation between the two blocs depended upon the continual growth in the number of nuclear weapons held by both sides. The ruling elites of the USA and Russia had difficulties in admitting to themselves – let alone to their citizens – the deep irrationality of this new form of military competition. In a rare moment of lucidity, American analysts invented an ironic acronym for this high-risk strategy of 'mutually assured destruction': MAD.[46]

Not surprisingly, the propagandists of both sides justified the enormous waste of resources on the arms race by promoting the peaceful applications of the leading Cold War technologies. By the time the 1964 New York World's Fair opened, the weaponry of genocide had been successfully repackaged into people-friendly products. Nuclear power would soon be providing unmetered energy for everyone. Space rockets would shortly be taking tourists for holidays on the moon. Almost all traces of the military origins of these technologies had disappeared. Exhibition value completely covered up use value.

Like nuclear reactors and space rockets, computers had also been developed as Cold War weaponry. ENIAC – the first mainframe ever built in America – was a machine for calculating tables to improve the accuracy of artillery guns.[47] From the early 1950s onwards, IBM's computer division was focused on winning orders from the American government.[48] Using mainframes supplied by the corporation, the US

military prepared for nuclear war, organized invasions of 'unfriendly' countries, directed the bombing of enemy targets, paid the wages of its troops, ran complex war games and managed its supply chain.[46] Thanks to American taxpayers, IBM became the technological leader of the computer industry.

When the 1964 New York World's Fair opened, the corporation was still closely involved in a wide variety of military projects. Yet, just like the displays of fission reactors and space rockets, the computing exhibits at the 1964 World's Fair carefully avoided showing the military applications of this new technology. Although IBM had grown rich from government contracts, the corporation's pavilion was dedicated to promoting the sci-fi fantasy of thinking machines. Like the predictions of unmetered energy and space tourism, the imaginary future of artificial intelligence distracted visitors at the World's Fair from discovering the original motivation for developing IBM's mainframes: killing millions of people. Visitors were supposed to admire the achievements of US industry not to question its dubious role in the arms race. The horrors of the Cold War present had to be hidden by the marvels of the imaginary futures.[47]

Cybernetic Supremacy

New York World's Fair, 1964, postcard

At the 1964 World's Fair, imaginary futures temporarily succeeded in concealing the primary purpose of its three iconic technologies from the American public. But even the finest-crafted exhibition values couldn't hide dodgy use values for ever. As the decades passed, none of the predictions made at the World's Fair about the key Cold War technologies were realized. Energy remained metered, tourists didn't visit the moon and computers never became intelligent. Unlike the prescient vision of motoring for the masses at the 1939 World's Fair, the prophecies about the star technologies of the 1964 exposition seemed almost absurd 25 years later. Hyper-reality had collided with reality – and lost.

Like the displays of nuclear reactors and space rockets, the computer exhibits at the 1964 World's Fair also misread the direction of technological progress. Yet, there was one crucial difference between the collapse of the first two prophecies and that of the last one. What eventually discredited the predictions of unmetered electricity and holidays on the moon was their failure to appear over time. In contrast, scepticism about the imaginary future of artificial intelligence was encouraged by exactly the opposite phenomenon: the increased likelihood of people having personal experience of computers. After using these imperfect tools for manipulating information, it was much more difficult for them to believe that calculating machines could evolve into sentient superbeings.

Despite the failure of its prophecy, IBM suffered no damage. In stark contrast with nuclear power and space travel, computing was the Cold War technology which successfully escaped from the Cold War. Right from the beginning, machines made for the US military were also sold to commercial clients.[48] By the time that IBM built its pavilion for the 1964 World's Fair, the imaginary future of artificial intelligence had to hide more than the unsavoury military applications of computing. Exhibition value also performed its classic function of concealing the role of human labour within production. Computers were described as 'thinking' so the hard work involved in designing, building, programming and operating them could be discounted. Above all, the prophecy of artificial intelligence diverted attention away from the role of technological innovation within American workplaces.

The invention of computers came at an opportune moment for big business. During the first half of the twentieth century, large corporations had become the dominant institutions of the American economy. Henry Ford's giant car factory became the eponymous symbol of the new social paradigm: *Fordism*.[49] When profitable, corporations replaced the indirect regulation of production by markets with direct supervision by bureaucrats. As the wage bill for white-collar employees steadily rose, businesses needed increasing amounts of equipment to raise productivity within the office. Long before the invention of the computer, Fordist corporations were running an information economy with tabulators, typewriters and other types of office equipment.[50]

However, by the beginning of the 1950s, the mechanization of clerical labour had stalled. Increases in productivity in the office were lagging well behind those in the factory. When the first computers appeared on the market, corporate managers quickly realized that the new technology offered a solution to this pressing problem.[51] The work of large numbers of tabulator operators could now be done by a much smaller group of people using a mainframe.[52] Even better, the new technology of computing enabled capitalists to deepen their control over their organizations. Much more information about many more topics could now be collected and processed in increasingly complex ways. Managers were masters of all that they surveyed.

Almost from its first appearance in the workplace, the mainframe was caricatured – with good reason – as the mechanical perfection of bureaucratic tyranny. In Asimov's sci-fi stories, Mr and Mrs Average were the owners of robot servants. Yet, when the first computers arrived in America's factories and offices, this new technology was controlled by the bosses, not the workers. In 1952, Kurt Vonnegut published a sci-fi novel which satirized the authoritarian ambitions of corporate computing. In his dystopian future, the ruling elite had delegated the management of society to an omniscient artificial intelligence.

'EPICAC XIV (...) decided how many [of] everything America and her customers could have and how much they would cost. And it (...) would decide how many engineers and managers and (...) civil servants, and of what skills, would be needed to deliver the goods; and what I.Q. and aptitude levels would separate the useful men [and women] from the useless ones, and how many (...) could be supported at what pay level.'[53]

For business executives, Vonnegut's nightmare was their computer daydream. As mainframes increased in power, companies were able to automate more and more clerical tasks. According to the prophets of artificial intelligence, the computerization of clerical work was only the first step. For its new System/360 machines, IBM had constructed the world's most advanced computer-controlled assembly lines to increase the productivity of its high-skill, high-wage employees.[54] When thinking machines were developed, mainframes would completely replace most forms of administrative and technical labour within manufacturing. The ultimate goal was the creation of the fully-

automated workplace.[55] In the imaginary future of artificial intelligence, the corporation and the computer would be one and the same thing.

As the US military had already fortuitously discovered, machinery could operate much more efficiently without any human intervention. By building predetermined responses into the design, an inanimate weapon acted according to 'feed-back' from its environment.[56] According to Norbert Wiener, these self-regulating technologies had been forerunners of the computer. In turn, the advent of the mainframe heralded the remoulding of the whole of society in the image of a new technological paradigm: *cybernetics*.

'The notion of programming in the factory had already become familiar through the work of Taylor (...) on time study, and was ready to be transferred to the machine (...) The consequent development of automatization (...) [is] one of the great factors conditioning the social and technical life of the age to come (...).'[57]

The corporate vision of cybernetic Fordism meant forgetting the history of Fordism itself. This economic paradigm had been founded upon the successful coordination of mass production with mass consumption. Ironically, since their exhibition value was more closely connected to social reality, Democracity and Futurama in 1939 provided a much more accurate prediction of the development path of computing than the IBM pavilion did in 1964. Just like motor cars twenty-five years earlier, this new technology was also slowly being transformed from a rare, hand-made machine into a ubiquitous, factory-produced commodity. IBM's own System/360 series of computers – launched in the same month as the 1964 World's Fair opened – was at the 'cutting edge' of this process. Like Ford's motor cars before them, IBM's mainframes were manufactured on assembly lines.[58] These opening moves towards the mass production of computers anticipated what would be the most important advance in this sector twenty-five years later: the mass consumption of computers.

The imaginary future of artificial intelligence was a way of avoiding thinking about the likely social consequences of the widespread ownership of computers. In the early 1960s, Big Brother mainframe belonged to big government and big business. Above all, 'feedback' was

knowledge of the ruled monopolized by the rulers. However, as Norbert Wiener himself had pointed out, Fordist production would inevitably transform expensive mainframes into cheap commodities.[59] In turn, increasing ownership of computers was likely to disrupt the existing social order, for the 'feedback' of information within human institutions was most effective when it was two-way.[60] By reconnecting conception and execution, cybernetic Fordism threatened the social hierarchies which underpinned Fordism itself.

'the simple coexistence of two items of information is of relatively small value, unless these two items can be effectively combined in some mind which is able to fertilize one by means of the other. This is the very opposite of the organization which every member travels a preassigned path'[61]

At the 1964 World's Fair, this possibility was definitely not part of IBM's imaginary future. Rather than aiming to produce ever greater numbers of more efficient machines at cheaper prices, the corporation was focused on steadily increasing the capabilities of its computers to preserve its near-monopoly over the military and corporate market. Instead of room-sized machines shrinking down into desktops, laptops and, eventually, mobile phones, IBM was convinced that computers would always be large and bulky mainframes. The corporation fervently believed that – if this path of technological progress was extrapolated – artificial intelligence must surely result. Crucially, this conservative recuperation of cybernetics implied that sentient machines would inevitably evolve into life forms which were more advanced than mere humans. The Fordist separation between conception and execution would have achieved its technological apotheosis.

Not surprisingly, IBM was determined to counter this unsettling interpretation of its own futurist propaganda. At the 1964 World's Fair, the corporation's pavilion emphasized the utopian possibilities of computing. Yet, despite its best efforts, IBM couldn't entirely avoid the ambiguity inherent within the imaginary future of artificial intelligence. This fetishized ideology could only appeal to all sections of American society if computers fulfilled the deepest desires of both sides within the workplace. Therefore, in the exhibits at its pavilion, IBM promoted a

single vision of the imaginary future which combined two incompatible interpretations of artificial intelligence. On the one hand, workers were told that all their needs would be satisfied by sentient robots: servants who never tired, complained or questioned orders. On the other hand, capitalists were promised that their factories and offices would be run by thinking machines: producers who never slacked off, expressed opinions or went on strike. Robby the Robot had become indistinguishable from EPICAC XIV. If only at the level of ideology, IBM had reconciled the social divisions of 1960s America. In the imaginary future, workers would no longer need to work and employers would no longer need employees. The sci-fi fantasy of artificial intelligence had successfully distracted people from questioning the impact of computing within the workplace. After visiting IBM's pavilion at the 1964 World's Fair, it was all too easy to believe that everyone would win when the machines acquired consciousness.

Inventing New Futures

Forty years later, we're still waiting for the imaginary future of artificial intelligence. In the intervening period, we've been repeatedly promised its imminent arrival. Yet, despite continual advances in hardware and software, machines are still incapable of 'thinking'. The nearest things to artificial intelligence which most people have encountered are characters in video games. But, as the growing popularity of online gaming demonstrates, a virtual opponent is a poor substitute for a human player. Looking back at the history of this imaginary future, it is obvious that neither the optimistic nor the pessimistic versions of artificial intelligence have been realized. Robby the Robot isn't our devoted servant and EPICAC XIV doesn't control our lives. Instead of evolving into thinking machines, computers have become consumer goods. Room-sized mainframes have kept on

shrinking into smaller and smaller machines. Computers are everywhere in the modern world – and their users are all too aware that they're dumb.

Repeated failure should have discredited the imaginary future of artificial intelligence for good. Yet, its proponents remain unrepentant. Four decades on from the 1964 World's Fair, IBM is still claiming that computers are on the verge of acquiring consciousness.[62] The persistence of this fantasy demonstrates the continuing importance of exhibition value within the computer industry. As in the early 1960s, artificial intelligence still provides a great cover story for the development of new military technologies. Bringing on the Singularity seems much more friendly than collaborating with American imperialism. Even more importantly, this imaginary future continues to disguise the impact of computing within the workplace. Both managers and workers are still being promised technological fixes for socioeconomic problems. The dream of sentient machines makes better media copy than the reality of cybernetic Fordism. At the beginning of the twenty-first century, artificial intelligence remains the dominant ideological manifestation of the exhibition value of computing.

The credibility of this imaginary future depends upon forgetting its embarrassing history. Looking back at how earlier versions of the prophecy were repeatedly discredited encourages deep scepticism about its contemporary iterations. Our own personal frustrations with computer technology should demonstrate the improbability of its transformation into the Silicon Messiah. Forty years after the New York World's Fair, artificial intelligence has become an imaginary future from the distant past. What is needed instead is a much more sophisticated analysis of the potential of computing. The study of history should inform the reinvention of the future. Messianic mysticism must be replaced by pragmatic materialism. Above all, this new image of the future should celebrate computers as tools for augmenting human intelligence and creativity. Exhibition value must give way to use value. Praise for top-down hierarchies of control must be superseded by the advocacy of two-way sharing of information. Let's be inspired and passionate about imagining our own visions of the better times to come.[63]

1. Ray Kurzweil, 'The Intelligent Universe', www.kurzweilai.net/meme/frame.html?main=memelist.html?m%3%23534, 3.

2. See Wikipedia, 'Data (Star Trek)', and James Cameron (director), *The Terminator*, MGM/United Artists, 1984.

3. Honda, 'Asimo', www.world.honda.com/ASIMO/.

4. James Bell, 'Exploring the "Singularity"', www.kurzweilai.net/meme/frame.html?main=/articles/art0584.html?m%3D1.

5. Jeffrey Stanton, 'Best of the World's Fair', http://naid.sppsr.ucla.edu/ny64fair/map/docs/bestoffair.htm and 'Building the 1964 World's Fair', http://naid.sppsr.ucla.edu/ny64fair/map/docs/buildingfair.htm.

6. 'A Millennium of Progress' was one of the three feel-good themes used to promote the World's Fair. The publisher Henry Luce had announced the advent of the American century in 1941. See Stanton, 'Building the 1964 World's Fair', op. cit. (note 5); and Henry Luce, *The American Century* (New York: Time, 1941).

7. Editors of Time-Life Books, *Official Guide New York World's Fair 1964-5* (New York: Time, 1964), 94-96.

8. Ibid., 212.

9. Ibid., 208.

10. James Schefter, *The Race: The Definitive Story of America's Battle to Beat Russia to the Moon* (London: Century, 1999), 145-231.

11. Time-Life Books, *Official Guide*, op. cit. (note 7), 52-53, 220-222.

12. Ibid., 90-92; and Jeffrey Stanton, 'Showcasing Technology at the 1964-1965 New York World's Fair', http://naid.sppsr.ucla.edu/ny64fair/map/docs/technology.htm.

13. Emerson Pugh, *Building IBM: Shaping an Industry and Its Technology* (Cambridge, Mass.: MIT Press, 1995), 265-267.

14. In the early 1960s, IBM had a 70 per cent share of the mainframe market and was making over 40 per cent profit on some of its machines. See Paul Ceruzzi, *A History of Modern Computing* (Cambridge, Mass.: MIT Press, 2003), 110-112; and Richard Thomas DeLamarter, *Big Blue: IBM's Use and Abuse of Power* (London: Pan, 1986), 47-49.

15. DeLamarter, *Big Blue*, op. cit. (note 14), 54-146.

16. Time-Life Books, *Official Guide*, op. cit. (note 7), 70-74; Stanton, 'Showcasing Technology', op. cit. (note 12); and Robert A. M. Stern, Thomas Mellins and David Fishman, *New York 1960: Architecture and Urbanism between the Second World War and the Bicentennial* (Cologne: Benedikt Taschen, 1997), 1046.

17. Marvin Minsky, 'Matter, Mind and Models', www.media.edu/~minsky/papers/MatterMindModels.txt; and 'Steps Towards Artificial Intelligence', www.media.mit.edu/~minsky/papers/steps.html.

18. Robby the Robot was the devoted mechanical servant in Fred Wilcox's *Forbidden Planet*.

19. Herbert Simon, *The Shape of Automation for Men and Management* (New York: Harper, 1965), 39. This confident prediction was made in 1960.

20. See Immanuel Wallerstein, *The Politics of the World-Economy: The States, the Movements and the Civilisations* (Cambridge: Cambridge University Press, 1984); and Stephen Ambrose, *The Rise to Globalism: American Foreign Policy 1938-1970* (London: Penguin, 1971).

21. Jeffrey Auerbach, *The Great Exhibition of 1851: A Nation on Display* (New Haven: Yale University Press, 1999), 47-53, 137-140.

22. See Robert Brain, *Going to the Fair: Readings in the Culture of Nineteenth-century Exhibitions* (Cambridge: Whipple Museum of the History of Science, 1993), 97-103; and Auerbach, *The Great Exhibition*, op. cit. (note 21), 104-108.

23. Auerbach, *The Great Exhibition*, op. cit. (note 21), 31.

24. Ibid., 100-104, 132-134.

25. F.S.L. Lyons, *Ireland Since the Famine* (London: Fontana, 1985), 42-46.

26. Walter Benjamin, 'Paris - the Capital of the Nineteenth Century', in: Idem, *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism* (London: Verso, 1973), 165. Also see Karl Marx, *Capital Volume 1: A Critique of Political Economy* (London: Penguin, 1976), 163-177.

27. Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', in: idem, *Illuminations* (London: Fontana, 1973), 218-219.

28. Auerbach, *The Great Exhibition*, op. cit. (note 21), 17-23, 113-118.

29. Eric Hobsbawm and Terence Ranger (eds.), *The Invention of Tradition* (Cambridge: Cambridge University Press, 1983).

30. Walter Bagehot, *The English Constitution* (London: Fontana, 1963), 65.

31. Brain, *Going to the Fair*, op. cit. (note 22), 10.

32. Auerbach, *The Great Exhibition*, op. cit. (note 21), 161-189.

33. Urso Chappell, 'Expomuseum: World's Fair History, Architecture and Memorabilia', www.expomuseum.com.

34. See Julie Rose, 'Reactions to the Fair', www.xroads.virginia.edu/~ma96/wce/reactions.html.

35. Igor Colomstock, *Totalitarian Art in the Soviet Union, the Third Reich, Fascist Italy and the People's Republic of China* (London: Collins Harvill, 1990), 132-137.

36. *Official Guide Book of the New York World's Fair 1939* (New York: Exposition Publications, 1939), 42-45, 207-209.

37. Charles Eames and Ray Eames, *A Computer Perspective: A Sequence of 20th Century Ideas, Events and Artefacts* from the History of the Information Machine (Cambridge, Mass.: Harvard University Press, 1973), 105.

38. For a famous 1920s example of these malevolent artificial beings, see Fritz Lang's *Metropolis*.

39. Isaac Asimov, *I, Robot* (London: Panther, 1968) and *The Rest of the Robots* (London: Panther, 1968).

40. Henri Lefebvre, *Everyday Life in the Modern World* (New Brunswick: Transaction Publications, 1984), 100.

41. Jeremy Isaacs and Taylor Dowling, *Cold War: For 45 Years the World Held Its Breath* (London: Bantam, 1998), 230-243.

42. Robert Dallek, *John F. Kennedy: An Unfinished Life 1917-1963* (London: Penguin, 2003), 535-574.

43. Isaacs and Dowling, *Cold War*, op. cit. (note 41), 230-243; and Herman Kahn, *On Thermonuclear War* (Princeton: Princeton University Press, 1960), 119-189.

44. Paul Ceruzzi, *A History of Modern Computing* (Cambridge, Mass.: MIT Press, 2003), 15.

45. Pugh, *Building IBM*, op. cit (note 13), 167–172.

46. Edmund Berkeley, *The Computer Revolution* (New York: Doubleday, 1962), 56–57, 59–60, 137–145.

47. In the late 1950s, a US air force think-tank estimated that an all-out nuclear war between the two superpowers would kill around 90 million Americans. In the worst case scenario, 160 million would have lost their lives: Kahn, *On Thermonuclear War*, op. cit. (note 43), 109–114.

48. Pugh, *Building IBM*, op. cit (note 13), 152–155.

49. Henry Ford (in collaboration with Samuel Crowther), *My Life and Work* (London: William Heinemann, 1922).

50. James Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Cambridge, Mass.: Harvard University Press, 1986), 291–425.

51. Robert Sobel, *IBM: Colossus in Transition* (New York: Truman Talley, 1981), 95–184.

52. 'A modern computer can calculate more in ten minutes than a man [or woman] can calculate in fifty years, even if the man [or woman] is using a desk calculating machine.' Berkeley, *The Computer Revolution*, op. cit (note 46), 5.

53. Kurt Vonnegut, Jr., *Player Piano* (St. Albans: Panther, 1969), 106.

54. Emerson Pugh, Lyle Johnson and John Palmer, *IBM's 360 and Early 370 Systems* (Cambridge, Mass.: MIT Press, 1991), 87–105, 204–210.

55. '[W]e will soon have the technological means ... to automate all management decisions.' Simon, *The Shape of Automation*, op. cit. (note 19), 42.

56. Eames and Eames, *A Computer Perspective*, op. cit. (note 37), 128–129, 146–149.

57. Norbert Wiener, *The Human Uses of Human Beings*, pp. 204–205.

58. Pugh, Johnson and Palmer, *IBM's 360*, op. cit. (note 54), 87–105, 204–210.

59. See Norbert Wiener, *The Human Uses of Human Beings*, pp. 210–211.

60. See Norbert Wiener, *The Human Uses of Human Beings*, pp. 67–73.

61. Norbert Wiener, *The Human Uses of Human Beings: Cybernetics and Society* (New York: Avon Books, 1967), 172.

62. Bell, 'Exploring the "Singularity"', op. cit. (note 41), 2.

63. Richard Barbrook and Pit Schultz, 'The Digital Artisans Manifesto', *ZKP 4*, nettime, Ljubljana 1997, 52–53, www.hrc.wmin.ac.uk/theory-digitalartisansmanifesto.html and Richard Barbrook, 'Cyber-Communism: How the Americans are Superseding Capitalism in Cyberspace', *Science as Culture*, Vol. 9 (2000) no. 1, 5–40, www.hrc.wmin.ac.uk/theory-cybercommunism.html.

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Afro-futurism (or afrofuturism) is defined by Wikipedia as 'an African diaspora subculture whose thinkers and artists see science, technology and science fiction as means of exploring the black experience and finding new strategies to overcome oppression'.[1]

The website Afrofuturism.net refers to music writers and cultural critics like Mark Dery, Greg Tate, Mark Sinker and Tricia Rose, 'who brought science fiction themes in the works of important and innovative cultural -producers- to our attention. They claimed that these works simultaneously referenced a past of abduction, displacement and alien-nation, and inspired technical and creative innovations in the work of such artists as Lee "Scratch" Perry, George Clinton and Sun Ra. Science fiction was a recurring motif in the music of these artists, they argued, because it was an apt metaphor for black life and history.

Now a new generation of AfroFuturists are exploring these themes in a variety of genres. DJs Spooky and Singe in music and digital culture, Fatimah Tuggar and Keith Piper in the visual arts, Kodwo Eshun in music criticism, McLean Greaves in cyberspace, and Nalo Hopkinson in speculative fiction.[2]

Mother Ship Connections

An Imaginary Conversation with John Akomfrah[1]

Eric Kluitenberg

By Way of Introduction

This text is a montage of materials on Afrofuturism and imaginary media that the filmmaker John Akomfrah and I exchanged in 2004 as part of the preparations for 'An Archaeology of Imaginary Media', and John's lecture presentation there. We present it here as a conversation tracing the lineages of Afrofuturism and its methodological connections to the 'archaeology' of imaginary media, which was the subject of the event and this book.

John Akomfrah is a filmmaker who has won critical acclaim both in Britain and in the USA for his features and documentary work. In 1982 he helped found the Black Audio Film Collective, the seminal black filmmaking workshop, which for fifteen years produced a broad range of critically acclaimed work winning over thirty-five international awards. John came to prominence in 1986 when he directed Handsworth Songs, which explores the contours of race and civil disorder in 1980s Britain. The film won seven international awards including the British film institute's Grierson Award for Best Documentary

(notes p. 296)

On Afrofuturism and Imaginary Media

EK: John, to start off, let me sketch a bit of context to our discussion and then let me ask you for a general clarification of the term 'Afrofuturism'. We brought you over to Amsterdam for the Archaeology of Imaginary Media event in February 2004 to share some thoughts with us on Afrofuturism. It seemed to us that there were a considerable number of parallels with the concept explored in our event, Imaginary Media. Even more so we saw parallels with the 'archaeological' approach you and your collaborators had taken to Afrofuturism while working on the film *The Last Angel of History*, and the one we had chosen building on the media-archaeological groundwork of people like Siegfried Zielinski and Erkki Huhtamo.

The term 'archaeology' in our discussion refers first of all to Michel Foucault's Archaeology of Knowledge and his refusal of any form of historicism. Secondly, it refers to the method or approach to 'excavate' hidden lineages in the past, and tracing the discontinuous connections they make to things we can see in the present – without reaching, or even striving for the construction of a 'history'.

Media archaeology, as Zielinski, Huhtamo and others understand it, is furthermore an attempt to emphasize the cultural dimension of media development, to understand media more as an idea rather than an

Akomfrah has lectured throughout the world on black British cinema in a range of institutions and has also written extensively on film theory and aesthetics. He is a member of the PACT Cultural Diversity Panel, and a member of the board of governors of the British Film Institute.

Akomfrah's feature films include: *Digitopia* (2001), *A Death in the Family* (2000), *Rise* (1999), *Speak Like a Child* (1998), and *Who Needs a Heart* (1993). John Akomfrah is also the director of a series of documentaries, including: *Prostitutes* (2001), *Stalkers* (2000), *Martin Luther King – Days of Hope* (1997), *The Last Angel of History* (1995), *Seven Songs for Malcolm X* (1993), and many more.

artefact – or a desire maybe. This (media-) desire is a longing for communication of 'meaning' not just for the transfer of information; a desire to abolish distance; for intimacy while being apart; and more generally a sense of transcendence of physical and mental limitations by means of a machine. We even found a recurring desire to transcend the divide between the living and the dead.

When media are 'dematerialized' in this way it begs the question what is more 'real': the actual machines that have been produced to support human communication, or rather the visions and desires that drive their development, without whom those machines would never have come into being in the first place. Imaginary media, as a concept, focuses attention on the latter.

If desire is the defining moment of imaginary media, then the actual fulfilment of these desires matters less than their origin. The actual physical manifestation of the machines is less important than their ability to populate our dreams, to evoke our imagination, to stir the soul' as it were. Right here it must be noted that things that stir the soul are often not of a singularly positive nature. The figure of the sublime, and in my opinion especially the 'existential sublime' (dealing with mixed sensations of horror and delight), imposes itself upon the discussion here.[4] Imaginary media imply a notion of the technological sublime in which there is always this ambiguous mixture of pleasure and pain, something that is simultaneously highly desirable as well as deeply disturbing and dark.

I'm using this almost 'impressionistic' language to make it clear from the start that we are discussing not so much the functional, performative media of business discourse, but something rather more teleological: machines with divine capabilities; machines of liberation and redemption. All of the terms used here can, I think, fit seamlessly with the concept of Afrofuturism. Where did your research originate from?

JA: In 1992, Black Audio began research on a film on the African American political activist Malcolm X, which morphed into a continuing interest in the artefacts of black science fiction, Afro technophilia, if you like, in a range of black music, and what then seemed a disparate set of futurological musings which we began to understand as a quest for

Utopia: an archaeology of the slave narratives, mystical writings on Egyptology. In the course of this research it became increasingly clear to us that the work we were undertaking was nothing less than an archaeology of black artefacts, the existence of which attest to what we call an inventory of Afrofuturology.

The first techno fossil from this hidden, sometimes submerged, occasionally wilfully obscure repository was the work of the musician Sun Ra. Sun Ra's music became the paradigm research, because what he proved was that at the centre of what was for then a submerged world of Afrofuturism lay an ongoing debate between its practitioners and the texts, discourses, iconography and 'arcania' of black cultural nationalism.

The first result of this research was a film we made in 1995, *The Last Angel of History*, which became part of a series of films under the broad banner of *Astro Black Mythologies*. Memory Room 451, the second in the series to be made though the collective was finished in 1996. The series began with a question: Is there such a thing as black cyberspace, a techno constellation by which we can navigate our way through black speculations, musings, and imaginings on the future?

The entire series was informed by three equally simple insights. The first was at the centre of the inventories and regimes of truth that constitute what one could call a history of black culture lay a relationship between black popular culture and science fiction, which cuts across the histories of musical genres, literature, black presences on television and politics. And at the centre of this constellation lay black music in its popular and unpopular forms.

The second was that at the centre of this constellation of futurological imaginings were a set of players – let's call them black futurologists, pioneers in charting black cyberspace. They were musicians, mystics, actors, writers, astronauts, space scientists. What they have in common is an investment in imagining the future.

The third and final insight was that this was necessarily an archaeological excavation in the genuine sense of the term. We were excavating in a field, making connections between the things we unearthed, techno-imaginary fossils – which had no necessary and a priori connection with each other at all: for example, despite a shared

concern with extraterritoriality and certain tropes of eccentricity, the P Funk troubadour George Clinton had never heard of mixological alchemist Lee Perry, and neither felt any necessary connection with jazz maestro Sun Ra.

Yet, all three, and each in his own way, presented themselves as being extraterrestrials; Ra, Clinton and Perry live as 'brothers from another planet'. The intergalactic identity may have been meant literally – as in the case of Sun Ra, who before he died, insisted that he was from the planet Saturn.

Each at different points in their lives quite literally saw themselves as a machine, but machines with decidedly human characteristics. Sun Ra said: 'I am a machine, a living dream of the past.' Lee Perry insisted on several occasions that he was a computer.

At the heart of each of their techno-fetishisms was a technophilia which sought to replace the human signature. That may seem divorced from the complex political histories which formed them. All three were mature artists at the time of the civil rights – and it is worth bearing in mind that the struggle was at heart a quest to legitimize black humanity.

Crucially, what distinguished this set of players was not some naïve hope in a technological future as a moment of racial erasure or negation, but rather of its remaining and reconfiguration. For all three, futurological musing remained both resolutely utopian (because we will be free of the racial stigmata), but also decidedly dystopian (because it held the key to our finally becoming what we always were). When Sun Ra, for instance, said 'Space Is the Place', he was not looking for the transcendence/overcoming of the racial: he did not in the technê see the end of a racialized subjectivity, but rather its liberation and redemption.

These were not Martin Luther King's of the cyber world – they don't share his universalising humanitarian agenda, the emphasis on Agape as the key condition of existence, the emphasis on redemptive suffering. They were in fact musicians and writers who, on the one hand, wanted today's science fiction as tomorrow's fact, who wished the symbolic to be superseded by the new, who somehow felt that the only way of understanding the fate of the future was by identifying the locations, phrases, images, artefacts, the minutiae of the everyday, which might hold the key to a redemptive future.

So in that sense there has always been a futurist component to post-war black music. It "began" – always a tricky proposition but here goes – in the 1950s with avant' jazzman Sun Ra. Sun Ra begat Coltrane and Hendrix. Hendrix begat Clinton. Clinton begat Afrika Bambataa, and Bambataa begat Public Enemy. These are the founding figures. Fellow travellers would include Lee Perry, Ultramagnetic MCS, Earth Wind & Fire, Missy Elliot and Timberland stand in this tradition. As do Dr Octagon, Arthur Jaffa and Greg Tate. Not an exhaustive or by any means exclusive a list but one that simply attests to the existence of the submerged iceberg. Crucially and importantly, this was our working list.

EK: How does Afrofuturism relate then to such terms as machines of desire, technological transcendence, the absolution of alienation, the technological sublime, the existential anguish of horror and delight, the abolishment of distance and separation?

JA: In black music's fascination with science fiction we find a series of narratives linking the quest for space with the desire which underwrites even the oldest slave narrative – the symbolic (and often real) desire for repatriation and redemption.

Built into black music's science-fiction component are a range of alternative takes on the question of Diasporic identity which encompass, rethink (and blur the lines between) integration and separation; a host of different ways of rethinking the question of race and black belonging in an imaginary future for the real future.

Those musicians preoccupied with science fiction are inevitably cultural syncretists (Clinton) hybrids (Hendrix), cosmic multiculturalists (Coltrane) or conduits for the afro cosmological (Sun Ra). They talk in tongues musical, cultural and political (think of Clinton's sleeve notes, Perry's *logorrhoea*, Sun Ra's totalizing astro black mythologies). And they all share a deep and abiding interest in 'the end (of that which keeps racism intact)' – the apocalypse and life thereafter.

These characteristics surface regularly enough in black music to suggest a new 'hybridic' black genre, organized around thematic rather than formal lines. A black science-fiction music. A non-realist alternative approach to the black American quest for selfhood framed by

desegregation in the 1950s, and Reaganism's repeal of the gains made during the civil rights decades.

Two non-musical figures hold this genealogy together. At one end we have Marcus Garvey, architect of the Back to Africa movement. Garvey figures as a sort of gateway to a series of alternatives to black history as history of wretchedness. At the other end is science fiction author Samuel R. Delaney, whose extensive body of work has taken 'race' into science fiction's futurological landscape, and provides new takes on the integrationist imperative.

After the Myth comes the Origin: Astro Black Mythologies

Black Science-fiction music is where black-to-the-futurism interfaces with the arcania and the everyday of black life. The science-fiction creation myth of the Nation of Islam[5]; the quest for the lost Ark of the Covenant which housed the ten commandments; the lost kingdoms of ancient Egypt; the tale of the Black Star Liner. These are the 'myths' which sustained black futurological reasoning.

They're woven into the music's own futurisms and given new image and sound, evoked not just in the lyrics, but in LP sleeves (Clinton's *Brides of Dr. Funkenstein*, Coltrane's *Interstellar Space*), stage presentations (Earth Wind & Fire, Sun Ra's Arkestra, Funkadelic), the creation of alter egos (from Sun Ra himself to the P Funk cast), new other-worlds (Hendrix's underwater kingdom, Bambataa's *Planet Rock*).

In Black science-fiction music the death of media is always the gateway to something new, because in black science-fiction music, mutation and what we have begun to call mixology reigns supreme. The studio metamorphoses into a launch pad into audio space; with Public Enemy, Lee Perry, Derek May EWF, P Funk, the orchestration of sound is the gateway to another world – a world in which space is the place!

EK: A more specific question regarding Afrofuturism could be what the central imaginary medium of Afrofuturism is? Is it the *Mother Ship*, the spaceship that will ultimately rescue all blacks and lead them to a new existence elsewhere in the universe? In your talk you related this narrative to some of the most sacred and more or less hidden texts and teachings of Mohamhed Fard, the founding father of the Nation of Islam. Also, you point out here and elsewhere that the fascination in black culture with science fiction links the quest for space with the desire that underwrites older slave narratives—the symbolic (and often real) desire for repatriation and redemption. And this desire seems embodied in the image of the *Mother Ship*. Can this quest for (black) space by means of the *Mother Ship* be understood as the absolution of displacement?

JA: First of all, Malcolm X was important here, because in researching his life we came across a set of texts so sacred to the Nation of Islam that it was usually only transmitted orally to the newly converted.

There were teachings of its founding father Mohamhed Fard. Fard's theology borrowed wholesale from several religions, including Islam and the Jehovah's Witnesses. To this he added a hearty helping of numerology, pseudo-science and bogus history, which placed blacks at the centre of world history and stressed their divinity.

According to these writings – and I stress once more that at the time they were the Nation's most sacred – a mad-genius-scientist Yacub spent six hundred years trying to create a race of devils from the 'germs' of blacks. Yacub's synthetic progeny were the evil White People. He created them to bedevil black folks.

According to this doctrine, blacks were originally 'moon people' and the UFO *mother wheel* which brought them to earth was piloted by 13 youths who even now perpetually orbit the earth, waiting to unleash global destruction on whites, while rescuing all blacks. This *Mother Plane* or *Mother Ship*, an aircraft built by black scientists in Japan many thousands of years ago, undetectable by radar, still circled the earth and carried powerful weapons which would one day unleash Armageddon – unless you happened to be black or Asiatic. Asiatic because blacks were not from Africa at all but Asia.

Mohomhed Fard's were the most extreme form of a set of ideas, which we encountered again and again. And what really made us take note was the prevalence of these ideas among a range of musicians, ideas which became for us the founding texts of modern Afrofuturism.

EK: Another issue I was thinking about with regards to the *Mother Ship* narrative is whether the departure from Earth and the delight of space travel can be understood as a kind of historical sublime (rather than an existential one, which is strictly connected to individual experience)?

If we follow the classical scheme of privation, horror and delight, as in Edmund Burke's explanation of the existential sublime,[6] the privation (that what is taken away from the person experiencing the sensations under discussion) is self-determination and belonging (through the displacement of slavery). The horror is the displacement and slavery itself with all its attendant forms of terror. When the horror of slavery is put to an end there is an intense feeling of relief (absolution). Burke reserved the term 'delight' for such intense feelings of relief after terror has been relinquished.

Now, even though slavery as such may have been abolished in the USA and elsewhere in the West, the social injustices persist and the displacement, after many generations, is simply irrevocable. You yourself suggest in your talk that the return to the African Motherland is not really a viable option. In other words, the horror of displacement persists. It is the result of the privation of belonging through the original abduction into slavery, and it can only be put at bay by the quest for a new belonging in space – thus the experience of space travel as absolution from displacement, as an experiential category, can only be properly described as 'delight'. Its intensity derives from the life-threatening character of the terror inflicted upon those suffering from this historical displacement. This intensity can also explain part of this excessive drive for an exodus into space that you have found again and again in Afrofuturist writings, music, films and other imaginations.

JA: Throughout this research we were aware that what we were unearthing was simply the outlines of what one could call a hidden

diasporic map: a map of hidden diasporic aesthetics. In other words, it's clear that the black cultural spaces in which a programme for a black future was being created and imagined were in different places and crucially at different times: Perry's Black Ark recording studio in the suburbs of Jamaica; Sun Ra and his Arkestra's commune in New York (Philadelphia); Samuel Delaney's home in Greenwich Village; Derek May's and Four Hero's bedrooms in Detroit and North London; the stage of the Hammersmith Odeon, 1975, when George Clinton climbed out of the *Mothership* – and into your mind.

These musings and reflections were so widely dispersed that we began to catalogue themes, writings and discographies for what might constitute an inventory of black techno-arcania. At the top of the list of this inventory was cultural nationalism, particularly its importance in shaping the mytho-techno poetics of the Nation of Islam's founding fathers.

Secondly, its importance in shaping the agenda of early black science fiction, notably the 'lost' work of proto black science-fiction novelist George S. Schuyler, *The Black Empire*, written in the 1930's, a story about a secret Black society and its plot to take Africa over from the Europeans.

A series of thinkers starting with Samuel Delaney have in different ways teased out a suggestive connection between extraterritoriality and the new world slave sublime, the kind of alienation that science-fiction writers try to explore through various genre devices – transporting someone from the past into the future, thrusting someone into an alien culture, on another planet, where he has to confront alien ways of being. All of these devices reiterate the condition of being black in the New World. The imaginative leap that we associate with science fiction, in terms of putting the human into an alien and alienating environment, is a gesture that repeatedly appears in the work of black writers and artists.

Thirdly, the history of black culture tells us there is a relationship between black popular culture and science fiction, which cuts across the histories of musical genres, literature, black presences on television and politics. At its centre is black music in its popular and unpopular forms. The players – let's call them black futurologists – are pioneers in charting black cyberspace. They are musicians, mystics, actors, writers, astronauts, space scientists. What they have in common is an investment in imagining the future.

Running alongside the techno fetishism and the tropes of extraterritoriality were imaginary vehicles which quite literally became the vessels/vehicles for interstellar explorations George Clinton's *Mother Ship*; Lee Perry's *Black Ark Studio*; Michael Jackson's *Egyptian Arcadia*; *Sun Ra's spaceship*; Garvey's *Black Star Liner*.

Then there is a story of a boy from the Dogon (in Mali) who had spent some time in the USA; one of the things he described to his elders when he returned was *Star Trek* – they had experienced this some centuries ago, with minor variations – extraterrestrials on a research mission. The Dogon is a myth of self creation. The Dogon place their origins in the stars in the region of Po Tolo, or the Canis Major system (Sirius B). They have traced the orbit of the dark star, around Sirius, the brightest star in the sky. Their observations are climaxed in a quarter-century ritual called the Sigui, when Po Tolo makes a complete orbit around Sirius B. Sirius B is invisible to the naked eye, yet the Dogon have traced it's orbit for centuries.

An Imaginary State ('State of Mind')

EK: Is space then really a place in Afrofuturism, or is it rather a state of mind, a mental refuge, or possibly the acceptance of the irreversibility of colonial displacement? When going through the materials about Afrofuturism I was reminded of a bittersweet project that emerged during a meeting of the Syndicate network for media art and media culture in Budapest, April 1999, right at the start of the Kosovo war. As an act of defiance, both against NATO as well as the Milosevic regime, we invented an imaginary state for people who felt Balkanized, the Future State of

Balkania. Although Balkania was to have a strong Internet presence we rejected the idea that it would be a 'virtual' state. Rather, it was a mental construct, a refuge. The state structures were organized according to various mental states that we associated with the Balkanian experience. It was a state without a territory, therefore one of the central slogans was 'Balkania is not at War' — as it had no territory there could be no competing claims to wage war about. The fact that the Future State of Balkania was a 'state of mind' was further exemplified by the principle that anybody who felt Balkanized could become a citizen of Balkania – caught in the phrase 'Ich bin ein Balkanier'.'

At the time (1999) I described this imaginary state as follows:

'The notion of the "virtual" is too limiting. Even when it would be considered to mean "seemingly rea/something that poses as real but is not in fact", so when we would not limit the virtual to the technological domain, to the realm of disembodied digital data, still this notion seems primarily constraining.

For me the whole notion of Balkania meant not so much a virtual state, but rather an imaginary state, in a very real sense a "state of mind". The imaginary here means that it is a purely mental construct, something that can express itself in countless forms, material, virtual, embodied, private, public, ephemeral, maybe even transcendental, but in its essence always remains a mental phenomenon, an idea.'

Is space in the Afrofuturist slogan 'Space is the Place' similarly a mental refuge?

JA: Let me recall a few of the premises we held in producing the Astro Black Mythologies series mentioned earlier: One of the premises there read that central to the black music/science-fiction and black writing/science-fiction dyads are a set of narratives linking the quest for space with a desire for redemption and reparation whose founding moment is the transformation of the African into a slave/robot cyber

figure; Greg Tate, Chuck D and Anthony Braxton attest to this. We also found that the science-fiction/black culture nexus is one of the few spaces where black popular culture and black unpopular culture converge, creating new forms, new cultural possibilities: Nichelle Nichols, Samuel Delaney and Greg Tate all asserted this.

The black culture and science-fiction interface is grounded in key moments in radical politics; Vietnam in the case of George Clinton, black nationalism in the case of Sun Ra, Lee Perry and George Clinton, the civil rights movement in the case of Nichelle Nichols and Star Trek, the gender politics of the gay and women's movement(s) in the cases of Octavia Butler and Samuel Delaney. Black science-fiction culture, especially music, figures the past in the present by matching the quest for 'outer' space with new journeys into the inner 'technological tape' space of black sound itself via the digital utopias of jungle and techno. However, in black culture, musings on the future are connected irreducibly to the present and also the past. How the future figures in the present (and vice versa) is a concern that structures the black science-fiction universe, as theorists such as Hakim Bey, Donna Harraway and Samuel Delaney will confirm. Therefore, these Afrofuturist narratives are necessarily always more than solely an imaginary mental refuge.

EK: After your talk, Klaus Theweleit voiced some criticism concerning your interpretation of Sun Ra's oeuvre and his use of space narratives. Theweleit suggested that the secessionist drive in Sun Ra's public declarations, stating that he was not of this earth and that a flight into space would actually mean something like a homecoming for him, should be understood as an expression of non-belonging. In other words, Sun Ra refuses to accept displacement, and thus the pursuit of space should in his case not be understood as a quest for absolution of the pains imposed by the history of slavery. This seems to be an essential point of difference. The quote below I found is the closing remark of an interview with Sun Ra. It's hilarious, but it is also uncannily smart in refusing any kind of framing or pigeon-holing:

'I've been there – in Space before, it would be like going home. This is not my home. This planet, to me, is like a railroad station; people are here today and gone tomorrow. It's not really home to anybody, it wasn't made to be home to anybody, it's like a big university that people sit in to learn how to be punished if they so choose. There are too many jails on this planet, too many destructive forces, but I can stop all that if maybe some government would help me ...'[8]

It seems that Ra is beyond seeking recourse from the terrors and displacement of slavery, or for that matter the linkage to black nationalism. Is he therefore misplaced within the Afrofuturist setting?

JA: I already mentioned earlier that when Sun Ra said 'Space Is the Place', he was not looking to transcend or overcome the racial; that he did not in the techné see the end of a racialized subjectivity, but rather its liberation and redemption.

During the Q&A after the lecture at De Balie, I emphasized that Sun Ra stands out as the figure that has most to loose in this grouping – in terms of his uniqueness, his standing as a musician, and the sheer volume of his work. Sun Ra is the one made slightly smaller by this grouping : Lee Perry for instance was a producer. In fact there has never been a single showing of the film *The Last Angel of History* where this kind of criticism hasn't been raised by someone in the audience who happened to be a big jazz or Sun Ra fan.

But the point is this.The understandable desire of Sun Ra lovers to protect his uniqueness and specificity – qualities and achievements we were not in any way attempting to undermine – also has to take into account the qualities he shares with Clinton and Perry: their shared emphasis on extraterritoriality, their shared investments in mytho – poetic reformulations of Origin and Identity .And so on. There is a shared set of mythological assumptions with these other guys, which was so uncanny in its regularity, its stridency and consistency, that all I can do is to point them out to the audience.

I think there is also a connection between the three that you only get if you are interested in all three. Or at least in dissolving, for the sake of argument, the binary of pop music and jazz, high art and pop art.

And this uncanny similarity for me is their shared commitment to what I would call, impossible music or impossible sound or weird sound as a marker, a trace of an "outernational " identity. It is a desire to embed in the very texture of the sonic, in the grain of their sound, vestiges of the alien status that was so central to their extra-musical identities. And this could either be an investment in the weirdness of the theremim, the extra- notational logic of the synthesiser or the voodoo of the mixing desk (echoes, reverbs, delays overdubs and so on).

EK: My final point is more of an open question. I wondered how the *Mother Ship* imaginary is related to the aspirations of young African immigrants who want to make their way to Europe and often do so without any legal status and at great risk to their lives. Is this a form of economic displacement? Is Europe for these (often) young immigrants a different kind of space ship, one so desirable that it is worth dying for trying to reach it?

Good point but Europe is not that mothership, it is the promised land.The point is that Afrofuturism had and continues to have an abiding fascination with notions of flight, flight either to a promised land or to that impossible space where the real and imagined can fused into a new, more portent whole. But is important to realise that these metaphors of flight are not wholly invented by or solely attributable to modern black futurological musing – from the sixteenth century onwards, and across the New World, one finds a plethora of references to Flight as a specific narrative response to enslavement and bondage Throughout the Americas. And this, if you like, is the "inherited" motif that one encounters in the dreams of the new African migrant .

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1. This conversation never actually happened. It could have happened, but for all kinds of merely practical reasons it never did. John and I considered an e-mail exchange not the appropriate procedure. Instead, we agreed on a set of questions and decided to cull the appropriate answers from the notes and the recording of his lecture at the Balie on February 5, 2004.

2. http://en.wikipedia.org/wiki/Afrofuturism

3. www.afrofuturism.net

4. See also the discussion of Edmund Burke's notion of the existential sublime in my essay "Connection Machines" in this volume.

5. IA: difficult to establish whether this is still the Nation Of Islam's teachings but I suspect not.

6. See also: Kluitenberg, Connection Machines - section: "Compensation Machines".

7. See: www.savanne.ch/balkanis

8. http://wush.fm/archive/articles/SunRa.html