Edited by Eric Kluitenberg

BOK

of

imaginary

Media

excavating the dream of the ultimate communication medium

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Second Introduction to an Archaeology of Imaginary Media

Erik Kluitenberg

'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 heard 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. Notouching either.’

Excerpt from: On Imaginary Media, by Peter Blegvad (2004)
Like communities, all media are partly real and partly imagined. 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 idiosyncratic 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 machine 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 imaginaries, 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 imaginaries 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
state are pathophysiological constructs, belonging to the realm of imaginary solutions. They can, however, at times also be embodied objects in which all kinds of imaginary qualities are ascribed. In either case they are more than metaphors, more than mere transmitters 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 nation 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 community.' Nations and communities are, however, never purely imaginary. The very fact that a group of people subscribe 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 exist in 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 primitive villages are 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 the other community members is the premise that they can 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 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 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 sanitized (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 surrounded 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 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 Erikki Hultimo, each define their media archaeological approach in slightly different terms.

**Erikki Hultimo:**

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 archaeology somewhat differently. I would like to propose it as a way of studying such recurring cyclical phenomena which (re)appear and disappear over and over again in media history and somehow seem to transcend specific historical contexts. 

**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 effect 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...
strata of media machineries, what you find is the occurrence, disappearance, and recurrence of a series of media imaginations 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 implication in the final sentence of the quote above: “to dig our own secret paths in history, which might help us to find our way into the future.” During his lecture in De Ball 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 behind technological communication media and their futurity, 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 Athanasios Kircher, Siegfried Zielinski points out that he shares a paleontological view of media 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 ‘archaeology’ 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’. 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 favorable 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. 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 Cebrari Zeugmuller 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. 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 TV's culture which is always half-bound and half-free? And how would audio/video scratching techniques be transformed by this integration of music and image as a medium that proved such an expressive tool for the break-dance/scratch generation?

Also, Zelinski himself has pointed to Sterling's Dead Media Project as a station in the trajectory of an archaeology 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 Stereosomania

In 1995, I had the exceptional pleasure of engaging in one of the curious habits of the Finnish media scholar, theorician and curator Erkki Huhtamo quoted earlier. A field research in antiquarian shops in the medieval old city of Tallinn. Estonia, to an attempt to uncover old media machines from the Soviet era. Huhtamo is a collector and excusive 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 machine-communica-
tion devices, including hilariously bizarre points of eighteenth- and

nineteenth-century video-phones, and proto-virtual reality devices, as well as countless examples of pre-electronic man/machine interfaces—just 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 Stereosomania 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.
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 analysand in a greased space, in order to become a new body, a third body. In this mediating space the patient finds or renews himself, constructs himself in a manner different from what he/she was before."

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 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
musician'. In his notes on a Guitar Craft course in Argentina of 1996, Fripp elaborates 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 himself what is actually and really involved. A performance of music becomes the act of music, in which process and content are inseparable."

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 intertwining of our body with technology. And it is, probably here, that the locus of imagination vis-à-vis our technological environment lies.

Intermission from Bieyad's On Imaginary Media, 'Moodia'.

She - Imagine drugs can do, imaginative mood can do.
He - Imagine mood altering or mood enhancing media.
She - Imagine mood.
He - Moodia is silent, but it moves you like music. Wireless stimulation of neural paths.

Politics of Imaginary Media

'She - Most people use Moodia as an anti-depressant, but naturally the technology is abused, kipped-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 summarized 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 to the creation of ballistic missiles for the delivery of nuclear weapons; and the development of artificial intelligence translates into the construction of missile control and guidance systems, leading to semi-autonomous weapon systems. Most of these concerns are ongoing areas of military research and development, also today.

**Imaginary Media and the Cinematic Imagination**

The contributions by John Akomfrah, Edwin Carrels, 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, represents here through an imaginative conversation on Afrofuturism and the Medusa’s narrative, based on the notes of his talk and subsequent discussion in his talk as well as the documentary film *Last Name 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 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 Carrels has been developing a close examination of the pre-history of cinema and early forms of animation machines (such as the fantascope and the fantasmoscope), 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 deceased 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 ‘animato’, which signifies ‘to bring to life’ or ‘to instill with life’.
Filmmaker Zoe Beloff builds further on this theme by exploring the often queer aesthetics of spiritual 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 mediums 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 installations works. Probably her favourite medium is stereoscopic film and projection, which detachs 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 resolve within their work new definitions of previously unknown media and mediate forms that are brought into existence there. Emblematic for this is the work of the artist Julien Maire. He construes 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

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…
The first contribution was written by the 
chronicler MediaFuturist (February, 2009) and can be found on the 
www.intermediaarchology site.

2. The word media as a catch-all for 
things here we refer primarily to 
communications media.

B. Benjamin. "Augmented 
Consciousness: Enlightenment and 
Ortography of a New Signage System." London and New 

1993.

Kaleidoscopic" in Fabian and 
Towards an Archaeology of the Media. 

5. Timothy Morton. "Leviathan: 

Archaeology" originally published by 
Comedy, November 1999.

7. New Media Library.

8. "The Virtual" in the "Real 
Environment." London: 

9. See also the Viola website:
www.gar.com

10. Images and virtual reality might be 
considered such a concept, yet 
unrelated to digital media.

11. For a more detailed and 
more recent take on the definition of the 
media at the expense of including 
the everyday in order to exclude 
her contribution in the book, which we 
saw in a summary of his argument in 
provisioning.

a) M. Blum, Media and Media, 
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.

Modelling Media for Ignatius Loyola

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

Siegfried Zielinski

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 greenhouse, 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 anthropological – which for me increasingly represents an appeal for a Vareniusian – media – three groups of phenomena can be distinguished within the category of 'imaginary media':

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

- **Conceptual media/apparatus/machines**: Artifacts that were only ever sketched as models or drafted as concrete ideas in papers, but never actually built.

- **Imaginary 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 hope to show that this history and geography in order to present us with exemplary cases of all three groups. From Freud's Eros and Thanatos, through the best-seller literature of the second century, through to Ramon Lulli's thirteenth century model for communicating biblical expertise, and on to Walter Benjamin's Arcades Project (1935), 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 archeology 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, cryptography, 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, reevaluated and supplemented. In optics, this applies above all to the work of Giovanni Battista della Porta (1535-1615) and Jean François Niceron (1613-1664); in musicology that of Robert Fludd (1574-1637) and Marin Mersenne (1588-1648); in combinatorics, cryptography and steganography that of Ramon Lulli (1235/36-1316) and Johannes Trithemius (1462-1516); in magnetism, that of della Porta, William Gilbert (1540-1603) and Rudolph Goclenius (Rudolph Gockel). 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 harmonium, 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 Romanae, 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
led in fragmentary form, of material from the extensive oeuvre of the Neapolitan della Porta, whose researches had been subject to constant suspicion and censorship by the Inquisition. Other examples include Tellegen's texts on cryology, which regained currency in elite scholarly discourse, and the ideas of the English hermetic mathematician John Dee on hieroglyphs, 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 broad publishing activities, stripping them of their sometimes evocative magical dimensions, transforming some of them into working artefacts and generalizing them to create media models which in important respects are still valid today. Kircher popularized natural philosophy on a large scale and inciting interest in 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 nothing but peace—i.e. consists of a dissected 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 Maniera universale (1655). An ‘McManus basis autumnae’ (1645–46) pursues the same idea in optics. In Mundus subterraneus (1665), everything on earth is determined and controlled from underground by a ‘central phenomenon’, the power of fire, upon which Kircher builds a ‘centrosoph’ of the element that played such a key role for Empedocles. He was especially impressed and inspired by a passage by ship from Mexico to Naples in the year 1636, during which 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) 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 historical, 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.
Within Kircher's oeuvre, the idea of fully interlinking heterogeneous material is most explicit in his study of a phenomenon in nature and physics. The technical terms for these were to have a decisive influence on the development of modern transport and communications: the power of magnetism. The first book to be published by Kircher was *Museorum Mechanicum* (1641). By analogy to fire, he understood magnetism as a hidden power holding the world together in its depths, an elemental force of nature whose effects are felt everywhere. In the greater cosmic order of 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." 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: *natura animantibus.* Besides its associations with positive forms of attachment, the Latin noun *natura* can also mean entanglement, guilt, bondage. The Latin word *natura* 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).

For Kircher himself, the potential connective power of magnetism had a clearly positive connotation, associated with attraction, with love. In his view, it was *theologiae ultima in coeius.* Kircher was not interested in raising 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 pulsatum (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.*

coming together & splitting apart, a dualism thus described by Rudolf Goeckel in 1509. 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."

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 Wurttemberg pietist Friedrich Christoph Oetinger and his student Johann Ludwig Fricker, Prokop Divi, from Helvickove 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.

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: 'Magnetism 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 *via magnetica* des with the all-pervading spiritual power of nature."
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 cymbalum, 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, requiring both parties to agree on a code by which the electrical sparks stand for letters of the alphabet.

This device for sending written messages over long distances was developed at the Collegium Romanum by the physicist and philosopher Giuseppe Bozzi and demonstrated in experiments during his lectures. It functioned on the basis of key fundamental inventions in physics, like the Leyden 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 *Magna*, 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. Kircher'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 Mazoll/Bozoli 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. Vestin and Haskell direct attention to the major role played by friendship in the didactic poetry of the Jesuits. It is an important motif in della Porta's crypto-philological 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, 1569) 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 sympathetic, a special compound that is essential to this experiment, but simply cite the mode of this long-distance communication. Take two new knives and smear the blade 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 style. 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 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.

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' 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 especially 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 respect, Vilém Flusser was fond of pointing out that the German word for reality, Realität, bears within it the meaning of an effect, a conceived impression.

Kircher's world of apparatus devoted to producing optical illusions is beautifully illustrated in the folios of *De magnis luctibus et umbrae*. First published in 1645-1646 in Rome and then in an extended and even more sumptuous edition in 1671 by Jans 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 role of Jesuit conversion strategy following from the doctrine of spiritual exercises laid down by the Order's founder Ignatius Loyola. In a period when scientific methods played such a ubiquitous role, the direct physical ordeal 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 *mystical journal* of Dadaist image-makers as a training ground for the movies, using the old-fashioned German word *Guckkasten*.

One outstanding product of Kircher's fertile technical imagination was the "polymorphous cabinet 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 'polymorphous cabinet 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 luctus 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 'chaumaturological construction'63 communicates the full power such a device can deliver for the creation of artificial illusions. The *laterna magica* combines the camera obscura and the cabinet theatre in a single medium that is suited to the presentation of 'satisfical
scenes and tragic dreams), an early development from multi-media to mono-media theatre. The dark chamber becomes a space for the creation of illusions, 升级 off external reality; the projection apparatus is installed in a closed cabinet out of the viewer’s sight. The two motifs show the terrifying scene of the devil and the female figure in the burning flames of purgatory; these are the images of how powerful an instrument for the projection of signifiers of the imaginary is being outlined here.

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 Manichaeanism, the art historian René Gohrke called this device a metaphor zur. Right down to the conceptual details, this setup, 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 on 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 lifted according to the precise geometrical instructions of Pseudo-Euclid 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 cabinet 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 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. 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.

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 artefact. 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.’ 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-faceted 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 sonorarum’, or ‘sonic algebra’, as formulated before him by Marin Mersenne in his Harmonie universelle (1636–1637). Here I concentrate on just two subject areas from his Ars magnæ consoni et dissoni and Phainurgia nova that I consider particularly relevant to an archaeological study of media. Kircher devoted special attention to the possibilities and practice of
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 (canalae). 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® that worked like a modern bugging system. Pannels 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
entertainment that characterizes modern mass media. Chapter 7 of his *Phaenomoe novae* features the first *technoecho*, 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.2

Kircher was not only an enthusiastic researcher, but also an ambitious teacher. Many of the technical artifacts designed and built by himself or by others under his instructions had a primarily pedagogical 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 translate and, as we would say today, popularize the knowledge and skills of the user, naturally at the price of reduced complexity or degree 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 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 *Arsenaticographica*, the box for the coding and decoding of secret messages that he constructed around 1650 and which is described in detail in his *Phylologia nova* (1663).

The *Arsenaticographica* or *masurgia* 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 *Masurgia universalis* (*Masurgia mirifica*, page 183ff.), 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. For this reason, we should briefly take a closer look here:

The opulent illustration of the *arseneticographica novum inventum* (new
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 handbreadth (page 185), with the width of the box defined by Kircher as just half a handbreadth. 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 polyphonic segments (as shown by the example Contate Domino . . . page 186(b)), 2) Compositions in several voices and their variously combinable metric structures. 3) Composition of elaborate and flowery songs according to a rhetorical art of music (page 186(b)). 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 image of 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 polyphonic metres are assembled in the same way. But if the test 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 five metres are inserted into the text as a list].

1. Hecalean syllables
2. Anacreontic metre
3. Archilochean lamb
4. Euripidean lamb
5. Alcaic metre
6. Adonic metre

If, then, someone is composing a piece with several strophes, where the first strophe is in Phalenian hendecasyllables, the second Anacreontic, the third Archilochean, the fourth Euripidean, the fifth Alcaic 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 iambics, fourthly the cover for Euripidean iambics, fifthly the cover for Alcaic iambics 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.'

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 musarum'), 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)
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 mediates 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—gaming, 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, language, 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 delights for creating illusions and emotional shock are distant 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 compositions.

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

3. Haskell, Loyola's Bein, op. cit. (note 33), 55.


14. Ibid., 79.


16. This is explicitly pointed out by Caspar David Schott in his description of the allegory in his Magia opti, 1672, 76ff.

17. Aristotle Poetics


19. I use this term here by analogy with the reception developed in the eighteenth century by Jeremy Bentham
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.

Media Paleontology
Bruce Sterling

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.
interest in dead media was odd and even perverse, which is 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 verified my analysis. In the year 2000,
it is blantly obvious that so-called new media, digital media, die much
t 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 stable
terminology. The Information Superhighway was not about information,
not was it even a publicly owned superhighway, and yet it’s
already defunct.

Some forms of media are blantly 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 paege services, ready to carry your messages
strapped to their small bugs. There is no longer any telegraph system
of optical telegraphs in Holland, sending messages to clerks with
telescopes, by writing huge wooden signs 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 7th
Phoneline. 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
closer to find and use an Apple iMac 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

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, paleontological
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 twentieth-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 not, 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 cyberspace 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
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...
locks and acts a whole lot like other forms of highly polluting, poorly regulated industries. It got rubber barrens, 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 vision, 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 crippling sorrow. These are the moments in which we realize that the creature 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 advances. Nowadays, however, these snags have been rationalized and built into the business model. In those monoply days, computers did not advance, except in trashy 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 hilarious wire.

Dead media, our older computers, were not merely expected by improvements, but killed off on an 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 interest parties: hardware 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.

We fail to recognize how and why our society rewards all this behaviour. In believing a Platonic mythology of the cool clean electronworld, 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 conjugial people who buy and sell 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 ever existed in anything like our present form. The forms 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 hybrid, optimal animal body. The body is the result of many biological revolutions, shakeouts, purges, wildcards, upheavals, bottlenecks.

The same is true for the shape and functions of our artifacts. Our culture artifacts 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 matter of fact. And it is clear that this made a matter of life and death for media technologies. In real life, though, this is often the case. New media 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. This is one of the most important trends of our time. When the Magic Lantern Society of London holds its historical magic lantern exhibitions, there is always huge interest in magic lantern erotica. In the French Revolution of the 18th century, there was microscopic pornography, copied and smuggled, for centuries. Microscopes did not matter that this might seem weird and disgusting. Handguns and torture devices are used 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 primary interest in the subject.

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 paleoanthropology of media is older than the human race. Neanderthals buried their dead, and pre-humans almost certainly danced, spoke, had rituals, and believed 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 mash. It can be fat or inedible 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 value or as media but look at it in a humble, 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...
Paris during the Franco-Prussian War of 1870. Paris was the capital of the nineteenth century. Paris was a highly medi-ated city full of sophisticated technological inventions. The city of Jules Verne and Albert Robida. In the Franco-Prussian War, Paris was surrounded and cut off from the rest of the country. The result was a total economic disaster. It was without parallel before or since.

The Parisians were desperate to communicate with the outside world. They had no methods of communication that existed previously. They tried sending messages underground cables on a telegraph wire by the Seine, but the cable was cut and destroyed. They tried using weighted objects to move downstream with the river current. This was called the use of balls. They sent messages to the rear of the lines.

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

On September 18, 1870, Paris was under siege 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, 84 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 aerostat's tail of seeing cannon balls come almost to his basket, thus fell 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 Verne, during its own siege, smaller unmanned balloons were sent out, balloons made of paper and filled with hot air. Balloons could fly out of Paris on gas and hot air, but how to get messages back into the besieged population?

Nadar contacted another photographer named Pierre Dagron, a Frenchman who had been experimenting with microfilm and microphotography. Dagron was smuggled out of Paris inside a balloon. In the pressure of war, Dagron quickly advanced his microfilm process. He was able to place the images of 3,000 documents onto a collodion film of fifteen square centimeters. Thanks to Dagron, the bulk of paper was saved 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 325 pigeons that left Paris, 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 balloon 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 paparazzi.

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’s simply folded up and vanished as if the entire episode had been dreamt.

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 composers 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 1894. He completed three Telharmonium instruments, including the commercial models in 1896 and 1913. Dozens of industrial investors sank millions of dollars into Telharmonium music services. By 1907 Cahill was successfully piping live electronic music into Manhattan restaurants.

But the Telharmonium was massive and powerful—a gigantic, multi-channel device with its own generators. It astonished telephone co workers by overwhelming existing stations, and telephone users complained. Because he was a musical genius 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 1897, the Telharmonium died slowly in a welter of licensing problems and business disagreements. There was an 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, Cellular phone 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 be happy 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 Tlasallec nepohualtiru, the Oicinavan warasan, the Bolivian champa, 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
literature into knotted yarn.

Quipu makers 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 coloured yarn together. So a quipu is a corded network, in three dimensions, with coloured cords instead of radio or television.

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 Incas 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 still to mourn such things. Of what practical use 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 loss? We can have dead media to the world of imaginary media, carriers 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 always 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. 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 centers with refreshments and uniformed usherettes. 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 hooping 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 writer, 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 saving some rather interesting things these days. To conclude my speech, I would like to quote you one of the things he said recently arrived in my email. Some of us believe that another four years of the Bush Administration might turn America into something so oligarchic that it will make Mexico look like Sweden, so broke that the dollar will be less than the Hungarian pengő, sufficient enough to make East Germany look like a good start, and punishing enough to make butter and clothes 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.

And if we are to restore democracy in America, we will have to get out among our citizens 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 center 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, break the air we breathe, have a beer in the day and be human. Why not give this a try? Let's savour the sacred and delightful historical moments when we are alive, when our technologies are alive, when our societies are alive.
‘Millions of peepholes, as little software windows, are waiting for desirous customers twenty-four hours a day.’

The Pleasures of the Peephole: An Archaeological Exploration of Peep Media
Erkki Huhtamo

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 Botte-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
indirectly to that of the designer), but also to the mechanized logic of a ‘vision machine’. Where did Kiesler get his ideas 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 of a ‘bachelor machine’, metaphorical contraptions reflecting suppressed mental processes. While playing with unconscious desires and voyeuristic fantasies, the Surrealists frequently referred to popular cultural forms, designing for ignored by cultural elites. The carters show, the amusement park and the penny arcade were among their inspirations. Kiesler’s peepshows could thus be interpreted as free reenactments of Movietone 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’. 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 canon 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 cultural attention.

By introducing the idea of peeping into the gallery, Kiesler managed to question some widely shared assumptions. Not only was art being subordinated to the creative intervention of the exhibition designer as Simone de Beauvoir observed when she visited the gallery — and thus denying autonomous existence, the playful way of interacting with them engendered both the visitor’s eyes and his/her hand; transgressing the ‘untouchability’ traditionally associated with the aesthetic object. The 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 Patine-first to a camera obscura, Kiesler may have intuited that his creation had an even wider resonance within visual culture. His boxes evoked the trajectory of the ‘culture of peeping’. 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. 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 eroticaism 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. The approach is deduced culturalist. Peeping is one of those issues that psychologically inclined observers tend to consider as pre- (or infra-) cultural belonging to the human
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 "primordial scene," it is of no interest here. This article considers the topics of peeping as a culturally determined constraint, effected by and effecting cultural forms and identity formations. There are many questions to be asked. When, how and why did "peep media" develop? 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 affect 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 visuality, easy access and the ubiquity of media experiences. Is it really so? Periscope 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. 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. 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 nineteenth century, Lafcadio Hearn has given us testimonies about the fondness of the Japanese for the act of peeping. Staying in a hotel and a remote village, Hearn himself became 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.

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 raised by the uncommon event of sighting a peep, a foreigner in their village, Hearn writes elsewhere about the central role of play and insatiable curiosity toward anything visual as central elements of the Japanese way of life. 'For with every 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.'

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 toward 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 Camera and Popular Imagery in Early Edo Japan, the peepshow, originally a foreign (probably Dutch) import, gained a complex and distinctive discursive identity. It was woven into the fabric of Japanese culture by multiple threads, many of which had nothing to do with
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 tiny paper walls for peering in. The peepshow became a topos encountered both in literary and visual traditions. To mention just one example, Scrooch talks about a book titled *Pictures Cast by the Projector of the Human Heart* by Santo Kyoden (1756). 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. 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.

Natural Magic and Peeping

As the prime examples in Scrooch’s book demonstrate, peeping in Japan was situated at a constantly transforming border zone between scientific and popular culture, thus forging a domestic, mundane and fantastic material and discursive. The curious and desiring 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...
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 apparatus 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. The Renaissance placed the individual and his gaze into the center 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 resulted in the idea of peeping to define the tip of the ‘visual pyramid’. As Marta Kemp amply demonstrates in his seminal The Science of Art: Optical Themes in Western Art from Brunelleschi to Stuart, various ‘perspective machines’ were conceived to aid this task. Demonstrations of images created using the rules of perspective were also staged by means of peeping devices, like those devised by the 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. 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’. As the historian of science Lynn Thorndike put it, ‘natural magic is the working of marvellous effects, which may seem preternatural, by a
knowledge of occult forces in nature without resort to supernatural assistance.16 Cultivated in the seventeenth century by well-known Jesuit scholars such as Athanasius Kircher, Kepler 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 eschewed experimentation, this approach could be seen as a counterpoint to the emerging experimental science represented by figures like Galileo, 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.17 The "marvels" of the universe were "natural," not the work of the devil. They were also preserved 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 Deba Porta posited a "Mage," 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 with Jesuit ideology and the world of experimental science and learning. To achieve his goal, Kircher introduced and described a great variety of instruments. Many of them remained discursive (as line-drawn diagrams and descriptions in the pages of his books), while others were actually built and demonstrated publicly at The Museum Kircherianum (an enormous cabinet of curiosities) at the Jesuits' Collegium Romanum.

Pep 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 Kohlmann, described whole varieties of them. Such boxes were often associated with "catoptric" magic, the art of reflecting light. Mirrors were placed inside boxes to multiply objects, such as jewels and heads, 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, Zacharias 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 automation figures familiar from great astronomical clocks. 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 Fortunatus," described by Johann Christoph Kohlmann 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
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. 

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 Marx Bettini demonstrated in his Apisario (1642). 

Norman M. Klein has not hesitated to characterize such deliberately distorted views, hidden images and illusionary environments of the seventeenth century as ‘special effects’. 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
succeeded, the means for achieving it used the repertoire 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 ‘admirations of the ignorant and uncultured’, and the ‘relaxation of princes and magnates’. 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 one for the Jesuits, engaged in a fight for the cause of the Counter Reformation and the prestige of the Catholic Church. The Jesuits missionary 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 simplified friends would not believe that the spectacle was produced by natural causes until, opening the panels, I demonstrated them the artefact.²² 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 accompanists who fully utilized both its novelty value and its ‘magic’ potential. Phantasmagoria, a new type of 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.²³ Interestingly, the peepshow followed a more worldly trajectory.

The Culture of Attractions

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 repertoire of ‘artificial magic’. Typically, the increasing popularity of such shows was deployed 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.²⁴ 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’.²⁵ In spite of such invectives, peepshows (sometimes known as ‘rare-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
purposeful act, not a chance. This phenomemon did not appear out of nowhere. Beliefs and other curiosities had been publicly displayed since the Middle Ages. Rare animals and native inhabitants of foreign countries were popular displays already in the sixteenth century. Performing dancing bears with their masters was even be found pictured in eighteenth century magic lantern slides. Indeed, "peepshows" 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 predicted a handful of silver, and spread it before them, which was a kind of free show they had not thought to pay, paper being the money of Boston. 10

In the eighteenth century, the number and variety of public shows proliferated, as Richard Attick demonstrated in his classic The Shows of London. 7 Many shows returned 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 Lathbury's celebrated mechanical theatre Epididymus (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 "giants" 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 classified, together with salesmen, knife sharpeners and other travelling people, as "street cries" 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. 70

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 peers 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 crank 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 (e.g. evoking the design of Kuhlman's "optical fortesi"). The box could be painted in bright colours and decorated with ornaments or "architectural" details like turrets 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
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 a means for popular prints depicting showmen at work. In the eighteenth century, the peepshow man also became a stock character reproduced in porcelain figures and globes, which pointed toward its widespread codification in culture. The showman’s efforts were no doubt aided by the fact that he had become an almost instantly recognizable figure. Thus it is not surprising that a peepshow man appears as early as 1753 as one of the characters in an opera called The Perseus and the Phoebus Trap, written by a certain Joseph Patterson (or Petersen), a London actor. In this burlesque, Belamouir—the protagonist’s—efforts to marry his sweetheart Corinna have been turned down by her guardian. Belamouir’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.14 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 box 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 and 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 opportunities for shared experiences and lively social interaction.15 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 Mamfrog has remarked, in France an early observer, Pierre Petit called the magic lantern ‘lantenne du peur’, lantern of fear.16 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 and dancing to 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 ‘inhomogeneous’ immaterial, while the tangible presence of the peep box almost automatically ‘securalised’ 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
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 account itself, the show was most likely episodic, consisting of a number of 'curios' topics. It is likely that the situation encouraged likely 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 peepshows, 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 known. 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 Mortifantensanger. The showman generally stood on a scaffold, pointing at a large canvas with a series of pictures, singing his comments 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, this 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 travelling 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 affinity with these attractions.

Unlike these devices, the peepshow presents a problem for the interpreter: although numerous prints and paintings depicting peepshows and peepshow people 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. Such boxes resembled crude miniature 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 Wàre, 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. 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 Bensou in Northern Italy. Large numbers of these prints have been preserved. 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 cases of 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 (though 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 users of optique reflected their users’ preferences, one might identify from them a certain lack 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, seeking 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, who 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 salons (as will be explained below) and displayed by touring showmen, who may have sometimes bought their prints from the second-hand market.13

When displaying perspective views, the peepshow was essentially a virtual viewing medium, providing the peppers opportunities to visit locations and events that many people could not have witnessed 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 coordinate system. The almost ritualistic repetition of the central perspective in the repertory of the eighteenth-century cases 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.47 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 cases 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 ‘plot’, 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 afford to update their repertoires 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.' Here the showman's skills of persuasion became crucial. He was aided by the fact that few people consuming street entertainments would have had points of comparison, living in a visually impoverished environment. However old and obsolete the views, the sight of a peep show 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' (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. Peep show boxes were conceived, particularly in Italy, as 'optical theatres' (Teatro Ottico) without actors. 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 seemed at times to have been quite random, dictated by availability, or perhaps by the logic of attraction that emphasised the display of curious sights over narrative continuity. Last but not least, it was possible to localise 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 or deluxe versions that contained transcendent 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 the visual spectacle, or vice versa? How were the two related in the peepster's mind? What was the attraction value of the mysterious peep show 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.

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 'Cries 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 showman evolved into an
The Pleasures of the Puppets

Two erotic postcards from the series "Beau" by Turkish Collector: Reproductions of erotic engravings, USA, 1990, Erstes Blumen Collection

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. 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 Manonni, there were explicitly erotic "vues d'optique", but they are extremely rare today, which implies that their production was limited. 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. From behind a curtain, the feet of three peppers, 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 spectator inside the peepshow box proves to be the showman's own erect male organ. The relationship of such fantasies to the realities of the era remains unclear.

In a famous engraving by the Italian Bartolomeo Pinelli, erroneously titled "La lanterna magica" (1685), 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 peppers was unavoidable. 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?
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 behavior controlling this potentially 'contiguous' situation, charged with latent eroticism as well as 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. Anna 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 in 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 peephole 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 him—also her—back. A well-known print titled 'Musee Omnibus' (circa 1845) with the telling caption 'What's seen is what isn't'; displays as another peeping scene. A mother, together with her younger son (3), are shown bent over the peephole. While the effect 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 peek 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 man’s attitude towards the pleasures of the
peepshow 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
secrecy activity. The peeper wants to see, but not to be seen. S/he does not
want others to be aware of his/her activity. There is something forbidden
in the act, and a taste of obscenity in the pleasure it provides. That this has not
ever 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 exclamations of the showman.
This would have made any interaction difficult, but very probably it was not even sought after.

Peeping was a pay-to-social ritual, collectively experienced highlighting 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
car, 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-enchanted of the rituals of folk culture. There is a
wonderful oil painting by E.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. 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. 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 at a forty-five-degree angle in its upper part. 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. The landscape the young ladies see, however, is 'something else'; the mischievous tutor has replaced the view 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 object 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 cornal male 'landscape' has here represented the immaterial visual field of the view 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 in an unseemly manner, as the exposed male body has returned the female peepers within the regime of the Masculine. Commenting on this lesson, the caption re-expects the didactic subject, asking which of the girls is more wise: the one who turns away or the one who keeps on staring? Again, with our twenty-first-century eyes, 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 1755. It was known by many names, including 'zograscope', 'l'optique', and 'diaoptical machine'. 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 view 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). 66

For us, however, the most interesting aspect of the zograscope is its relationship to the peepshow box, neglected by Blaks.67 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 solution to the problem was the peepshow box (in French, 'boîte 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.
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 its 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 users' expectations may result in entirely new inventions.

On a discursive level, the imagined amendments may lead still much further than the technological possibilities of the era. Such 'discursive inventions' may remain unrecorded 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 Bonstetten, 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.

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.' 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. The reperitory of the 'boy hobbyist' came later to include devices like homemade crystal radio sets and eventually self-programmed computer 'demos' and game hacks.

**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 panoramique, the Megalithoscope, the stereoscope and the Kinora, to name just a few. The nineteenth century also saw the appearance of countless toys and souvenirs that encouraged peeping: kaleidoscopes, alabaster 'peep eggs', paper 'concertina'...
peepshows, minuscule 'stannope' 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. 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 center 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 novelties.

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. 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 viewer'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. 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. 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 backides 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.

It is likely that many owners of a stereoscope never came to think about its relationship with the peepshows of the past. 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' (as in 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 slightly 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. 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. The stereoscope had a physiological basis, only providing ingredients for the spectacle, which was activated and therefore existed, in the peeper's mind.

Both peepshows and stereoscopes were media for 'virtual voyaging'. Like the majority of the mise d'oeuvre, great numbers of stereoviews depicted cities, landscapes, and distant lands. However, while the repertoire of the mise d'oeuvre was largely limited to Europe, the stereoscope developed into a veritable world-voyaging tool. 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.
Beyond one’s immediate surroundings, also manifested in panoramas, travel literature, newspapers and illustrated magazines. 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. Favourite topics, already familiar from the repertoire 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. Contemporanea 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.

However central stereoviews with geographical and topical subject matter may have been, it should not be forgotten that unlike the repertoire 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.
under the guise of novelty. There were also pornographic stereoviews that appeared on the market soon after the production of stereoscope 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 converted 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

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 testi-
monies about its reception. 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 discourse 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 — descendents 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!). 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'. For a media-archaeologist, however, such views offer valuable glimpses to the lives of the topos, 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.

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: 'After 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 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. It is displayed as a 'natural' element of the Victorian parlour, as part of stereotypical scenes of objects and modified domestic activities. Thus it is not surprising to find a stereoscope 'forgotten' on the table behind a group of people leisurely painting a landscape. (6) In a view from 'The Happy Homes of England' series by the London Stereoscopic Company, (7)

Often a family or a group of friends are seen sitting around a table, peering at the stereoscope from hand to hand, with piles of views on the table. Sometimes they are sitting in armchairs and sofas, chatting, smoking, knitting, reading and, again, enjoying stereographs. In an early British studio view entitled 'A problem at the table' (c.1860), a group of Victorian ladies are playing chess around a table. Another lady sits in a chair, holding a letter (8) on her lap, while a young man is seen immersed in a stereoscope. Decades later, the world's voyaging sets by the Keystone View Company often ended with a view entitled 'Still the Same'. (9) There is 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. (10) There are quite a few stereographs 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. (6)

In an illustration from a mail order catalogue, a mother is seen happily spending 'An Evening at Home With the Little One'; stereoscopy is shown as a good pastime that keep the mother and the children together. (10)

There are also stereographs that show the mother engaged in workaday 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. (6) When we see, then, a stereograph showing a mother sleeping in bed and her little son sitting on the nightgirt, 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. (6)

Indeed, words like 'stereoscopomania' 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 Harper's Monthly in 1862. (6) It shows how the introduction of the stereoscope into the home by the father (adapting 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 tropes 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.
Particularly in the USA, the stereoscope was used as a prop in cabinet card and tintype portraits taken at professional studios. 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 portrait, 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, then, does the stereoscope have in these photographs? Is it merely a prop like any other? Or did it have some symbolic significance? Without textual evidence it is extremely difficult to answer (R. Fishkin) the meanings of these photographs. A stereoscope in a wedding photo implies marriage, a visitation; in a mourning photo, a deceased child on the table surrounded by the grieving sitters might signify hope, a counterforce to loss and sorrow. But it may, the presence of the stereoscope associated 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 place. Media technology had 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 possessors.

Contrary to what one might expect, pictures of a single person immeasurably 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 Falcon’s Stereopticon booklet (quoted above), that as an apparatus the stereoscope has ‘nothing social in the enjoyment of the view revealed to you.’ We have already encountered this issue in discussing the uses of the peepshow and the zoogoscope in the domestic setting. The question is: to what 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. Raymond Williams argued that technology itself does not define the cultural forms it comes to serve. 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

The Pleasures of the Peep-hole
Oliver Wendell Holmes early understood. However, this potential needed to be acted upon 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 chasseur 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.

Peeping at 'Dirty Things'

In the late nineteenth century, the idea of the peepshow box was applied to mechanical public attractions. Comprised of 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. Since the first half of the nineteenth century, such arcades had contained, besides shops and boutiques, novelty amusements, like dioramas and caramurs. For shoppers, such attractions provided an opportunity for temporary relaxation and diversion. In some cases the owners of such entertainment conceived their attractions as independent units, independent of other arcades. Cosmorama, for example, was an 'arcade', consisting of rows of magnifying lenses inserted into the walls. Illuminated views, often with subjects of topical interest, were peeped at by the visitors, strolling from one peepshow to another, sometimes stopping for a chat. The popularity of the caramur — 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 the slide programs, operated for decades from the 1860s on. Rather than a 'panorama', it was a round or oval wooden structure (much like Kohlhaas' 'Opticus Portalithus' 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 Psonographs 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. 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. 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 passer-by to step in, once inside, one only needed to look around, inspect the ‘marquises’ on top of the machines, make a choice, and put one coin in a slot. The attraction had been identified with a machine, containing pictures of human beings. There was no need for human interaction, unless the coin got jammed in the slot, as often happened. For short periods of 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 peephole for viewing ‘animated photographs’. Differing from its motor-driven predecessor, Edison’s Kinetoscope, which had a very short-lived success, it was hand-cranked. The frames of a film had been copied on paper slips attached to a rotating cylinder. The cranking speed could be 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 ‘photo-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 control, controlled by the turning of the crank. He may make the operation as quick or as slow as fancy dictates... and if the subject, the entertainment can be stopped by him at any point in the series and each separate picture inspected at leisure; thus every step, emotion, act or expression can be analysed, presenting effects at once instructive, interesting, attractive, amusing and startling. 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 even far from that). 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 peepshow. 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.

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. 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 ‘frees him up’. Finally, in what could be characterized as his ‘post-organic 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
state stealing the taxpayer'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 erasure of the act of male masturbation.19 The point is interesting, not the least because it evokes a 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 anyone ever received sexual satisfaction from the cranking action is another thing, but may be deemed irrelevant. However, positing means 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 peeper's domain. Research by feminist scholars like Kathy Peiss and Lauren Ganswindt has implied that women may have played a much more active role as users of these devices than has been thought.20 Women got new opportunities to explore urban spaces on their own in the late nineteenth century.21 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 in on a Mutoscope? Kinetoscope Parlours. Penny Arcades and amusement piers gave women opportunities to familiarize themselves with the new devices —

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 peepaholes, 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.22 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 barrier 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.23 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.'24 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
Kineticoscope and the Mutoscope were placed too high for them to reach. Some decades later a ‘kaleidoscope’ for the Mutoscope was introduced, indicating that the culture of peeping was beginning to consider the younger pupils again.

Although more in imagination than in practice, the Kinetoscope and the Mutoscope, together with the even more inadequate coin-operated stereoscopes displaying ‘dirty’ images, contributed to the eroticizing of the image of the public peepshows. Views of erupting volcanoes, earthquakes and configurations were replaced by burning desires at both ends of the peephole, or at least in the public thought. This happened against the background of the sexually tolerant Victorian society which, however, had given rise to a blossoming (although invisible) market for clandestine pornographic literature and imagery of all kinds. 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 ‘closeness’ and ‘openness’. Its nature as an attraction was based on a peculiar combination of public exposure and private secrecy, features that successfully merged in the Mutoscope - its colourful marquees, the ever-hungry iron slot, the moving crank and, last but not least, the treat beyond the tempting peep hole. Largely, because of its doubled reputation, the Mutoscope has been left outside ‘serious’ histories of the twentieth century, in spite of its phenomenal success and long-lasting cultural influence. A ‘blackout’ concerns the erotic live peepshows, which first sprang in many parts of the world. Its ‘visible-invisible’ history remains largely unmentioned, 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 (Rauschland), increased secrecy (the rise 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 fast food 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 amuse 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 transformér 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. In a sense, the X-ray provided the ultimate peeping experience. Peering into the Thimotoscope (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 television, the stereoscope was one of the models they turned to. 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 “telepeepshow” for real-time communication at a distance. In the late 1950s, a postcard published by the Keystone View Company declared: “She Sits 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. 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 television and watchable 3-D television spectacles were still presented. 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 topic related with the peepshow imagination.

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. 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 film’s key 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. Films, like Par le trou de serrure (Pathé, 1901) show a peeper enjoying some forbidden sights and then receiving a punishment. 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 peering recurs is Marcel Duchamp. Beginning with his early exploration of three-dimensional imaging in Hand-made Stereopticon Slide (Hand Sterescopy, 1918–1919), the peephole reappears in Rayon vert (The Green Ray, 1947) and, above all, in his last major work, Étant donnés . . . (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. The immensely complex Étant donnés . . . could—if only on one level—be described as an elaborate peepshow machine, displaying a deliberately ambiguous pornographic scene. The viewer peers 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. 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

When our Representative calls to deliver your order about

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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 synthesizes 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?
public fairs and other gatherings were evidently often made of separate elements put together on site, thus reinforcing the loose parallel. This certainly made them easier to transport. Rice paper screens stretched in wooden frames were used. Screens were also mounted in these frames. The structures were often quite large, meant for several people to use simultaneously, and the paper screen was held to the sides to keep the spectators comfortable. This situation was achieved from sitting on top, which is common in pubilc places for several people to gather simultaneously.


11. Although not addressing the issue of pain, 16th-century Western literature on Japanese art focuses on the beauty of the screen. See, for example, the works of the 16th-century Japanese artist Kano Tanyu, who wrote extensively on the subject.

12. The Japanese peepshow shows of the world.
"Biblia/Bozap 68.htm (last checked July 6, 2004). Here the author is mentioned as 'Joseph Petersen.'

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

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

Although this tradition seems to have died out by the early nineteenth century, particularly in the German-speaking world, the first modern puppet show was performed in 1860 by the 'Maitre des Spectacles,' who performed puppet shows in the United States.

Goodnow speaks about 'a wide market for fine prints, with which they were made.' 2. 'Maitre des Spectacles,' 23.

Although there is no written evidence about the earliest puppet show in the United Kingdom, Edward B. Goodnow believes that the earliest was the "Bizarre Show" by Edward B. Goodnow.


would have asked the proper to move aside, making room for others. There is a limit to what you can do with just one coin.
51. Mazaroni, The Great Art of the Light and the Shadow, op. cit. (note 33), 84; 85.
52. Engraving by J. Henriques, after F. Eisen the Elder. A Paris chez Diderot, rue de l’Olive. Reproduced in Lasserre, Mazaroni, Trente siècles de cinéma de la lanterne magique ou Cinématographie (Paris: Éditions de la République des musées nationaux, 1939), 34. The original French text is as follows: ‘Nicole conserve son œil curieux/A ce qu’il vît sans malice./Mais Agnès faillit d’un air furieux/Juge Lecteur, quelle est la plus sinistre’. 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.
53. This 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.
54. For the text d’optique, see Kees Kaldenbach, Perspective Views, Print (Quarto, June 1995), also published on www.van rijssel.nl/kaldenbach/ads/perspecti
55. The print by W. Heck is titled The Omnibus and included in Sedlmayr’s book Festi bei Fluchtens (1850). See W. van Rijssel, Print. Shope Print., op. cit. (note 30), 84.
56. While the peepshow box existed in versions for both private and public consumption, the sgraffito was clearly a device exclusively for domestic use. Its structure would not have been suitable for public viewing.
57. 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.
58. As a case in point, Emilie Reymond’s invention of the Praxinoscope was born as an attempt to overcome the deficiencies in another ‘peristence of vision’ device. The Zoetrope. Later the ‘deficiencies’ of the Praxinoscope, especially the short duration of the animation sequence, caused Reymond to develop his device further, looking for solutions to presenting longer animations. This led him towards cinematography, but his ‘Théâtre d’Optique’ was still something different.
59. Like other optical toys, small peepshows were also created as home goods and educational pastime. In the author’s collection there is a homemade ‘accordion peepshow’, innovatively decorated with Victorian scripts.
61. Ibid.
62. The popular Polyorama pantomime, invented by the optician Lafort in Paris in 1849, has often been
63. The pleasures of the peepshow. © 1996, W. van Rijssel, Print.
architects, and the Pleasures of the Pergola, a French
work containing the plans and elevations of the
Pergola, published by De Buhan in 1858. See
De Buhan, Histoire de la Pergola, 1858. The
book was published in both French and English
versions.

70. As an earlier reference to the natural role of the stereoscope, see
my introduction to another of the book's essays in this
collection, "The Pleasures of the Pergola," in this

71. See Browning's "The Pleasures of the Pergola," in this

72. See Browning's "The Pleasures of the Pergola," in this

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127. See Browning's "The Pleasures of the Pergola," in this
At least it successfully used the popular barn around the stereocope. The word 'stereoscopes' 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 stereoscopes, 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 stereoscopes discussed here were studio shots, which were much easier to secure outdoors with views of people.

97. Was she possibly inspired by the view in the stereoscope? We will never know.


99. From the text on the back of the card. There are two versions of the back, both numbered 1907 and copyrighted 1909 in the author's collection (one has the additional copyright date 1903 for H.L. Singley). Although the farm lines and the scenery 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 cabinet for those reviews visible at the back. In one of the views, adolescents are also seen playing around a table. In another a lady is looking into the stereocope, while a young man holds a view and shows an extreme stereocope placed on top of the storage cabinet at the back.

99. The stereocope had one great disadvantage compared with periscopes and other optical toys: it could not be constructed by the children themselves. The stereocope and the stereoviews were early examples of consumer items that had to be bought as ready-made packages. From the late nineteenth century on, amateur stereo photography gained much popularity, but not as a children's hobby.


102. 1785-1868. *The Fountain of Knowledge*, a view by James M. Davis, published by B.W. Kilburn, 1857. There are other versions of the same topic: for example a view published by G.H. Graves, Philadelphia, is Universal Photo Art Co. The topic is interesting also because it is connected — although in remarkably cleaned up form, to the eighteenth-century geological tradition — a main emptying his stomach was a favourite topic in anamorphoses and eastern slides.


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 stereocope on the table, was used by the photographer, German from Carlisle, Pennsylvania, for marketing purposes: the same image exists on other mounts as well. Tall cabinet stereoscopes were sometimes
need to be seen through the eyes of a child.

This page discusses the use of the stereoscope in the 19th century, highlighting its role in the development of photography and the influence of the stereoscopic view on popular culture. It includes a brief history of the stereoscope and its impact on visual perception, as well as a discussion on how the technology was used in various fields such as art and entertainment. The page also mentions the importance of toys and games in the context of visual culture and their role in shaping children's experiences.
3. As Dorst Daniels explains, the work seems inspired by a story from轮廓 von der Vennet, Vert (1868) (Daniels, Points d'Interférence entre Frederick Kiesler et Marcel Duchamp) (Dorset). As far as I can see, the castorina was not used as a reference by Duchamp's pupils.

14. For a discussion of these (and other) works from a medi-archaeological point of view, see my Time Traveling in the Gallery: An Archeological Approach in MediaArt, in Mary Anne Moser with Douglas MacLeod (eds.), Immersed in Technology. Art and Virtual Environments (Cambridge, Mass.: The MIT Press, 1996), 33-268.

15. Highly original approach to peeping was developed by Yuval Eckl, to her well-known Pp and Pp (1968). Wearing a miniature theatre, the artist encouraged audience members to touch her breasts, hidden behind veil. The erotic dimension was designed so that the dress were only "visible" via touch.

16. See color plates 17 and 18 in Moser and MacLeod, Immersed in Technology, op. cit. (note 3).

17. The artist: Roy Bridge created wooden viewing boxes inspired by the Metaphoroscope, See also Mogolon and Norman Laitinen, Art in Boxes (New York: Van Nostrand Reinhold, 1979), 43.

18. About the relevance of Benjamin's idea for contemporary culture, see Thomas S. Levin, Ursula Fronhe and Peter Weibel (eds.), THE SPACE: Rhizomes of Surveillance from Benjamin to Big Brother (Carlsbad, ZKM and Cambridge, Mass.: The MIT Press 2000).
It is not very difficult to decode the strategic interests behind the eternal return of the mythology of new technology.'

Connection Machines
Eric Kluitenberg

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
erratic temporal nature of earthly human affairs; versus the divine order of Eternal Wisdom of the Christian God he revered. With the speed 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 wise Eternal Wisdom) and himself, divided into 24 chapters following the 24 hours of the day. It was Eternal Wisdom that instilled order in his 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 perceivable 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— contacting 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 overly 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 labor 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.

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 transmission of a time signal across vast distances, and ultimately around the globe. The demands of an industrialized society and the
expanses 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 1885 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 a 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, mythical, 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 subsidiaries of the historical protagonists of obscure technology-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 mythical 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 (probably an eager one . . .) to sustain themselves over time. The imaginary product, in other words, has to fulfill 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 it is this aspect that makes them so fascinating.

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 Sisyphean 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. 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
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 Wardenclyffe 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 office 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.

His remarks are unusually familiar to the early twenty-first-century reader, 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 "grandes de" 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 inventors) to follow the lead of the visionary inventor. His words reveal the complex character of the vision he tried to pursue:

"It is not a dream, it is a simple feat of scientific electrical engineering, and only expensive, blind, faint-hearted, doubting world! . . . Humanity is not yet sufficiently aroused 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 patronized be hampered and ill-treated in its adolescence, by some of means, by selfish interest, pedantry, stupidity and ignorance: that it be attacked and stilled, 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." 8

**Thomas Edison Phone 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-Sensory Perception (ESP), and in his early thirties he dabbled in the writings of a certain Helena Petrrova Blavatsky, a prominent protagonist of theosophy. All these metaphysical liaisons are documented in detail in various biographies of Edison, and a concise summary of his forays into the supernatural can be found in Martin Gardner's essay "Edison, Paranormalist" for *Skeptic Inquiry*. 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 goes so 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, dialogic and melodic, attempting to reach out to us lesser mortals across the rifts separating life from death.  

In October 1922, 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 ousting 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, 1922) by Austin Lescarbeau entitled "Edison's Views on Life after Death", Edison spells out his others-of-life 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 could 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 medium Howard Rease, who claimed to possess the power of Extra-Sensory Perception (ESP). Edison was so deeply convinced that Rease's powers were genuine that he went on to defend him in print even after Rease 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 Rease. 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 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 frailty. Suddenly he is no longer the shrewd businessman, the brilliant inventor, the ruthless egotist. 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 startling 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." 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 a bivalent 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, boring 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.

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
carry 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 refractions the way people think.  

Transcendence here, as in so many other cases in Western
technological history, is imagined as a machine. To transcend the
timetable 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 machine 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.
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-CDI 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 befuddled 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 discounted 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 1990s (turning dot-bomb in 2000), and the subsequent 'great telecom crash'—soon to be followed by the demise of CDI—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 beneficial for some shrewd traders and 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 Tulipmania to emerge. 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's 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.

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 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 experimental self, 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.

Analyzing 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'. 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.'

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 'scarcely less terribler 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 sui 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 telephone conversation means that presence of both parties in the same space is not available, while for the conversation their actual location is irrelevant. 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 are 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 buses and trains; 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, Sony Ericsson introduces six stories
(Experiences): six imaginary scenarios in which their new ‘3G-ready’
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 musings 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 Elegy's stage play "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 legends she is depicted as travelling on 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.

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 persons, 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, 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 mythic 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 insigificant start-ups were blown up out of proportion so much so
that the Dutch proverb of "Windhond" (dog 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:
bio-tech, 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, consultants, 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 bypass 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 significances 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.84
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.
The ability to express 24 hours in one day, as a human being, and to see an important innovation brought about by the death of the mechanical clock.


3. The author of the original text is not visible.

4. The image of the sea does not seem to apply, in this imagination of the underwater.

5. Spring, all, knowing all, realizing all—according to Isaac Asimov.

6. www.janegreco.com

7. www.yahoo.com


9. This has to happen (March 2004).

10. A baptism into the fourth century centuries B.C. and over the fate of ships below.


12. 1066, 1066.

13. 1698.

14. 1845, 1845.

15. 1877, 1877.

16. From a distance.

17. Presence of the signal is not what matters, but the quality of the sound and the quality of the output. Could be a more relevant question to ask at the onset of a mobile phone conversation.


19. For Third Generation or UMTS, wireless network communication technologies.


23. For Further Reading: As one of the most popular examples of the theme of this book, it seems to be a good candidate for a commentary...
"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?"
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, pub electro band; it is linked to a source for an old computer game and MIDI music. It refers to torte of Polish art work; it was the word of the day for Saturday 14 August 2003 and so on. Even without reference to the chronological order and the real meaning of the word, this multiplicity 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 ‘phantasmagoria’ 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 ‘phantasmagoria’ as their common denominator. In doing so, we flash back from Francis Ford Coppola to Bram Stoker, Athanasius Kircher, Etienne de la Coudraye, Michele Semler, Joseph Plateau and links in the chain of that dense network that some still call the history of pre cinema.

Smoke and Mirrors

Looking back on the koinacope 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. 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.\(1\)
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 finally became 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 Emile 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 Lumière Cinematographe depressed him so much that he threw his whole business into the river).

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 recitement, a monocular conquest of the world from behind the Renaissance window in our camera obscura. The frayed photographic image is considered as the essential component of the cinematic film as a preserved analogy of the profane 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.'

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
Daracula is the prince of darkness, the master of his own shadow. The mere mention of his name provokes the weakest apparitions; a cinematographic form of accelerating the deflation of consciousness. He could also be considered an Eastern European parasite, feeding on western prosperity and women. A lust and sadomasochism 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, 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

In his book "Dracula," Stoker compared the evil count 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 reappear again.

Bram Stoker and his Book of Blood

If Bram Stoker had and women, Dracula, he would survive merely as a literary footnote to the Victorian age. Though he authored six other books, only Dracula rises above the ordinary to stand as a classic—once a traveling Gothic adventure, a dark mirror of Victorian obsession, and a program of psychic conditions that have plagued humankind ever since.

Bran, Grădașa in 1847, Stoker was a sickly child whose mother entertained him with Latin ghost stories. He compensated by becoming a star athlete and honors student at Trinity University, and took a civil service job after graduating, but became fascinated with the theatre. For a time he was drama critic for the "Dublin Mail." He loved Wilde Wharton's poetry and championed modernism, a position he later renounced.

In 1878 Stoker hired the famed actor Sir Henry Irving, "the real Dracula" as George Stude notes, who would make the rest of his life and labored tirelessly in this job for nearly 20 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: Penny the页                   首页  by  Bram  Stoker  and  his  Book  of  Blood

THE UN-DEAD

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PAGE FROM BRAM STOKER'S NOVEL DRACULA
overcome the relativity of time and place. In the days before photography, miniature paintings and silhouette 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) and magic lantern projection and an imitation of the X-ray effect. What we don't see is how easily image to be presented. Other optical illusions like the phantasmagoria, wax statues, and the phantasmagoria. And this scene could easily have been described, indeed, as a phantasmagoria.

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 1790-1797, M.G. Lewis's 1796 The Monk was published in 1798. Another French writer, M. Millet, opens his book *Feuchtwanger - essor de l'image fantastique* with a quote from Emilie Zola and one from Arthur Rimbaud, both displacing the meaning of the word phantasmagoria in very different ways. Millet 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 it. Millet further explains how the invention of a new technology on the level of optics not only allowed us to change and manipulate the appearances; it also introduced a feeling of uncertainty. If the word phantasmagoria 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' *Heimweh an die Nacht* was published in 1801 and the cartography of Goethe's Faust were unleashed in 1831. 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 development 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 Light and Shadow*. 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 primum movens 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**

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, the comparison with the others, is a more carole, sliding among clouds of unknowing. The clock is present as an emblem of Christ, the advent of a new message: And we also see enlightenment in the form of a portable (magi) lantern. Another Holbein continues along these lines in his 1526 Speculum van den Doel de Mededeeling des Boeckes durch sein Interna Magia, the Jews fought in the Counter- Reformation for the endorsement of Catholicism, and this included publication, the station between heaven and hell. 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 is the message.

In 1662, Christian Huygens published a much more precise sketch than the one appearing in Kircher's second, 1717 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 Wallenberg a good friend of Huygens, and his fellow student at the University of Leiden. Wallenberg did public performances, including one in 1679 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 phantasmagoria is presented as an unexpected moment in the development of the culture of the moving image. Laurent Massumi opens his chapter on the 'fantasmaria' with an explanation of the Greek roots of the term: it is derived from the words phantazō (I make an allusion) and agoréō (I speak). 'An etymology', he continues, 'which suggests a dialogue between the audience and the ghost called up by the magic lantern'. Mamoni deliberately spells fantasmaria at the opening of this chapter with an 'I', thereby associating this particular form of spectacle with an entertainer born in Liège 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 'I' 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.

That same year, 1793, the word 'phantasmagoria' appears for the first time as a name for the performer of phantasmagorical shows. 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 86 cm wide. It has detachable lenses, one to project glass slides and one to project opaque objects as a magascope.

In 1804 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 Memoir published in 1821 and 1833. From this time forward the term 'phantasmagoria' was also used to describe the invention of its inventor, even in its form as the 'spectacle d'Ossian' (at least that is how Robertson is described on an Internet site dedicated to the phantasmagoria).

The key improvement made by Robertson to the fantascope, highlighted by Manonial 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 white 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. Melies would later use a similar tracking movement for his enormous enlargement in La lente de

coutchouc, 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. Manonial 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.]

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

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 fantoscope 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 unhealty 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 declined Robertson for the priesthood. Having completed his studies in philosophy at the University of Louvain, he studied at both the fine Arts Academy of Liège and the Grand Séminaire. At the Academy, he was taught by the most illustrious painter in the principality, Leonard Defrance. At around the same time, he took up lessons in physics with Liège's learned optician François-Michel. 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 cold 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 shows, a kind of sequestral theatre, suffused with gloom, cut off from the surrounding city streets, and pervaded by (as he put it) the silent aura of les mystères d'or. The way he describes his own mise en scène brings to mind the Victorian parlour into which Dracula flung 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 Newton, Bentham, or Kircher, then the gallery of the Invisible Woman (questions asked on front of a glass chest in the air). After all this, the play 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 Witch's Sabbath, Young Iffering His Daughter, Proserpine and Pluto
on their Throne, The Witch of Endor, The Head of Medusa, A Grave-digger, The Agony of Christ. Among these were often the bloody "revolutionary" scenes of Rousseau, Voltaire, Robespierre, and Marat. Robertson insisted on putting a side show of "macabre comédie de théâtre." 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. 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 so almost tactile was its ultimate presence.

Robertson not only specialized in resurrecting skeletons, but also recently deceased people. In a way he introduced the notion of a "view on demand." In the afternoons before each show, 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 vinegar, twelve drops of aqua fortis and two copies of the Journal des débats into a lighted brazier. Immediately a small, lithe phantom in a red bonnet gradually rose, 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) were 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 audience could see part 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**

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, hold in store for them? If not really a resurrection, then at least some kind of 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 Panomimes lumineuses in 1892. By that time, the museum already had earned its reputation with a
collection of wax statues. It is ironic that 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 carved a wax face at the head of their procession. 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, 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 1789, of Jean-Jacques Rousseau. Other famous subjects of the time included 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.

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 Marie Grosholtz describes how Marie Grosholtz carried the heads home—the heads of Philippe Égalité, 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, Madame 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

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 h.r.s.

Although he remains important for discoveries in many different domains of science, Plateau is best known for his phenakistoscope (1832). Laurent Mannoni explains the origin of this strange word, derived from the Greek phain^n, deceptive/and skope^ (I examine, or observe attentively).

The principle of the phenakistoscope, 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 Parkine. They both used rotating discs with 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 favored the slightly more macabre, 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: phantasmagorie, fantacène and finally phénakistoscope.

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 rift.

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 Roberson, who was still alive and active at the time. This might also be the reason why Plateau readily adapted the same name of 'phantoscope' 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 such as 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 Mellan, had at least once depicted Plateau himself in the guise of a devil, while demonstrating an anéroïdcope. Of politics however, there is no trace in the iconography of Plateau, unless we are 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

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—phénakistoscope 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 fantasмагoria, 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. 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 choréoscope, invented in 1866 by L.S. Beale and the first application of the Maltese cross for
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 danse macabres. Following the French Revolution, more and more people became interested in the Middle Ages, according to Ulrich Wunderlich, considering it a kind of golden age, when the nation was not divided in small rival states, but unified by Christianity. 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 Ulrich 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 a phenomenal medium, other than ‘undead’?
Spectral Illusions: Seeing Ghosts
Donald Crafton, Before Mickey: The Animated Film 1892-1928 (London: The
Françoise Lebrun, Études-Gaspard Robertton - la vie d'un fantasmanographe
Laurent Massoni, Le grand art de la lumière et de l'ombre - archéologie du cinéma
(Paris: Nathan Université, 1994).
Jacques Rancière, Bâblières: La vie quotidienne des Saturns à la fin du 19ème siècle
Jaques Rivette,_shorts: Auguste and Louis Lumière: Les 1000 premiers films
Thomas Womack, "The Fantasmanographer", in Dennis Crompton, Richard Franklin and
Further reading:
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Towards a Spectral Cinema
Zoe Beloff

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

'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.'
engage with the media of the period. I want to understand how people pictured themselves. Thus, I am engaged in reconstituting, of one might say, reanimating technologies such as stereoscopic images and frame by frame motion studies that have largely been abandoned since the invention of the cinematograph. Sometimes I use archive apparata—sometimes new analog/digital hybrids. I work with film, live stereoscopic projection, performance, interactive cinema on cd-rom and installation. I try 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’Esperance, who was known for her ability to conjure up full body apparitions. She grew up 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 Spiritism grew from playful parlour games to a profound belief that the world we perceive as real is merely a shadow of the one beyond.

The Ideological 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 1903 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 Bissol. Her manifestations took the form of misshapen ectoplasmic hands and what looked like filmy 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 Bournville 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 photograph 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."

I believe that this condition of mechanical reproduction with resurrection was deeply influenced by the figure of the spirit medium. I am interested in the science specifically as proto-cinematic event at which the medium appeared to be a kind of 'mental projector', as almost mechanical conduit through which forces from the other side manifested themselves. For example, when the medium cursed like a drunkard sailor it was assumed that there was a drunkard 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 ones that people paid to see at the theatre where Hamlet might be a live actor but his ghost floating on stage was an apparition.4

The Science as Proto-Cinema and Post-Cinema

From the start I was fascinated by the extraordinarily cinematic title of Elizabeth d'Espérance'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 endowed as though actual substantial objects." In my film, I represent her story as a complex interaction between conjuring, mediumship and the birth of 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 Spectrovia to represent her 'Shadow People', the imaginary friends that kept her company as a child. Spectrovia 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.' 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 Spectrovia, as well as many other Victorian philosophical toys, conveyed 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
contemporary figures from early Edison films, *Elia Elia la Teba* (1895) and *Bouey White* (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, visual images were conceptualized differently. A
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 exist 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 Fig-Screen and the Helioscops play 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 trance in which the viewer could commune in an intimate way with the virtual characters. It was this desire that led me to make The Hypostatic Materializations of Eva O, ten scenes based on accounts of seances with the medium Eva O.

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
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 scientific dioramas 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 bourgeois prejudices to the wild. For example, he made gorillas conform to the dictates of the nuclear family. According to Hiltz Schwarz, "What Akeley perpetuated was a Second Nature of animals reconstituted into tableaux of societal utopias." The diorama became a formal structure that enclosed a world where science merged with show. 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 pic-

judges 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 Bisschop. The hysterical, Augustine, was extensively photographed by Paul Régnard at the Salpêtrière. 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." 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." As well as 'The Egyptian Queen', a young and beautiful woman who apparently laughed heartily and seemed greatly amused by the French professor.
These pictures are recalled only in nude photographs of Eva with a phantom that might be most accurately described as a cardboard cut-out in a batherobe. Hunschedt did not tax our credulity. Baron von Schreneck-Nottink 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 batherobes 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. In these cases they are clearly an outrageous endorsement of French colonial fantasies of the exotic orient, and Victorian prudery.

Home Theatre — Setting the Stage for Desire

The séances of Elisabeth d'Esperance and Eva C. were conducted at home. They were far from solemn or morbid affairs. To raise the spirits the sisters sang songs and played music. In this highly charged atmosphere, anything was possible. The female spirits that Elisabeth 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 melancholy was unaccountably reminiscent of the naughty theatrical tableau 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 batherobe, obscured the ultimate. The spirit form hinted, tempted but finally disclosed nothing.

Eva C. was photographed in the nude by her female 'protestress' Juliette Binoe. In an oddly carnal display of spiritual forces, protoplasm 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 instilling "other" of the unconscious.'

Manifestations

Elisabeth, 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 fulfill in a repeated and certainly more profitable way the desires of Eros and Thanatos.
Similarly perhaps, the hysterical Augustine could be so free, so theatrical in her delicious monologue 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 dispensary way that he took her temperature. Indeed, Augustine was able to act out her transference to her doctor whose first name was after all ‘Desiré 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’ hysterical. 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 cut out of control. Pounding, twitching, freezing from pose to pose. If we want to understand cinema not simply as a technology, but also as 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 Locyre worked with very similar devices at the Salpêtrière, both the stereo camera and a chronophotographic camera that could take twelve pictures in more or less rapid succession. 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.

**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 rage 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
Towards a Spectral Cinema 211

Liminal States of Consciousness

One wonders, was she putting her doctor on, or was she really speaking from her unconscious or both at once? Censure or like is of course a question asked over and over again about mediums; 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 Shadowland, Elisabeth 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?’

In his essay Haunting Images, 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. Elisabeth 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 Barovon Schreiner. Noting to make sure she was not hiding any fake phantom 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. 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

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, ecstatic. 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 double, 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. Vampyre 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 sad, 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 Natalie 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.
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, interference in psychoanalysis and the development of real influencing machines in the form of radio and television in 1926–1936 in 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. The second by the Nazi in charge of the nascent television industry in Germany, Eugen Hadamovsky, who declared in 1925: “Now in this hour broadcasting is called upon to fulfill its biggest and most sacred mission, to plant an image of the Führer indelibly in all German hearts.” I imagine Natalija taking this statement completely literally.

I wanted to find a way to portray 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 an early television apparatus. 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, sounding 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 and Transmitting Pictures by Wire, 1928. I collaged sounds from short-wave ‘Numbers Stations’ 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 onwards 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 metaphorical. 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 cases histories I explore are similarly constructed of technology, bodies and psyches. It is these fantastic hybrids that I want to conjure up and reconfigure.
"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
ruptions 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—yet erratic—lineage. Kettler writes: We must be able to pass on to the coming generations not as a legacy of these times then as a kind of message in a bottle—what computer technology meant to the first generation affected?

Rather than a mapping of events, the history of media calls for the investigation of the context in which development might emerge (or fail to emerge), in which determinism is undermined by probability, or in which possibility outstrips 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 material.

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...), this field is at risk in delineating microhistories of limited specialties so distinct as to be operated 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 recessed 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 renaissance into territories in which 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 reconstruction 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 contemporany 'media culture', with its admixtures of old and new technologies, its seamless blending of contents, its fascination with the borders between bodecas and sistemas, 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 infatuated 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 of mere empty technical progress.

The panoply of expressions currently in vogue to describe ‘media art’—virtual, immersive, robotic, experimental, hypertext, 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 constraining—practices whose persuasiveness, subtlety, intimacy, fragility, thoughtfulness, defiance, playfulness, even marginality—if not ephemeral—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 chronicle 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 specificity 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 outimagining—appropriate operations by, in the words of Perry Roberman, ‘unbehaving in “tamer-resistant worlds,”’ to heighten the stakes by inverting the top-down models of specialization, to destabilize systems by opening them to broad interventions, to pry for 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 not the experiential spaces of immersion, the non-linear strategies of hypertext, 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 lushed 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 telephonic 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 complexities... 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 potencies and procedures. . . . (Foucault, 138)

Foucault's The Archéologie of Knowledge is defined in distinguishing archaeology from other forms of historiography. Archaeology is the systematic description of a discourse object (p. 138) it tries to establish the system of transformations that constitute change (p. 129). It does not have a unifying, but a diversifying effect (p. 660). It is not supposed to carry any suggestion of anticipation (p. 296). As such, archaeology is not a substitute for the history of ideas (as defined above), nor a proxy for iconography, nor an alternative for eccentric discourses of collecting, nor 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 ahistoricities or subjectivities, and, on the other, doesn't fall into isolating media history as a specialized discipline isolated from its discourse 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 yet as yet 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 tactical or futile. Merely reconstituting or reinvoking old, 'dead', 'media into novel concepts could only emerge as technokitsch. Similarly, the discovery of uncommon or singular apparatures, novel as they might be, is neither decisive nor adequate to formulate an inclusive approach that distinguishes it from ethnoarchaeology.

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. 'Archeology', 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 Schivelbusch's Disenchanted Night: The Industrialization of Light in the 19th Century, from Siegfried 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 more obscure. 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.
Killer’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 or
the phonograph, Killer writes, ‘thanks to the phonograph, science is
for the first time in possession of a machine that records motion
regardless of so-called time. . . the epoch of reason, our epoch, can
begin.’

This view is complemented by Siegfried Zielinski’s distinguished
Audioscopes, Cinema and Television as Entertainments. A sweeping
assessment of the history of audiovisual technologies beginning with
Magic Lanterns and extending to the network initiatives of Knowledge
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 reinterpretation and the ability to play around with it: the
cinematization of the eye and of perception as a counterpart and
complement to the excessive acquisition of natural and technical
processes for other areas of the production of commodities and
meanings.’ 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’ reframe
realism and reframe discourses and technologies with reverberating
influences as both precedents and as models. The evolving systems for
impressing audiences in ‘fugitive’, ‘shattered’ and ‘situational’ contexts
have come face to face with radically transformed expectations that can
reimagine the cinematic imaginary as one differentiated from localized
‘effects’ and, instead, as ‘complex configurations of interaction and
experience.’

Our narratives of the artificial have generated phantasmatic experiences
whose effects strain to induce sensations of affinity with unceasing
’realities’. So deeply has the relationship to ‘photographic resolution’ a

kind of epistemological plateau) engrafted itself in the imaginary that
even the ‘virtual’ worlds of computer graphics substitute themselves — if
fleeting — for existing worlds unthwarted from history, unthwarted 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 enliven 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 it’ world
(the one which haunts virtual reality) and instead propose our
expression as ‘what if’ or ‘why not’.

Brief comments on the works shown.

VinylVideo

‘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 technolo-
gies.’ Video, encoded as sound, is
pressed onto vinyl records. A ‘black
box’ between the record player and a
conventional TV interprets and plays
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 ‘cinemanagerial’ interface.

Paul DeMarinis

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 calculating sound and more about performativity, 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, reconnecting 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 Edson Effect (as so much of DeMarinis’s work) is charming 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**

Jim Campbell’s works measure our relationships with percepibility. 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 skillfully 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 models are deliberately subversive, shattering the special effect and spectacle of visibility and proposing instead that our seductions of imagination can be probed with very small amounts of data.

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*Sachiko Akama*

The shadow-play perhaps stands as one of the original projections. Sachiko Akama’s subtle shadow eroticsms 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

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.'

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 pintless machine monsters like the cyborg in The Terminator. These science fiction fantasies are encouraged by confident predictions from prominent computer scientists. Continued 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, Roy 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 excorium. 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 ancestry 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 preoccupation 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 wonkers 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 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 1964, one single product—the IBM 1401—had accounted for a quarter of all the computer operating in the USA. In the minds of most visitors, IBM and computing were one and the same.

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. Seeing 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-colored 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 350-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.

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 outflown, outproduced and outsmarted all of its
imperial rivals. By 1964, the USA had become an economic and military superpower without comparison. Above all, America was the global leader in the three most important new technologies: space rockets, nuclear reactors and mainframe computers.

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.

During its six months of operation, almost one-fifth of the entire British population went to see the Great Exhibition. 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 revolutions: cotton looms, telegraph systems, farm equipment, rotary printing presses and, best of all, steam engines. 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.” 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. The glassware from Ireland contained no reminders of the terrible famine which had recently devastated the country. Public display was—paradoxically—the most effective method of social concealment. World exhibitions were places of pilgrimage to the fetish Commodity.

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.

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.

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 inverted tradition.

‘England’s essence is strong with the strength of modern simplicity,
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. When other countries subsequently put on their own expositions, the organizers always prioritized demonstrations of national technological excellence. The 1867 Paris Universal Exposition was immortalized by the superb engineering achievement of the Eiffel Tower. 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. 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 1933 Chicago Universal Exposition were confronted with a sombre image of the world: the two massive pavilions of Nazi Germany and Stalinist Russia championing their rival versions of totalitarian imaginary futures. The political and ideological divisions driving Europe towards catastrophe were starkly symbolized in brick and concrete. In complete contrast, the icons of the 1933 New York World’s Fair were Democracy—the main attraction of the organizers’ Perisphere building, and the World’s Fair — 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.

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’. This gimmick provided the inspiration for the imaginary future of artificial intelligence.

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intelligence. Until the 1939 World's Fair, robots in science fiction stories were usually portrayed as emotionless, monsters intent on destroying their human masters. 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. During the 1970s, 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 1939 World's Fair opened, the most famous prediction of the 1939 exposition had been realized. The Democracy and Futurama dioramas had portrayed a future where most workers were living in the suburbs and commuting into work in motor cars. However, skeptical visitors might have been taken aback by the vision depicted in 1939. This prophecy, seen 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 economics 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." 44

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 exhibits, 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 trajectories which would send American nuclear missiles to destroy Russian cities and their unfortunate inhabitants. 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 to murder 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. Despite disaster being only narrowly averted, the superpowers were incapable of stopping the arms race. In the binary 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 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.

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 un-metered energy for everyone. Space rockets would shortly be taking tourists on 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—first mainframe ever built in America—was a machine for calculating tables to improve the accuracy of artillery guns. From the early 1950s onwards, IBM’s computer division was focused on winning orders from the American government. 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 chains. 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 fusion 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 un-metered 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.

**Cybernetic Supremacy**

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 1933 World’s Fair, the prophecies about the star technologies of the 1964 exposition seemed almost absurd 35 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 unmediated electricity and holidays on the moon was their failure to appear over time. In contrast, suspicion 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 machines.

Despite the failure of its prophecies, 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. 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 emblematic symbol of the new social paradigm. Firms began to replace 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.

However, by the beginning of the 1960s, 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. The work of large numbers of tabulator operators could now be done by a much smaller group of people using a mainframe. 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."

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, IBM had constructed the world's most advanced computer-controlled assembly lines to increase the productivity of its high-skill, high-wage employees. 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. 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 immanent weapon acted according to feed back from its environment. According to Norbert Wiener, these self-regulating technologies had been foreordained in the computer. In turn, the advent of the mainframe heralded the consolidating of the whole of society in the image of a new technological paradigm cybernetics.

The notion of programming in the factories 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 automation (…) is one of the great factors conditioning the social and technological life of the age to come (…). 27

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. Democracy and builtin in 1939 provided a much more accurate prediction of the development path of computers 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. 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. 28 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. 29 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 tolerate one by means of the other. This is the very opposite of the organization which every member travels a preassigned path. 30

At the 1964 World's Fair, this possibility was definitely not part of IBM's imaginary future. Rather than aiming to produce over 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, compiled or questioned orders. On the other hand, capitalists were promised that their factories and offices would be run by thinking machines: producers who never slack off, expressed opinions or went on strike. Robby the Robot had become indistinguishable from EPICAC-XIV. However, the level of ideology IBM had reconciled the social divisions of post-Amercia. In the imaginary future, workers would no longer need to work and employers would no longer need employees. The set-in 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 one devoted servant and EPICAC-XIV doesn't care about 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. 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.
35. Igor Golomtsev, "Totalitarian Art in the Soviet Union, the Third Reich, Fascist Italy and the People's Republic of China (London: Collins Harvill, 1992), 152.
38. For a famous example of these unavenged artificial beings, see Fritz Lang’s Metropolis.
47. "The World's Greatest Computer," IBM's Box, p. 3.

52. "The Development of Computing," IBM's Box, p. 3.

54. "The Role of Computing in the Future," IBM's Box, p. 3.
55. "The Influence of Computing on Society," IBM's Box, p. 3.
56. "The Impact of Computing on Business," IBM's Box, p. 3.

57. "The Role of Computing in the Development of Business," IBM's Box, p. 3.
59. "The Impact of Computing on Education," IBM's Box, p. 3.

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42. 1969: "The History of Computing," IBM's Box, p. 3.
44. 1971: "The Future of Computing," IBM's Box, p. 3.

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47. "The World's Greatest Computer," IBM's Box, p. 3.

52. "The Development of Computing," IBM's Box, p. 3.

54. "The Role of Computing in the Future," IBM's Box, p. 3.
55. "The Influence of Computing on Society," IBM's Box, p. 3.
56. "The Impact of Computing on Business," IBM's Box, p. 3.

57. "The Role of Computing in the Development of Business," IBM's Box, p. 3.
59. "The Impact of Computing on Education," IBM's Box, p. 3.

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42. 1969: "The History of Computing," IBM's Box, p. 3.
44. 1971: "The Future of Computing," IBM's Box, p. 3.

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47. "The World's Greatest Computer," IBM's Box, p. 3.

52. "The Development of Computing," IBM's Box, p. 3.

54. "The Role of Computing in the Future," IBM's Box, p. 3.
55. "The Influence of Computing on Society," IBM's Box, p. 3.
56. "The Impact of Computing on Business," IBM's Box, p. 3.

57. "The Role of Computing in the Development of Business," IBM's Box, p. 3.
59. "The Impact of Computing on Education," IBM's Box, p. 3.
Emerson Pouliot, Erich Johnson and John Palm (eds.), Industrial Enterprise in the Nineteenth Century (Cambridge: Massachusetts Institute Press, 1995)
Jules Bourn, Merchants to the East: www.virginia.edu/mva/schuya22e.html
Jeffrey Stant, yourworldsfirst.com, jeffreystanton.com, Jeffrey Stanton, Building the 1940 World Fair: http://www.jeffreystanton.com
Jeffrey Stanton, Shoestring Technology: www.jeffreystanton.com
Robert A. M. Stern, Thomas Mellins, and David Rockman, New York: 1965
Mother Ship Connections

An Imaginary Conversation with John Akomfrah

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 2009 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 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.
On Afrofuturism and Imaginary Media

E.E. 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 Archelogy 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 Zdenek Zelinszki and Ecki Hultman.

The term 'archaeology' in our discussion refers first of all to Michel Foucault's Archaeology of Knowledge and his refusal of any form of historiocriticism. Secondly, it refers to the method or approach to excavate hidden images in the past, and tracing the discontinuities in the present - without reaching, or even arriving for the construction of a 'history'.

Media archaeology as Zelinski, Hultman 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 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 fulfillment 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. 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 attests to what we call an inventory of Afrofuturism.

The first techno-fossil from this hidden, sometimes submerged, occasionally wildly 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 ‘arcanum’ of black cultural nationalism.

The first result of this research was a film we made in 1995, The Lost Angel of Harlem, which became part of a series of films under the broad banner of Afro Black Mythologics: 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 presence 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, automatons, 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 extraterrestriality and certain tropes of eccentricity, the P Funk troubadour George Clinton had never heard of the 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-fetishes 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 naive hope in a technological future as a moment of racial closure or negation, but rather of its remaining and reconfiguration. For all three, futurological musings remained both resolutely utopian (because we will be free of the racial stigma), 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 technoblackend 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 universalizing 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.
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 arcana and the everyday of black life. The science-fiction creation myth of the Nation of Islam — 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 futureisms 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!
Mohammed 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.

ERK: Another issue I was thinking about with regards to the MotherShip 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, the privation (that 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 absorption 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.

ERK: Throughout this research we were aware that what we were unearthing was simply the outlines of what one could call a hidden
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 Arodias, 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 Sigi, 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")

EX: 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 bitter-sweet 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 Balkan 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 sovereignty. The fact that the future State of Balkania was a "state of mind" was further exemplified by the principle that anybody who felt Balkanicized could become a citizen of Balkania — caught in the phrase "Ich bin ein Balkaner?".

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 real, 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 Afroturist slogan 'Space is the Place' similarly a mental refuge?

[4] Let me recall a few of the premises we held in producing the Afro-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, and 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 Haraway 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 his 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 be 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 rules on this planet, too many destructive forces, but I can stop all that if maybe some government would help me. It seems that Ra is beyond secular recourse from the terror and displacement of slavery, or for that matter the linkage to black nationalism. Is he therefore misplaced within the Afrofuturistic setting?

14 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 technic 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 lose 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 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 Clen Venn and Perry, their shared emphasis on extraterrestriality, 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 incommensurate with its regularity, its logic 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 mobile texture of the sonic, in the grain of their sound, vestiges of the alien states that were so central to their extra-musical identities. And this could either be an investment in the weirdness of the theremin, the extra-notational logic of the synthesizer or the voo-doo 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 fuse into a new, more portent whole. But it is important to realise that these metaphors of flight are not wholly invented by or solely attributable to modern black futurological musings— 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.
This conversation never actually happened. It could have happened, but for all kinds of reasons practical reasons or because
John and I considered our email exchange not the appropriate place to
discuss this kind of specific and concrete issue. We decided to add the
appropriate text from the notes and the recording of the lecture at the Pale

2. www.infoamoros.net
3. See also the discussion of Edmund
Burke's notion of the eternal sublime in
my essay, "Conscious Machines" in this volume.
4. It is difficult to establish whether
this is still the Nation of Islam's
teachings, but I suspect not.
5. See also Albro's "Constitution
Machines" and "Constitution
Machines".
6. See www.tahara.ch/takahara

This conversation never actually happened. It could have happened, but for all kinds of reasons practical reasons or because
John and I considered our email exchange not the appropriate place to
discuss this kind of specific and concrete issue. We decided to add the
appropriate text from the notes and the recording of the lecture at the Pale

2. www.infoamoros.net
3. See also the discussion of Edmund
Burke's notion of the eternal sublime in
my essay, "Conscious Machines" in this volume.
4. It is difficult to establish whether
this is still the Nation of Islam's
teachings, but I suspect not.
5. See also Albro's "Constitution
Machines" and "Constitution
Machines".
6. See www.tahara.ch/takahara