Delusive Spaces

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Delusive Spaces

Essays on Culture, Media and Technology

Eric Kluitenberg

NAi Publishers
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Contents

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The collection of essays before you comes from an extended period of time. Some of the texts, particularly in the first part of the book are based on research and lecture materials dating back to some of my earliest teaching appointments at the postgraduate institute for 'emergent media' media-gn of the Academy for Visual Arts Minerva in Groningen, from 1993 through to 1996. Meanwhile, the most recent materials emerged in the spring of 2007, in the frame of the Infowarroom series at De Balie, centre for culture and politics in Amsterdam, which has been my professional and intellectual home base now for a great number of years. The presence of the investigations, collaborations and countless projects conducted there can be felt throughout this book.

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In 2000 I was invited for the first time to Moscow by the Media Art Lab organization. During that visit I decided to start working together with the then Moscow-based media art curator Tatiana Goryucheva, and together we went on to organize the urban intervention/street media project 'Debates & Credits - Media/Art/Public Domain' in 2002, working with a variety of Russian and Dutch artists. This was a deeply inspiring, unnerving and exhilarating experience on the thin borderline between art, urban activism and politics. After this we decided to start living together and the inspiration she gives me extends far beyond the confines of theory and practice. Most recently we produced the radical do-it-yourself talk show series 'Cool Media Hot Talk Show' at De Balie in Amsterdam, another unnerving and exhilarating experience!

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Eric Kluitenberg
January 2008

Introduction

Navigating the Delusive Spaces of Media and Technology

In their formative years, new media cultures have quite regularly fallen prone to the delusions of the new. New about the so-called 'new media' was primarily the confluence of three disparate technological genres and their respective production and use cultures: computing machineries and information science; communication technologies and the telecommunications industry; and media technologies and the broadcast production/consumption system. Given its strong roots in engineering and technoscientific inquiry, it is hardly surprising that a predominantly technology-driven discourse has dominated this nascent field. What such a perspective tends to overlook, however, is the complexity of the larger social and cultural context in, and through which, 'new media cultures' have been constituted. The delusions of the new fail to recognize the extended historical lineages, continuities, discontinuities and ruptures that accompany emerging technological genres, in which a variety of formative cultural, social and technological processes are at play. In short, a false image of simplicity is projected where an apprehension of complexity is required.

The essays collected in this book eschew a simplifying perspective. Indeed, this book does not propose a single theoretical framework by which the reciprocal relationships of culture, media and technology are assessed. Rather, different approaches are exercised in relation to specific problem areas and localized contexts. The considerations for adopting a particular theoretical framework in relation to the specific questions and problems under scrutiny, I will explain further on. From the outset, an assessment of the cultural assimilation of technological conditions is required, a perspective that neither foregrounds technological impact, nor cultural construction. Secondly, it is important to stress that the essays collected here did not originate out of an intellectual vacuum. Instead, they emerged in continuous dialogue with the practices of new media and technological cultures. The ideas contained within them have arisen out of these practices and they continually speak to them.

In broadest terms, a cultural perspective on technological cultures concerns itself primarily with signification practices: the various sites for the production of meaning, and the ways in which meaning production is re-routed and reconfigured by the appropriation and actual uses of technology by a variety of social actors. The analysis thus situates itself both at the productive (the design) as well as the consumptive end of the chain (and in-between). I see this as neither an entirely empirical, nor as a disembodied theoretic, or purely formal analytic affair. Theory, in relation to practice, neither satisfies itself with an entirely practice-led consideration of a social field (as in the case of a professional code), nor can it develop a theoretical framework without being grounded in actual uses and practices around the technological objects it refers to as 'attractive foci' for its analysis. Admittedly, this is a somewhat uneasy and unstable footing, on the basis of which no 'grand narrative' of the present stage or future prospects of technological culture can emerge. What is presented here is a series of localized meta-narratives, identified 'amid the scrapings from the cracker-barrel', that can help to heighten our sensitivity towards the ways in which culture, society and technology affect each other. Stimulating such a heightened sensitivity in the course of these explorations is one of the prime objectives of this book.

Such an undertaking ultimately requires much more than discursive analysis. Alternative perspectives should be considered – most notably 'aesthetic' approaches that explore proto-cognitive and subjective modes of experience, and the disillusion of the subjective in the frame of a technologically constituted network of relationships that transcends the very possibilities of cognition and imagination – all those types of experiences are crucial to intensify our apprehension of the reciprocal relationships between cultural, technological and social forces. Typically, within the European frame at least, such experiences and their 'haptic' exploration are relegated to the realm of the arts. The forms of experience and insight gathered there (visceral knowledge one could say) cannot be reproduced here in the form of a book based on some form of analytic writing. Nonetheless valuable insight can, I believe, be obtained from a closer examination of the lingering and contested legacies of the avant-garde arts; and their always complex and multilayered relationship to 'the machine'. So this is where I will start my exploration.

Hidden Images

The great lesson taught to us by the avant-gardes in the visual arts of the late nineteenth and the early twentieth century, as the French philosopher and aesthetician Jean François Lyotard so brilliantly observed, was the understanding that *every image conceals more than it reveals*. The infinity of the visual field (the totality of all possible images) can only be understood negatively, as it remains impossible to visualize the infinity of the visual in any one image, or visual system. This infinity, in fact, only discloses itself in the failure of the image, of any image – it is the moment when an image's failure is revealed that the infinity of possible images is negatively demonstrated. This infinity is present only until the next (failing) image is inserted into the experiential void opened up by the image's failure; a void that has been the object of millennia of philosophic contemplation on the aesthetics of the sublime.

This discussion should not concern us too much right here, it will reappear later in the book. For now, I want to emphasize the fundamental insight that has accompanied a heroic century of avant-garde practices: the only possibility for revealing what the image conceals is through its negation, almost literally, by 'breaking' the image.

Thus, the Cubists started to understand that the convention of linear perspective and its geometric rendering of embodied space on a flat surface was a deeply contentious, arbitrary and oppressive authoritarian visual structure. As a mode of visuality, it literally allowed us (as viewers) to see only one aspect, one side, one view, of an object, a person, or an event. A completely unacceptable reduction of the multiplicity of living experience!

The response of the Cubist painters was to dispense with almost 500 years of painterly convention and destroy the unity of perspective in their images. Objects, persons and events could now appear depicted simultaneously from multiple points of view. The images provided no definite clue as to how the various viewpoints related to each other, lacking any unified spatial logic underneath or outside the image. If it is hard today to grasp the outrage these images produced at the time, it should be understood first of all that the Cubist images constituted a kind of heresy against the persisting secular visual order (linear perspective) that was granted a privileged position over 'artistic interpretation' as the correct measure of visual truth. Thus, a world order portrayed

according to such an assumed scientifically sound system of depiction underscored its patron's claim to worldly power and pre-eminence. The Cubists' visual heresy denied this privileged secular position of worldly power by showing that the images' supposedly truthful depiction was 'mere convention'.[1] The Cubists' deep involvement with new conceptual breakthroughs in the natural sciences and their explicit denial of mystical exoticism further exacerbated their acts of heresy, emphasizing the deliberate nature of their attack on visual 'truth'.

Indeed, the eye does move, and it needs to do so in order to perceive anything at all. What the Cubists had intuitively understood was soon to be confirmed by scores of researchers in the field of visual perception and cognitive sciences. In his famous discussion on the fallibility of linear perspective, the analytic philosopher Nelson Goodman famously settled the debate on linear perspective as a convention, in defiance of its centuries-long appreciation as an independent and absolute standard of (visual) truth.[2] Goodman shows that, in so far as images drawn according to the conventions of linear perspective reflect the results of optical processes and can duplicate their effect, they do so only under completely abnormal and limited conditions. Compared with regular visual perception, they offer no objective measure of truthful depiction, or replication of human perception by any impartial means or justifiable standard. In fact, under these extremely limited and strictly specified conditions, what the images actually duplicate with some measure of success is a particular optical process. However, this offers no reliable or truthful replication of what could potentially be perceived in a particular place, situation or moment by a living person. Instead, what the imperfect conditions of replication demand is the artists' ability to compensate for the inherent loss carried through the process of depiction, and the viewers ability to correctly interpret the image and 'read' the original intention by making up for what was lost in the visual translation; that is, a completely situational practice that relies on convention and a proper understanding of those schemata to communicate any meaning at all.

Goodman also points to the fact that it is not just the eye that moves to see, but that the observer under natural circumstances is also free to move, and indeed does move about, to see objects and events from multiple angles to complete her or his mental picture. In his 'logic of

perception', the French theorist Paul Virilio also points out that there is a certain minimum time-lapse involved in making things visible to human consciousness; a minimal exposure-time which has to exceed a particular duration for the light, passing through the eye's lens, to be fixed into an image on the retina, and then to be electrochemically processed in the visual cortex. Only when this minimal exposure time is available is it possible to see, which makes perception into a time-dependent phenomenon.

The optical fixation of light in photographic emulsion, or by digitization through a camera inside a mobile phone, does not necessarily require the same duration. Technical processes can record images and visual phenomena that remain essentially inaccessible to the human perceptive apparatus. Still, the 'culturally determined' system of linear perspective has been integrated into practically all visual recording media in daily use today around the world. They follow the visual/optical logic of the camera obscura and its descendants. The visual conventions of linear perspective, the system so severely and convincingly critiqued by Goodman and others, is thus programmed and built directly into these machines. It defines their functional characteristics and visual results, even though the arbitrary nature of the images they produce has long been demonstrated, and countless alternatives have been offered. Moreover, Goodman demonstrates that when following the principles of optical fixation of light under the conditions stipulated by the system of linear perspective, the very conventions of linear perspective as applied in centuries of painting and drawing are shown to be false. The engineering response has been to reconstruct the photographic apparatus in such a way that it produces visual results to match the conventions of linear perspective drawing,[3] rather than attempting to question those conventions directly. This *factum* provides a conclusive argument that this system of visual representation is 'merely a convention', and that the visual technologies that follow its logic are, therefore, essentially culturally constructed.

No Truth in Representation

Some of the more general dilemmas for a cultural reading of media technology can be pinpointed a bit more explicitly here. What to think of systems of representation that so often have been identified with the

'correct' standard of depiction, if not a reliable measure of truth, exactly *because* they are produced by scientifically engineered machines? What is so often overlooked in critical debates on media culture is the way in which cultural conventions are not just produced by machines and their use, but are built into the apparatus itself. There are countless examples of news reports, documentaries, commentaries and critiques, circulated through equally countless media channels, that emphasize the incomplete nature of coverage, of the placement and framing of social issues, or the codification of media-enactment. Yet rarely is there any acknowledgment of the culturally constructed nature of the apparatus with which they are produced. There is, as a consequence, no recognition that a particular media item is not only questionable in its authority to speak of a specific situation, person or event; that it is not just the falsity of the spectacle produced through media machineries, or the precession of electronically mediated simulacra, but that everything circulated in all of these channels and media is determined 'merely by convention', and thus entirely reliant on context and interpretation to produce meaning.

To say that 'our situation is determined by the media/machines' (Kittler), then, amounts to saying nothing at all, since our cultures, interpretations, situations and contexts in turn define the machines. The formula turns on and eliminates itself. Clearly, without media machines, there would be no media culture, and without any cultural settings, no media technology. The imagined opposition between material and cultural conditions should immediately be left behind if 'we' are to get anywhere in our discussion of contemporary techno- and media cultures.

This begs the question, what methodology is suitable for studying contemporary technological and media cultures?

The first answer is that any attempt at studying these cultural phenomena should concern itself with the interplay of material and cultural conditions that invoke and shape the emerging cultural and technological formations that it wishes to address. Secondly, given the complexity of the object of study, methodologies urgently need to emphasize the local: it should be made clear what the particular (situated) context of a study is, so that it is clear that any claims made in a particular analysis cannot be generalized without addressing the specificity of that translation. The third condition is that clear limitations should be imposed upon any such analysis or study.

In his magical study on photography *Camera Lucida*, Roland Barthes speculates on a new science of the particular, something he calls a *mathesis singularis* – a science for each object, as opposed to the general scientific drive towards generalization in a *mathesis universalis*.[4] Photography, in its purest form (optical/chemical), is defined by an attachment to the particular through its inextricable causal association to the thing, object, or event in front of the lens, as it was captured in a singular click that marks a particular moment and a specific co-ordinate in the continuum of space and time. For Barthes, this becomes the very essence, the *noeme*, of photography – the *that-has-been* – the madness of the photographic image that discloses itself in the uncontrolled sting of life that punctures the conventions of the photographers' professionalism, or the simple banality of cliché.

Now, what could such a science of the particular possibly offer for a study of media or technological culture? Would this not lead to an endless array of 'case studies' without any sensible connection or synthesis, thus obfuscating the very possibility of insight? Certainly, to some extent, a literal application would indeed lead to the production of an infinite string of singularities. However, Barthes himself already provides an implicit answer to this question. Through the exploration of photographs to which he feels a special attachment, he identifies a number of recurrent principles that define not just photography, but also the attraction he feels to certain images, their viral madness and inherent attachment to that which is no longer, that which has died, or is about to die. Exactly *because* the image is infected with the sting of life, it is the forbearer of death.[5]

While Barthes' analysis identifies principles that transcend the singular, it leaves space, consciously and deliberately so, for the particular to be acknowledged and be given centre stage. In this approach, Barthes' methodology becomes neither a *mathesis singularis*, nor a *mathesis universalis* as such. It attempts to identify the principles that allow for the particular to emerge and be situated. Such a project is necessarily imperfect, and invites restraint when generalizing any of its central claims.

Reassessing the Cultural Turn

In this book, I insist on a cultural reading of media and technology, and the forms of use and signification that have evolved around them.

That is to say, my reading concerns itself primarily with the ways in which people attribute meaning to and signify the various 'things' that shape technological and media cultures. 'Things' can be understood broadly as technological objects, images, words, texts, sounds, media forms, channels, mediums, narratives, messages, documents and so on; the specific intersection of technological and cultural conditions constitutes a dizzying complexity that can most effectively be rendered practicable as a theoretical object by localizing the analysis without giving up any of the constitutive elements which make it meaningful.

In relation to the tension between materialist and culturalist approaches to media history or theory, I cautiously follow the 'cultural' approach as outlined within the area of cultural studies, and in particular by Stuart Hall and Paul du Gay, who position it as follows:

> In the past . . . the mode of production of a cultural artefact was assumed to be the prime determinant of the meaning which that product would or could come to possess. . . . [We] break this logic in that [we] analyse the biography of a cultural artefact in terms of a theoretical model based on the articulation of a number of distinct processes whose interaction can and does lead to variable and contingent outcomes.[6]

Du Gay and Hall propose a methodology for cultural studies based on the notion of a 'circuit of culture' in which five major processes are identified: Representation, Identity, Production, Consumption and Regulation. While I feel no obligation to follow them literally, an interesting characteristic of this analysis is that new meanings can be introduced or attached to a 'thing' and the overall construction of meaning in the circuit can be reconfigured at any of these five points. This analytic model allows for a highly versatile treatment of how meaning is constituted in processes of cultural formation and circulation. With regards to media production, it opens up the exciting possibility, even the likelihood, that the meanings attributed to a particular media object by its original producers might be substantially different from, or perhaps even have little to do (or nothing at all!) with, the meanings inferred and attributed by the user of that same 'thing' at the consumptive end of the chain. In cultural terms, an object is not only capable of being modified as it

passes through these different points, it might be entirely reconstituted as a singularly different cultural entity at any point of its circulation.

Within the context of the social sciences, this pentatonic model of the construction of meaning and cultural attribution manifests a marked shift from predominantly Marxist approaches to production which considered cultural processes as 'superstructural', as 'being both dependent on and reflective of the primary status of the material base of production'.[7] Uncovering who controls the means of cultural production was considered a determinant of the kind of cultural meanings attached to these objects – control which could take on either hegemonic or democratized forms. The shift towards considering cultural processes as constitutive of the social, rather than merely reflective of them, is what has become known as the 'cultural turn'. It has provided a differentiated understanding of how meaning is produced across and between different cultural contexts and social actors.

However, despite the fact that the model of the cultural circuit retains a clear connection to the material conditions of cultural production, it nevertheless is marred by a blind spot that remains of utmost importance for the study of technological and media cultures. Cultural studies tend to treat the apparatus itself, the material engineering of the machine, as a kind of 'black box'. Thus, they fail to devote adequate attention to the intrinsic structural qualities of the apparatus at work in technologically mediated processes of cultural production.

By now these constitute, in the industrialized and post-industrial societies at least, the vast majority of modes of cultural production and reception. To clarify this point, in the case of a particular media production, it seems to matter little to the cultural studies approach outlined above whether a message that is composed using a media machine is actually encoded into a film, a magazine, a television programme or a website.

The specific technological structure of the medium seems to be of minor interest, particularly in comparison with the more general question of how the meaning attributed to the object by the producer is transformed at other points throughout the cultural circuit, especially during the act of consumption or usage. This can lead to the oversight of considering the technological design of the object (as opposed to the experiential design) as 'matter-of-fact' and can result in disregarding the

cultural bias inherent in the technological structure of the apparatus, as discussed earlier in regard to the photographic machine and its reliance on the cultural convention of linear perspective.

An analysis of the significance of technological conditions and evolving lineages of media technology within cultural processes requires opening up the black box of technology, to make its construction and inherent biases legible, and clarify their influence on the overall constitution of meaning in and across different cultural contexts. In other words, it is necessary to consider the technological as constitutive of the cultural, just as much as those other points in the cultural circuit identified by Hall, du Gay and their followers.

In practical terms, this means that a discussion of the formation of a new order of time, for instance, as it was introduced throughout Europe during the thirteenth century by 'that great working order' of the Benedictines (Mumford) with their invention of the first mechanical clockworks, which spread first through monasteries and then cities across the continent, it is not enough to simply trace the pattern of distribution and reception.

A general understanding of the mechanism of the new clockworks and their material technological development greatly aides the analysis and understanding of how these technological innovations started to affect social, economic and, ultimately, cultural relationships in Europe. The mechanical clock not only introduced new temporal-spatial modes of organizing human activity in a radically divergent and rationalized manner, it additionally changed the conception of time based on the subjective relationship of European citizens to the passing of daylight to darkness, and from one season to the next, through rhythms that had traditionally shaped their comprehension of temporal orders. The cultural history of time cannot be written without a clear understanding of the evolution of the mechanical timepiece, its technological transformations and the applications that were eventually found for it. Similarly, the development of the timepiece cannot be understood without taking into account the social context and cultural imagination of temporal regularity that facilitated its emergence as a central technological innovation throughout European society from the thirteenth century onwards.

The study of contemporary media and technological cultures urgently requires both hardware and software analysis. It needs to understand

how network standards, technical protocols, industrial agreements, the formal logic of computing machineries and the software platforms that run on them affect the production of new forms of cultural signification. But equally, the cultural biases in the development of hardware and software need to be 'excavated' and brought out into the open to grasp the dynamics of the development of contemporary media and technologies. How would it be possible to seriously discuss open-source and free software cultures without a basic general understanding of coding and algorithmic realities? How can one start to discuss a concept like 'the Internet of Things' without even the beginning of an idea of how RFID tags actually work? What good is an analysis of gadget culture, without ever having opened the black box of a GPS-enabled Palmtop, an iPod, a Bluetooth phone, or a Wi-Fi access point? How can we understand the incessant drive for continuous connection and the communicative addiction in the age of the GSM, without addressing the opaque mysticism of the founders of modern telecommunications?

It is not helpful to speak about the 'impact' of one (technology and/or culture) on the other, to foreground the technological over the cultural, or vice versa. It is far more productive to consider the ongoing assimilation of the machine (Mumford), of technology, throughout the fabric of society and culture; to excavate the regularities within patterns of social, cultural and technological transformation; to identify points of rupture and the shifts of singularity that define our troubled and often traumatic interaction with technology. This requires more than the hardware analysis that Friedrich Kittler has proposed,[8] but his descent into the caverns of the inner machine is a necessary part of the overall trajectory.

A Trias Technologiae

A cultural reading of media and technology that attempts to overcome its blind spot, no longer treating media technology as a black box, requires a synthetic analysis. This analysis broadly proceeds along a three-fold approach.

The first lineage of theory-making that seems useful here is that of culture and technology studies, which I would like to consider primarily as an ongoing attempt to rethink the linkages between machines, society and culture. For me, the work of the great historian of technol-

ogy Lewis Mumford is of great importance here. Mumford was one of the first theorists who dissolved the boundary between the social, the technological and the cultural. Instead of these terms, Mumford prefers to introduce discursive figures such as the 'assimilation of the machine' and the notion of the *megamachine* by which he designates as primary to technological development a form of social organization that prefigures specific technological forms, as much as it is informed by them. It is the human capacity for organizing complex arrangements of social, biological, human and cultural energies towards a given task that for Mumford is crucial to particular forms of civilization. Thus, the articulation of any given project by means of language and its instigation in a particular social form is far more important to Mumford than any particular engineering achievement. Such metadynamics of technological development are captured in his idea of *megatechnics* which takes the specific configuration of material, social, technological and cultural forms as its central object of analysis, emphasizing what in more contemporary terms could be characterized as a 'network' of relationships that emerge from any such configuration.

The second important tradition of theoretical exploration is that of media theory. It seeks to understand how the various lineages of media technology have evolved, what kind of experiences they give rise to, how they have affected the human sense of self, and how different media in turn affect the study of the lineages of the media themselves.[9] Media theory can help us to finally open the black box of technology, to develop the analytic screwdrivers and multimeters through which we can assault the media machines that pervade our every day lives – the quotidian technological realities – and elucidate their profoundness. Since the pioneering work of Marshall McLuhan, the field of media theory has proliferated into a multiplicity of different directions and 'blühende Landshaften'.[10] Of which, the archaeological approach to the study of media genealogies as highlighted by Siegfried Zielinski and Erkki Huhtamo; the formal studies into the 'language of new media' by Lev Manovich; net criticism and the analysis of network cultures as delineated by Geert Lovink, Pit Schultz, Ned Rossiter and others, and practised 'interactively' via such on-line fora as the nettime mailing list;[11] and Richard Rogers' recent proposal for a web epistemology,[12] at least deserve some special mention as guiding my explorations.

However, one should not be content with 'merely' studying the *extensions of man*, given that we are equally fascinated by the intentions of man. Here we can draw on the rich repositories of cultural analysis and cultural studies that have provided a vast array of methodologies and case studies, theories and debates. References to specific sources are too numerous to mention them here – they will appear in the text as required. If this area has been criticized in the past for its apparently eclectic appropriation of theoretical sources and methodologies then the present collection of essays will certainly provide further fuel for such criticism. I have no intention to excuse this circumstance, to the extent that no universal claims are made with what is written here. The intention is simply to engage in a series of ongoing debates.

A larger question still lingers over the contentious terrain of culture and technology, why write theory at all after the catastrophe of the twentieth century? There is hardly an adequate answer to this, except perhaps for a pertinent uneasiness that to settle for a mere *mathesis singularis* or a naïve subjectivity is simply not enough in the face of persistent suffering, poverty and oppression.

Speed, Transformation, Experience and the Limits of Theory

The proposition to adopt a three-fold approach to the study of technological and media cultures, through the combination of insights gained from culture and technology studies, media theory and cultural analysis, by no means settles the theoretical debates and practical problems that can potentially be raised here. It might, therefore, be useful to briefly explore some of the issues that remain unresolved.

The first and probably most vexing problem is the rate and speed of transformation and change in technological and media cultures. It is impossible for theory to keep up with developments at ground level. It has been Paul Virilio's crucial observation that technology incessantly accelerates all social, political and cultural processes, including technological development itself, resulting in a fatal acceleration of society and culture towards the immediate, in which any possibility for reflection is made impossible and the whole idea of theory becomes, indeed, absurd!

How to respond? A historicizing approach is not productive. This would imply that theory and analysis would only concern itself with

objects of study that have sufficient distance in time (in the past) to allow for their fixation, so as to make a 'disinterested', critical and less speculative treatment of these real-time objects possible. Theory would then end up doing nothing else than running ever farther behind the actual developments in society – hardly an attractive proposition.

One escape route for theory would seem to be to focus entirely on the transformation of experience in highly technologized cultures. But here other problems start to emerge. How to describe those experiences and what kind of analytic genres can be applied to them? The actual technological development encroaches on this meta-technological space. For instance, when considering the much debated 'convergence of media', this essentially technological process implies not only that disparate media genres are merging (radio, television, telecommunications, the Internet and the hybridization of formats), but also, and more importantly so, that different technological cultures (radio, television and broadcasting, alongside telecommunications industries, alongside computer industries), user cultures and modes of experience are all fused together. Such multidimensional hybridization has profound implications for the kind of cultural objects and meanings that are produced in this context, determined as they are by conditions of *raplexity*:[13] a rapidly changing complex environment. Instead, I appeal here for an approach in which theory and analysis acknowledge their own inherent limitations to speak about all micro-developments at the ground level, given their speed of change, their intrinsic hybridity and unpredictable future trajectories.

The task would be to develop a set of analytic and theoretical tools by which conditions of rapid economic, political and cultural change in highly technologized societies can be recognized and 'dramatized'. Such a project should necessarily recognize the limits of discursive practices, and extend beyond them, not least in a continued dialogue with actual practice.

Analytic Trajectories

The main body of the book is divided into three parts that reflect different analytic trajectories I have followed over the years, in an attempt to navigate the (d)elusive spaces of culture, media and technology.

The first section contains texts that in their original form emerged as materials for three series of seminars, developed for postgraduate education programmes in art, design and new media at the Groningen Academy of Visual Arts, Minerva. These seminars were organized around three interlocking themes, which in different ways examined the heterogeneous genealogies of 'the machine' as a philosophical concept and cultural construct: 'The Time Cycle – Time Related Practices in 20th Century Arts and Media' (April 1994); 'The Machine as Seen at the Edge of its Disappearance – Contributions Towards a Cultural History of the Technology Complex' (March – April 1995) and 'The Body and the Machine – Techno Fetish/Mechanised Fetishism' (October – November 1996). Finally, the research conducted for a parallel series of seminars called *War* (January 1996) connects lines of thought that move between the genealogies of the machine concept and the recurring motive of the 'unrepresentable' – the underlying theme of the essays in the third part of this book, in the closing essay.

The gradual movement from actual machines towards the phantasmatic and mythological became a growing concern for me in these studies. This evolved into a subsequent larger project called 'An Archaeology of Imaginary Media', which was conducted as a mini-festival and lecture series at De Balie, Centre for Culture and Politics in Amsterdam in February 2004,[14] and which was concluded with the publication of a book and DVD in December 2006.[15] Imaginary media can be defined as machines that mediate impossible desires. The status of these pataphysic constructs is discussed extensively in the opening and closing essays of the first part of the book. The other sections discuss the symbolic and material transformations of the machine concept in a number of different settings.

'The Cosmic Machine' traces transformations of the idea of the cosmos as a mechanical clockwork, mostly within the European frame. The main question raised here is how such highly differentiated and often quite contradictory significations could have emerged from essentially the same narrative device – the 'clockwork of the heavens'? The discussion raises serious questions about the epistemological status of the clockwork model of the heavens, suggesting that ideological preconceptions, rather than any definite analytic insight, determined their signification.

In the essay 'Time Machine', a parallel history of the mechanical clock and its transformations from the later thirteenth century onwards is examined. In the second half of the nineteenth century, increased international trade and logistic requirements, together with the confluence of telecommunications (the transatlantic telegraph), gave rise to a new global time standard that defined a unique relationship to space and time throughout the industrial world. Time itself became an object of research and development, as Paul Virilio has also insisted, in a trend that continues through the contemporary conception of the real-time economy.

However, in parallel, the technological construction of time has simultaneously given rise to fantastic imaginaries that exceed the physical limitations of the transformation itself, most explicitly, in the impossible cultural articulation of the time machine.

'Body Machine/Machine Body' explores the cross-projection of the machinic and the corporeal upon one another in a dynamic that has produced monstrous hybrids, fusions of bodies and technologies that reflected and foreshadowed the increasing technologization of human life throughout industrial and post-industrial societies.

Machine bodies and body machines abound in the popular imagination, both as embodiment of a newly potent individual or collective agency and the ultimate sign of inhuman suppression. Never neutral, the machine body/body machine is always a double cross-projection that brings out subliminal anxieties on the growing omnipresence and intrusiveness of technology. Its inherently transgressive nature is discussed here in terms of a simultaneous fear and fascination complex.

Finally, in the essay 'War Machine', some of the lineages of the machine are traced to the modern conduct of war, in which the concept of the (disciplined) machine body/body machine performs a central role as an organizing discourse. The defining characteristic of the machine as a construct geared towards automatic action calls forth its inevitable conclusion in the practice of war-making: the ultimate removal of the body machine from combat and its replacement with purely mechanical fighting machines – autonomous weapon systems. Fictional imaginaries (such as the cliché of the artificially intelligent robotic soldier) and the actual strategic demands and imperatives of warfare fuse seamlessly in the hyperreality of the deep technological battlefield.

Politics and Uses

The second section of the book contains a series of essays that primarily concern themselves with questions around the politics and uses of media and technology. Here, the influential distinction of strategies and tactics developed by Michel de Certeau in *The Practice of Everyday Life* suggests itself as a context for discussion.[16]

Strategies are distinguished by de Certeau when 'a subject with will and power' can be identified, postulating a *place* delimited as its own, from which power relations are managed with an *exteriority* composed of targets and threats.[17] Institutional political power is always strategic. Furthermore, it increasingly 'manages its relationships with an exteriority' by means of media and information- technologies, rather than the barrel of a gun, let alone physical force. One could add to de Certeau's analysis that strategic power in the era of global mediation is increasingly *deferred*.

Tactics, on the other hand, are determined by the absence of a proper locus or delimitation of an exteriority that provides autonomy. 'The space of a tactic is the space of the other,' de Certeau writes, 'thus it must play on and with a terrain imposed on it and organized by the law of a foreign power.' This is not to say, however, that the tactician is necessarily a powerless subject. Rather, in the emphasis on the tactical, the function of reception and modification is given emphasis over the strategic dimension of production (of ideas, of signs, of significations, of culture, products, modes of coercion, manipulation and management).

However, I suggest that a reconstituted subjectivity needs to be added to the tactical operations of de Certeau's users (consumers). As he explains from the outset of his analysis, the subject as an individual consciousness has no obvious role to play since 'a relation (always social) determines its terms and not the reverse, and . . . each individual is a locus in which an incoherent (and often contradictory) plurality of such relational determinations interact'.[18] Nevertheless, as a user, the individual can consciously pursue the loss of (an illusionary) subjectivity in a perverse submission to its own transversality in a social context. Increasingly today, this is a mediated and networked context. The pleasure of this conscious loss of selfhood is exemplified by the perverse figure of the blogger as an antihero of the era of self-mediation. The reconstituted subjectivity, then, is fundamentally a *perverse subjectivity*.

For the analysis of politics and uses of media and technology, both perspectives are required. The strategic dimension delineates the terrain organized by the law of a power, aspects that remain foreign to us as lowly users/consumers: the territory of spectacle, coercion, surveillance, property relations, institutional law and military strategy. The tactical dimension identifies the operations of appropriation, subversion, transgression, modification, the non-proprietary and the common. Not considering the strategic dimension would simply invite naiveté, while dispensing with the level of tactical operations would exclude the possibility of a utopian moment, and only leave room for cynicism.

Still, de Certeau's analysis did not play an explicit role in the formulation of the ideas contained in the materials presented here from the very beginning. His ideas and writings slowly came into view as I was developing the essays brought together in this part of the book. A decisive moment was certainly my attendance of the second 'Next 5 Minutes' conference on tactical media as a mere attendee (a user/consumer), a project in which I would later become more deeply involved. It was here that I encountered the application of the notion of the tactical, seemingly a term borrowed from military 'strategy' with all its attendant problematic implications, to the domain of media and technology. The radical and uncompromising approach to media and technological culture I encountered at this event (1996) was a truly exhilarating and even liberating experience.[19] The year before we had concluded the first edition of the 'Interstanding' conference on the culture of interactivity in Tallinn, Estonia (the most Northern of the three former Soviet Baltic republics), but at that time de Certeau's differentiated analysis of power relationships and user/consumer cultures did not play a significant role in our deliberations. Retrospectively, de Certeau deserved a more central place in some of those early explorations of electronic networks and the culture of interactivity emerging around the internet.

My involvement in the preparation and organization of three consecutive 'Interstanding' conferences in Tallinn, Estonia (1995, 1997, 1999) provided the germination point for two essays included here.[20] In the summer before the first 'Interstanding' conference, I had been invited to Estonia by photographer Peeter Linnap for the symposium part of the Saaremaa Biennaal '95, devoted to the theme 'Fabrique d'Histoire - Conditions of Memory'. The essay 'The Intensification of Time' was origi-

nally written for this event and reflected on questions of memory, more specifically the breakdown of memory in Paul Virilio's brilliant analysis of real-time mediation from his 1987 book *La Machine de Vision*. The continuous mediated presence of the distant present in real-time would seem to erase the possibility of a memory of the past (and, therefore, an imagination of the future). Such an erasure of memory would be hard to conceive in terms of the only recently shed Soviet past of Estonia, and it would certainly be wholly unacceptable in that local context. The setting of this international art event on the former military no-go zone, the island of Saaremaa just of the north-eastern coast of the Estonian mainland, turned into an edgy holiday resort, left little room for doubt in this regard.

The struggle for a new identity, the virulent nationalism in the Baltic States, and the complicated demographic make-up of these newly (re)born countries was a continuous concern for us. No longer part of the Soviet Union (not yet on track towards EU-inclusion) and immersed overnight in the radically transnational culture of the informational societies, they created a demanding setting for discussing the culture, social context and politics of networks and interactivity.

Many of the dilemmas that emerged there are still unresolved. This impossibility of fitting together such incongruent heterogeneities spurred a series of lectures in Prague, Tallinn and Tirana (Albania) delivered late 1998 and early 1999, which then resulted in the essay 'The Politics of Cultural Memory'. The essay also reflects an intensive international discussion and exchange of a pan-European network of artists, curators, critics and theoreticians involved in media art and media culture, called Syndicate. This network, established at the close of the second 'Next 5 Minutes' conference in Amsterdam and Rotterdam in 1996, inspired an intense debate and series of meetings, events and projects reflecting on art and media culture during the tumultuous and sometimes disparaging changes that gripped the European continent after the demise of the Warsaw Pact. To some extent, in order to explain their vibrancy, these essays should be situated in that turbulent setting, although many of the issues raised there transcend this specific historical context.

The next group of essays reassesses a tendency towards a certain contemporary Gnosticism that became apparent in early cyber-utopian

discourses, which were increasingly critiqued for their denial of real-life restrictions on many people's embodied existence in the 'network society'. Inevitably, this swelling critique made the discourse of virtualization appear increasingly dubious. Out of this critique emerged new perspectives that emphasized the hybrid fusion of the physically embodied and the electronically mediated in media-technological development. This new emphasis on hybridization, rather than virtualization, also mirrored more closely the actual course of technological development and the emerging use of cultures of new communication and media technologies. Devices became smaller, portable and wirelessly connected, and as a result, media entered physical and public space, establishing new practices and behavioural patterns that challenged the now increasingly permeable boundaries between public and private. For these new communicative and technological conditions, a spatial analysis is most conducive, and this has been an ongoing and evolving concern of my contemporary work.

The call for a mindful programme of selective disconnectivity, made here in a collaboratively written essay with Howard Rheingold for the #11 issue of *OPEN*, the Dutch biannual journal for art and the public domain, marks the shift from a perspective concerned with strategic power relations to the tactical appropriation of the terrain that is delineated and delimited by these relations. It has been my contention that 'The Right to Disconnect' should be enshrined as a fundamental human right in the universal declaration of human rights. Meanwhile, it should be recognized at an operational level that, for the foreseeable future, this right is only capable of being brought about through the application of individualized tactics of selective disconnectivity as a temporary autonomous action. According to Paul Virilio, in reaction to the real-time spectacle of the first Gulf War, *immediacy*, *complete visibility* and *omnipresence* are the elements of the politics of tomorrow, or better, of today. Without the possibility for an individual to withdraw (temporarily) from this persistent and always-on connectivity, no form of autonomy is conceivable. Even if this provisional agency seems as illusory as the subject's individuality, it still remains an important political consideration to me.

The next group of essays descends into the abyss of self-mediation. It is here that the perverse subjectivity of a dismembered and reconsti-

tuted sense of self, indulging in its own dispersion and loss, fully comes into play. Importantly, the consideration of such mechanisms of self-mediation and the tactical appropriation of broadcast media for *minor* practices generously predates the contemporary infatuation with weblogs and video-sharing portals. In several important ways, these early initiatives and forms of artistic experimentation prefigure the now absolutely mainstream practices of 'self-broadcasting'.

The earliest essay, 'Media without an Audience', was written in the context of an intense debate on the topic of streaming media carried out internationally around 2000. Experiences from the experimental net.audio and streaming media network Xchange – co-ordinated from Riga, Latvia from as early as 1997 onwards – inspired a radically unique notion of distributed media production and use. In response to growing market interests in the technology at the time we, a highly international group of artists and activists involved in streaming media, decided to organize a large meeting, festival and conference on the non-industry, the non-strategic, or the tactical if you will, approaches to distributed narrow- and broadcasting. This resulted in the net.congestion international festival of streaming media, staged in Amsterdam in October 2000. 'Media without an Audience' has since circulated widely on the internet in a variety of artistic, activist, media-tech and even academic contexts. The essay, therefore, appears here in its original form as a source text.

Aesthetics beyond Representation

Questions of representation are always at the heart of critical discourse regarding processes of (electronic) mediation. Such discourses regularly assume the incorporation of all exteriorities into a representational or media system, for instance, by insisting on the primacy of language when establishing any relation to exteriority. The problem that continues to haunt me, however, is whether there is any possibility of defining or identifying a point outside of mediation? Not in the regressive sense of a recovered authenticity, but as the potential for an *outside* to exist at all.

This seems, at first, an impossible question. Would it not require a point beyond language, beyond media, beyond the symbolic order? Indeed, would the outside not require a move beyond representation it-

self? How would such a position, or rather non-position, even if it were considered to exist, then be articulated? Would not communication destroy the outside, for it would involve an identifiable location, a form, a description or a signification, turning it into *some*-thing, instead of a *non*-thing?

About one point we can at least be certain: this outside cannot exist within the realm of digital mediation for the simple reason that digitization relies on the atomization and complete articulation of all information within a communicative system. This is not a condition particular to electronic media – digitization is nothing more than a method of notation. However, the application of scripting techniques to the computer as a universal machine is precisely what has enabled its diversification throughout so many areas of knowledge, cultural production and communication. Within digital systems, everything is articulated as a message, given a description and a precise location, even noise. What cannot be accounted for is just discarded and excluded. The 'outside', therefore, can never exist *within* a digital system: it is simply ignored.

In so far as there may be justifiable reasons to be worried about the incorporation of ever more aspects of social life and human existence into technological systems, and because these systems are increasingly operated by digital machines, the subversion of this denial of an outside seems to provide an interesting antithesis to the determining logic of such technological apparatuses. If there is a desire to be able to transcend the technoscientific rationality of the apparatus, then at least the identification of an outside should be possible to provide a potential ground from which such a project would be able to proceed. Without this outside, any resistant activity would amount to little else than mere circulation within the established system of technological mediation, which is increasingly becoming synonymous with social life itself.

It is at this point that the notion of the 'unrepresentable' comes into play. The unrepresentable is the non-form, non-space and non-time that cannot be captured by any system of mediation. The rift in experience produced by the encounter with the unrepresentable is what produces a specific and intense sensation studied for centuries in the analysis of the aesthetics of the sublime – an ambiguous, almost dialectical mixture of anguish and *delight*. Given that the unrepresentable cannot be

directly mediated or depicted, it remains possible to demonstrate that the unrepresentable exists, to testify to its existence. As Jean-François Lyotard rightly observed, it was Emmanuel Kant who provided the appropriate formula for this act of 'presenting the unpresentable'. In his *Analytic of the Sublime*, Kant argues that the rift between that which can be rationally ascertained as a pure idea and the simultaneous failure of the imagination to provide definite form to experience can nonetheless be evoked by what he calls a 'negative presentation': where imagination fails, one can construct negative signs that inversely demonstrate the existence of what is unrepresentable. The classic example provided by Kant is the ban on the depiction of the divine by Mosaic law, which through its absence of such imagery, 'negatively' testifies to the omnipresence of God.

The concluding part of this book contains a selection of writings that, despite their considerable thematic dispersion, all engage with different aspects of the presence of the unrepresentable as an experiential rift in contemporary culture and society. Three instances of the unrepresentable are considered here in detail: infinity, rupture and the secret.

The essay 'Transfiguration of the Avant-Garde' emerged as the outcome of a series of lectures that commenced in Prague and Warsaw and continued through a variety of European cities. This presentation originally ran under the slightly ironic title 'Deconstructing the Sublime', and aimed to show the limits of Lyotard's discussion of the aesthetic of the sublime through its inapplicability to contemporary technoculture and digital mediation. Over time, it became apparent that, on the contrary, it was precisely this rift that made Lyotard's analysis so problematic and interesting. The essay proceeds from Lyotard's assumption that the avant-gardes in the arts, contemporary technosciences and advanced capitalism all share an affinity with infinity (*une affinité avec l'infinité*). The artistic avant-gardes are characterized by their negative demonstration of the infinity of plastic invention, the technosciences by their seemingly limitless potential to produce knowledge that reconfigures our conception of reality, and advanced capitalism by its infinite capacity to realize what has been articulated as an aim (through the creation of new markets). The essay then extends this analysis to contemporary practices of critical media cultures by focussing on the rift between digital mediation and the unrepresentable.

As opposed to Kant's overly cognitive approach, Edmund Burke's *A Sublime Encounter: Observations on Art and Terrorism* foregrounds an experiential analysis of sublime aesthetics. The confused legal proceedings against artist Steve Kurtz and scientist Robert Ferell, and the erratic responses to perceived 'terrorist' threats in the post-9/11 landscape more generally, have provided the immediate incentive to explore a series of erroneous applications of experiential categories that make a semantic shift between art and terrorism (in both directions) suddenly seem plausible.[21] To a certain extent, the encounter with an experience that should philosophically be categorized as an experiential sublime was mistakenly conflated with aesthetic programmes of the artistic avant-garde. Such experiences had been relegated to the domain of avant-garde arts by the social body in an attempt to neutralize their existential threat, but rather than some sort of collective psychosis, it seems indicative of a denial of intensities that call forth their own transgressive forces in a moment of crisis.

The final thoughts in this book are reserved for the aesthetics of the secret, the play of the unsayable, of unspeakable silence. An inexpressible wound, an imploded space beyond speech resides at the heart of European culture. Attempting to give shape, name, or attach a description to this inexpressible boundary involves nothing less than inventing a technology of forgetting for it. Instead, and here I adhere fully to Lyotard's position on the unrepresentable, I argue that this rift should be left open as a wound, an inverse sign that testifies to the existence of that which is beyond articulation through its persistent negative presence. The unimaginable disaster that is, nevertheless, 'real'.

In this final incarnation of an inexpressible secret, the unrepresentable is a call to a fundamental ethical question. And this question cannot be resolved within the utilitarian logic of the technoscientific and economic apparatuses. It requires another type of treatment.

Notes

1 To a certain extent, such claims seem to persist today in the form of satellite images supposedly showing weapons of mass destruction.

2 Nelson Goodman, 'Reality Remade: 3. Perspective', in: *Languages of Art* (Indianapolis: Hacket Publishing Co., 1976), 10-19.

3 See Goodman's discussion of the geometric projection of parallels on the plane of the picture, ibid., 16-19.

4 In the Cartesian programme, a *mathesis universalis* tends to reduce its analytic object to barest essentials so as to distill some general rule out of it that emphasizes the universal in the particular.
5 The *punctum*, as Barthes calls it.
6 Paul du Gay, Stuart Hall, et al. (eds.), *Doing Cultural Studies – The Story of the Sony Walkman* (London: Open University/Sage Publications, 1997), 3.
7 Ibid., 1-2.
8 Kittler's entire oeuvre would be relevant here – I refer first and foremost here to his study *Gramaphon, Film, Typewriter* (Berlin: Brinkmann & Bose, 1986).
9 In the preface to his recent book *Understanding Media Theory*, (Rotterdam: V2_ / NAi Publishers, 2004), 7-9, Arjen Mulder distinguishes these three aspects of media theory and considers at least three different schools within this still barely established intellectual/academic discipline; one originating from film and television studies and cultural studies; another from literary studies; and the third emerging out of technology-based art practices and non-academic speculative media theory.
10 Blossoming landscapes.
11 www.nettime.org
12 See: Richard Rogers, *Information Politics on the Web* (Cambridge, MA: MIT Press, 2004).
13 Raplexity: a term I borrow from organizational theory. I heard organizational theorist Henry Owen claim in a lecture (in 1985) that conditions of raplexity require a ready-fire-aim strategy from a social actor.
14 See: web dossier on media archaeology at the De Balie website: www.debalie.nl/archaeology
15 Eric Kluitenberg (ed.) *Book of Imaginary Media* (Rotterdam/Amsterdam: NAi Publishers/De Balie, 2006)
16 Michel de Certeau, *The Practice of Everyday Life* (Berkeley: University of California Press, 1984), 34-39.
17 Emphases from de Certeau's text.
18 de Certeau, *The Practice of Everyday Life*, op. cit. (note 16), xi.
19 A discussion of the first 'Next 5 Minutes' event (1993) and the spirit of the environment can be found in Douglas Rushkoff's *Media Virus* (New York: Ballantine Books, 1994/1996), chapter 7: 'Tactical Media'.
20 www.interstanding.ee
21 These legal proceedings are still ongoing while writing this introduction (Fall 2007).

Part I

Archaeologies of the Machine

Archaeology

Discourse Analysis, Media Archaeology, the Megamachine, Libidinal Mechanics

> A nightmare has haunted me since my childhood: I am looking at a text that I can't read, or only a tiny part of it decipherable. I pretend to read it, aware that I'm inventing; then suddenly the text is completely scrambled, I can no longer read anything or even invent it, my throat tightens and I wake up.[1]

With this startling image, French philosopher Michel Foucault, in an interview with Robert Bellour, raises the problem of interpreting historical texts and 'reading' historical sources: the impossibility of recovering their original meaning, their 'innermost secret' as he calls it. Foucault continues:

> I'm not blind to the personal investment there may be in this obsession with language that exists everywhere and escapes us in its very survival. It survives by turning its looks away from us, its face inclined towards a darkness we know nothing about.[2]

If the ultimate aim of literary and historical criticism is to restore the 'original' meaning of a historical text or source to the contemporary 'reader', then Foucault's assertion of the very impossibility of achieving this notably denies such practice its legitimacy. Indeed, it is not so difficult to see why his archaeological approach to the practice of history, with its forceful rejection of this ultimate aim, caused such a stir and outrage in historical and literary circles.

Since through distance in time and social position, place and context, as a contemporary reader we are principally unable to restore the network of relations in which the original text or source was constituted, we are similarly incapable of reconstituting its original meaning. Attempting to do so means inventing, and this invention obviously requires applying rules of which we are ourselves probably not fully aware, so in this creative act, the meaning that may have been present

in the source can become irretrievably lost, the text hopelessly scrambled, the source fatally opaque.

What can be done? Foucault's suggestion has been to uncover from, within and between the historical sources at our disposal the implicit rules that govern their mode of operation. Clearly, these rules exist not only within a specific text, but also outside them, in relation to other texts and sources. In part, they operate 'beneath' the consciousness of individual subjects, including the original authors of the texts. The text is not so much defined by these systems of rules, nor does it define the system by itself (immanently as it were), but embodies these rules and redirects them. The text is, therefore, 'in operation', as a practice, rather than a static object. In the same interview, Foucault explains:

> Language can be analysed in its formal properties only if one takes its concrete functioning into account. Language is indeed a set of structures, but discourses are functional units, and analysis of language in its totality cannot fail to meet that essential requirement.[3]

For Foucault, these systems of rules governing, and embodied by, language in action are by no means arbitrary. Instead, they are specific to a particular domain and period. They define what is possible to conceptualize and be thought in context, and thus they introduce a kind of 'localization' of the discourse, one rather different from geographic localization, but also quite apart from traditional modes of historical periodization. The specificity of such 'discursive formations', as Foucault calls these localized systems of rules governing language in action, implies that their specificity belongs to a specific domain and that domain only. In *The Archaeology of Knowledge*, he emphasizes that his archaeological method aims 'to define discourses in their specificity, to show in what way the set of rules they put into operation is irreducible to any other'.[4] Periodization should, therefore, be considered within each given discursive domain, and formations in one domain can differ strongly from developments in others. They are, therefore, also irreducible to larger historical periodizations – essentially, the particular historical breaks and continuities still taught today in pre-academic historical classes and undergraduate courses in art history, theatre, music and literature studies at universities. Foucault clearly considers this

meta-discursive approach to the writing of history as fraudulent. Not only is it incorrect, but it also serves to consolidate a unified picture of historical development that supports the strategic objectives of dominant discourses of power, which situate themselves at the end of a chain of historical events as both a logical conclusion and inevitable outcome. Such an 'objectified' approach to writing history is what Foucault abhors, for it introduces the idea of historical determinism and it leaves no space for alternative paths of development.

Unfortunately, the histories of the media and technology are often deeply implicated by such deterministic motives, quite frequently with disastrous consequences, from 'Death, Detroit and Destruction' and the dot.com meltdown to the unconscious embrace of 'monotechnics'. Let me just digress for a moment and give a preliminary indication of which type of inquiry would benefit from a critical investigation of the methodologies underpinning modes of historical description for the development and cultural 'assimilation' of media and technology: What will happen to Bangalore once the current boom of ICT industries and R&D is over, and society moves on to another technological paradigm (for reasons we cannot possibly know or predict)? Will it become a twenty-first-century Detroit? This question has been haunting me ever since a visit to the city and a 'deep-tour' into its techno-economic heartland by the urban geographer and activist Benjamin Salomon.[5] This issue, which is certainly not unique to Bangalore, emerges from similar concerns regarding the construction of linear historical narratives around media and technology as my current 'methodological' exploration.

In Foucault's understanding, archaeology is not a return to the innermost secret of the origin; it is, in his estimation, precisely this; 'the systematic description of a discourse object',[6] and nothing else. Rather than creating unified historical meta-discourses, Foucault's archaeology 'does not have a unifying, but a diversifying effect'. Through the multiplication of historical discursive contexts, Foucault tries to demonstrate how much of what is apparently continuous, necessary and irreversible within the construction of the grand historical meta-discourses is actually no more than the outcome of certain contingent forces. It uncovers how, within apparent unity, multiplicity can be found, and how through these discursive excavations the invisible hand of power

becomes apparent, which purges this heterogeneity from the unified canons of historical description.

For Foucault, archaeology means the systematic description of discourses as 'practices specified in the element of the archive'. The archive is the mechanism par excellence in which the great dividing powers of selection, of inclusion and exclusion and the construction of unity within the heterogeneity of historical texts that survive 'all around us' (but whose origin is irretrievably lost). Some scholars, in fact, have equated Foucault's archaeology with a critical deconstruction of the politics of the archive. To return, however, to the startling citation with which I began this cursory examination of the archaeological method, it seems to me that this archaeology would more accurately read as a critique of the madness of the archive.

Why (this) Foucault?

A question that ought to be asked at this point is 'Why Foucault?'. What can be gained from this Foucauldian archaeology? Is not everything he produced beyond his 'archaeological stage' more pertinent today?

The primary motive for this engagement with Foucault's archaeological project is to recover something of its original meaning at a moment when the field of media studies has established a methodological framework called 'media archaeology'. In this 'archaeological' approach, there are implicit and occasionally overt references to Foucault's legacy, but the relationship between media archaeology and Foucault's understanding of the term remains unclear and is still up for debate. It seems difficult, if not impossible, to discuss some historical dimensions of media and technology under the banner of archaeology without referencing Foucault, who first coined the term as an alternative approach to historical description, and whose figure still casts a shadow from which it is hard to escape. Even if one feels confined by his strict demands for a systematic description of discursive practices, his insistence on language in action as the primary object of analysis, or his assertion of the irreducibility of distinct discursive domains to each other,[7] it is at least necessary to take theoretical account of his ideas and critique or reject them. Indeed, for most readers of (media) history, it is difficult not to think of Foucault when presented with

the term 'archaeology'. At this point, it seems important to recapture something of Foucault's original archaeological project in order to identify what aspects of media archaeology are properly Foucauldian and, consequently, what features actually supersede and leave behind the original archaeological project. This is most evident in the recent work of Siegfried Zielinski, one of the more influential protagonists of media archaeology, as I will discuss further on.

Furthermore, given the technological object that is central to the study of media culture (the apparatus), there is a strong tendency to discuss media and technological development in material terms. The danger of an 'apparatus history' that disregards the formative influence of its wider social and cultural context is an obvious risk. Foucault's archaeological approach emphasizes the discursive dimension of such formative processes, a dimension that, in my opinion, is undervalued in media and technology studies. The field of media archaeology has, conversely, established itself to some extent as a method of constructing a diversified historical apprehension of media and technology cultures by uncovering material lineages of apparatuses. Here, the apparently uneasy relationship between objective and discursive components needs to be examined in order to properly understand the 'archaeological' in media archaeology, its specific value and inherent limitations.

Aside from theoretical clarification, Foucault's methodology additionally makes it possible to draw out the social context implicit within processes of cultural formation, to mobilize the texts, artefacts and sources found in the 'universal media archive' without falling back on a history of names (what Sigfried Gideon calls 'anonymous history'). In archaeology, it is not the personalities as such that stand out, the historical subjects in their intrinsic sovereignty, but rather the ways in which these personalities embody, represent and redirect the potentialities and limitations of their own sociocultural context. Foucault beautifully articulates this point when reflecting on the 'romantic theme of genius' in the interview mentioned earlier:

> How can an individual, lodged in a fold of history, discover forms of beauty in which the whole truth of an age or a civilization is expressed? Today the problem is no longer posed in those terms. We are no longer inside beauty, but inside complex relations of forms. Now

> it is the question how an individual, a name, can be the medium for an element or group of elements that, integrating itself into the coherence of discourses or the indefinite network of forms, effaces, or at least renders vacuous and useless, that name, that individuality whose mark it carries for a certain time and in certain regards.[8]

A recurrent criticism voiced against this aspect of Foucault's archaeological approach is, however, important to take into consideration: if we are, for the various reasons stated above, unable to reconstruct by any means the original meaning or the intention of the author of the historical texts that survive around us, how then are we able to uncover the ideological structure, the sociopolitical determinants that shaped the discourse in action these texts are supposed to embody? Aren't we simply poised to reconstruct these texts and sources in terms of our own implicit ideologies and, as a consequence, fall prone to a similar kind of determinism from which the archaeological approach was supposed to lead us away? This debate seems far from settled.[9]

Foucault himself had this to say on the controversy surrounding his archaeological method:

> The apparently polemical character is owing to the fact that one has to delve into the mass of accumulated discourse under our own feet. Through gentle digging one can uncover the old latent configurations, but when it comes to determining the system of discourse on the basis of which we still live, as soon as we are obliged to question the words that still resonate in our ears, that are mingled with those we are trying to speak, then archaeology, like Nietzschean philosophy is forced to work with hammer blows.[10]

Change and Transformations

Another important criticism of Foucault's archaeological approach suggests that its method of description tends to freeze the object of analysis in a restricted system of rules and discursive formations. While discursive operations in differing periods might be compared, it remains unclear how one might derive from the other. Foucault's insistence on discontinuity and rupture makes it difficult to account for processes of change and transformation, other then merely 'registering' them. While

Foucault's archaeological approach was significantly advanced in *The Order of Things* (1966), he remains most vigorously defiant towards this type of criticism in his next major work, *The Archaeology of Knowledge* (1969). Here, Foucault explains that for archaeology, 'the same, the repetitive and the uninterrupted are no less problematic than the ruptures . . . they too are governed by the rules of formation of positivities'. In other words, continuities and discontinuities over time in discursive formations must be considered from the same perspective, that being the system of rules governing their operation. Foucault:

> To those who might be tempted to criticize archaeology for concerning itself primarily with the analysis of the discontinuous, to all those agoraphobics of history and time, to all those who confuse rupture and irrationality, I will reply: It is you who devalue the continuous by the use you make of it. You treat it as the support-element to which everything else must be related; you treat it as the primary law, the essential weight of any discursive practice.

Indeed, he goes on to accuse these protagonists of continuity as primary law, of merely neutralizing it, 'driving it out to the outer limit of time, towards some original passivity'. The aim of archaeology, instead, is 'to show how the continuous is formed in accordance with the same conditions and the same rules of dispersion, and how it enters – neither more nor less than differences, inventions, innovations, or deviations – the field of discursive practice'.[11]

Discontinuity does not open a homogenous field. Rupture does not happen everywhere at the same time and in the same way, but establishes hierarchies, complementarities and differences. This differentiated field that emerges through archaeological analysis of historical change serves as a powerful critique of linear conceptions of progress and steers away from the kind of historical determinism that prompted Foucault to embark on his project: 'The idea of a single break suddenly, at a given moment, dividing all discursive formations, interrupting them in a single moment, and reconstituting them in accordance with the same rules – such an idea cannot be sustained.'[12] It is here that archaeological analysis has its most diversifying effect, in what Foucault summarizes as the description of the dispersion of discontinuities themselves.

What I am looking for here is not some general methodology for historical research or a summation of Foucault's archaeology. Instead, I am trying to discover the possibility to assess relations between culture, media and technology over time without being subject to historical determinism or discursive essentialism. Foucault's archaeological approach offers important critiques of the writing of history and potentially fertile starting points for a more diversified form of historical description, but is not methodologically sufficient in isolation; the approach imposes arbitrary limits that even Foucault himself recognized and transgressed in later work (despite relying on the archaeological method as a tool for discourse analysis of his later genealogical studies).[13] At the very least, a more specifically tailored methodology and set of concepts are required for the analysis of media history, both at the level of the technological apparatuses and their networks of relations, as well as the formation of specific technological discourses and imaginaries.

Deep Time of the Media – The Paleontological Turn

Over the past decade, a new approach to the writing of media history and critique of contemporary techno-cultures has been described as media archaeology. Different protagonists have provided separate descriptions of this method, but the implicit reference to Foucault's legacy and attempted escape from historical determinism has been clear with all of them, even if sometimes they did not take this influence as their direct point of departure. Erkki Huhtamo and Siegfried Zielinski are usually credited as the originators of this approach to 'writing the media',[14] however, for the time being, I will concentrate specifically on Zielinski, as his recent *Deep Time of the Media* suggests an important reconsideration of the original aims claimed for media archaeology.

The primary source for Zielinski's definition of this new approach is an essay titled 'Media Archaeology', which was published in 1996 at CTheory.net and still is available there in the online archives. Here, Zielinski eloquently characterizes the media archaeological approach as follows:

> 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.[15]

Against Foucault's conception of the illusory subject of history (and that of his post-structuralist fellow travellers), Zielinski accords a central place to artistic subjectivity:

> I argued vehemently against declaring artistic subjectivity dead because I have the impression that were we to do so, we would encircle this empty space left by theory and philosophy in an even more hectic and panicked fashion, with even more words and images and I also think that we from the field of social praxis represented by media art must finally start to confront the production of mediocrity and nice design, particularly and because we are responsible for teaching and training young artists. Yet in which direction are we to formulate this concept of artistic subjectivity (in the indissoluble linkage of an aesthetic and an ethical orientation), vis-à-vis the gigantic cleansing and reducing machinery of digitization?[16]

The objective of artistic subjectivity placed in this context then is to 'push out as far as possible the limits of what language and machines, as the primary instances of structure and order for the last few centuries, are able to express and in doing so to actually reveal these limits'.[17]

Towards the end of this essay, Zielinski describes his method of wildly juxtaposing heterogeneous phenomena from media history as follows:

> 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 . . . I attempt to think and write about the previous technical and aesthetic and theoretical richness of the development of artefacts of media articulation heterologically. 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 vigourously heterogeneous energy fields with individual and specific intentions, operations, and access in going beyond the limits that we term mediatization.

Thus, Zielinski makes a strong plea for a 'project of diverse praxis' with advanced media machinery that can serve to diversify the modalities of technologically mediated expression. His archaeological excavations of particular case studies in the 'history of the media' are not an arbitrary collection of curiosities – they are precisely those points in time where the 'heterogeneous energy fields' fluctuate most chaotically – the moments of flux, uncertainty and possible transformation, the moments when the totality of possible intersections of incongruous trajectories of development begin to open up. These points reveal two aspects of historical development at the same time: the contingent and open dimension of development on the one hand, and the moment of (in Foucauldian terminology) 'domination', when a particular discourse or praxis imposes itself on a specific trajectory (of history, of media, of technology).

Here, Zielinski and Foucault both share a deep commitment to the contingency of 'historical development', devoid of either essence or necessity. The outcome of a particular development is always the result of a specific local interaction of historical forces (social, economic, political), never a given a priori. Such an apprehension of 'History' can accept no linearity, no sense of progression (or regression), no absolutes of unity and continuity. It is here that Foucault's conception of archaeology (and his idea of 'genealogy' as the analysis of transformation as process) and Zielinski's media theory find their closest affinities.

Subterranean Media Worlds

In his recent book *Deep Time of the Media*, Zielinski extends his archaeological approach both on a methodological level and through a series of detailed historical studies. In this work, the rejection of historical linearity, continuity and necessity remains emphatically prioritized, however, Zielinski transcends the archaeological frame he has helped

to establish in two important aspects. Firstly, in the adoption of certain 'conceptual premises' from the field of palaeontology which assist with illuminating certain aspects of his inquiries, but are problematically situated in relation to the idea of 'archaeology'. And secondly, in some important challenges he makes use of the analytic rigour of the archaeological method, where Zielinski proposes to move towards '*an*Archaeology', that he has increasingly understood as a 'variantology' of the media. This shift appears to signal the end, or at least the limits of the archaeological approach.

On the notion of Deep Time and the idea of (historical/technological) 'progress', Zielinski is unequivocal in his rejection of the latter:

> The notion of continuous progress from lower to higher, form simple to complex, must be abandoned, together with all the images, metaphors, and iconography that have been – and still are – used to describe progress. Tree structures, steps and stairs, ladders, or cones with the point facing downwards . . . are from a paleontological point of view misleading and should therefore be discarded.[18]

Referencing the work of palaeontologist Stephen J. Gould, he emphasizes how even the limited knowledge we have of geological deep time today reveals that there have been periods in the Earth's history and the evolution of nature on earth that exhibited a far greater biological diversity then our current era. On the grand scale of geological time, 'humankind' should be regarded as no more than 'a tiny accident that occurred in one of evolution's side branches'.[19] Zielinski:

> I use certain conceptual premises from paleontology, which are illuminating for my own specific field of inquiry – the archaeology of the media – as orientations: the history of civilization does not follow a divine plan, nor do I accept that, under a layer of granite, there are no further strata of intriguing discoveries to be made. The history of the media is not the product of a predictable and necessary advance from primitive to complex apparatus. The current state of the art does not necessarily represent the best possible state, (. . . in the sense of Gould's excellence . . .). Media are spaces of action for constructed attempts to connect what is separated.[20]

But Foucault himself emphatically rejects the idea of equating his archaeological method (by analogy) to any form of geological examination: 'Archaeology as I understand it, is not akin either to geology (as the analysis of substrata) or to genealogy (as the description of beginnings and successions); it is the analysis of discourse in its archival form.'[21]

It is obvious that media archaeology's concern with apparatus history remains problematic for a Foucauldian discourse analysis, since Foucault's aim was not to reveal an object, a physical substrate underneath a particular writing of media history, but writing itself as a practice that obeys certain rules and functions.

Alternatively, Zielinski and other media archaeologists want to illuminate the histories of the media software and hardware, giving equal importance to both the discursive formations and material apparatuses, the machines and imaginaries, by understanding the boundaries between them as highly permeable and porous. In the end, this might very well signal a fundamental point of divergence between the two.

Foucault's archaeology rests on illuminating the discursive rules that transcend individual works and oeuvres, binding them together into specific formations that are irreducible to one another. To a certain extent, this methodology tends to freeze discourse and render individual works non-specific. Archaeology runs counter to both (artistic) subjectivity and singular differentiation in this sense. Meanwhile, anarchaeology is a concept Zielinski adopts from Rudi Visker, which he had previously defined as 'a method that evades the potential of identifying a standardized object of an original experience'.[22] Rather than the generic individual, a proposal for an anarchaeology of the media should regard multifarious possibilities and variations. Zielinski:

> Instead of looking for obligatory trends, master media, or imperative vanishing points, one should be able to discover individual variations. Possibly one will discover fractures or turning points in historical master plans that provide useful ideas for navigating the labyrinth of what is currently firmly established. In the longer term, the body of individual anarchaeological studies should form a 'variantology' of the media.[23]

Here, the second important divergence from the original field of archaeological analysis becomes apparent. The first deviation was the attempt to forge a connection in media archaeology between hardware and software, between the material histories of the apparatus and discursive analysis. The second pertains to the study of the particular (indeed the *mathesis singularis*!) in a variantology of the media, versus the excavation of discursive formations that dissolve the individual object (text, work, source) of analysis. Such a meticulous grinding over of terminology might seem exaggerated, and of course Zielinski in no way bases his media archaeological approach exclusively on the methodological groundwork laid down by Foucault, but I believe this shift in terminology, from archaeology to anarchaeology and then on to variantology – the project that Zielinski has been working on since the publication of the original German version of *Deep Time of the Media* in 2002 – reveals the difficulties in developing a sufficiently coherent and radically open methodology for writing the histories of media and technology, where the apparatus and text are always engaged in a complex battle.

Towards the finale of the introductory section, Zielinski stakes a claim for his (an)archaeology annex variantology of the media:

> My archaeology makes a plea to keep the concept of media as wide open as possible. The case of media is similar to Roessler the endophysicist's relation to consciousness: we swim in it like the fish in the ocean, it is essential for us, and for this reason it is ultimately inaccessible to us. All we can do is make certain cuts across it to gain operational access.[24]

Lewis Mumford: *Technics and Human Development*

The next problem for the 'archaeological project' is the lack of key terms and conceptual premises that address the specific relationships between culture, media and technology (that is, the principal concerns of this book). Zielinski evades this task to some degree by opting for a poetic and 'magical' approach that focuses on 'attractive foci', a notion comparable to Roland Barthes' 'new science for each object', *mathesis singularis*, proposed in his wonderful study on photography *Camera Lucida*.

Here, the detailed and decidedly opinionated studies of the American architectural critic and historian Lewis Mumford into the relationship

of 'technics' and human development could offer some useful conceptual tools and insights. Mumford's synthetic analysis spanned a period of more than 30 years from his early *Technics and Civilization* (1934) to the monumental two-volume study *The Myth of the Machine* (1967-1968). In his work, Mumford combines insightful and well-documented historical studies with a unique critical perspective on technological development in a methodological synthesis that never loses sight of human ends, nor of the complexity of biological entities compared with the crude simplifications of techno-deterministic reductionism.[25]

Mumford contends that one cannot understand the role technology played in human development without a deeper insight into 'the historic nature of man'. In particular, he objects to the idea that the production and usage of tools distinguishes humans from nature and other beings. Here, Mumford understands the concept of *homo faber* (Man the Maker) – a notion that became particularly dominant in the Victorian period of intense mechanical development through industrialization – as negatively displacing the idea of *homo sapiens* or *homo ludens*; that is, the extraordinary capacities of human beings for thinking and playing that he considers far more important for characterizing 'man's historic nature'. 'Just because man's need for tools is so obvious, we must guard ourselves against over-stressing the role of some tools hundreds of thousands of years before they became functionally differentiated and efficient.'[26]

Such a view underplays or neglects the capacities of other species that remained vastly superior over early 'man-like' species for a long time, essentially until the arrival of *homo sapiens*. In fact, Mumford contends that the very notion of the human as a tool-making being creates false lineages between early, now extinct, species such as the Australopethinecines of Africa. The usage of elaborate tools is actually not specific to the human species and its possible predecessors at all – embracing the idea that containers and shelters from natural forces should additionally count as 'tools', many other species had already developed far more elaborate systems of storage, nesting, breeding chambers, cities (termite colonies), food production facilities (bee hives) and other highly versatile tools for living. All this occurred long before the ascent of thinking and planning man.

> To compensate for his extremely primitive working gear, early man had a much more important asset that extended his whole technical horizon: he had a far richer biological equipment than any other animal, a body not specialized for any single activity, and a brain capable of scanning a wider environment and holding all the different parts of his experience together. Precisely because of his extraordinary plasticity and sensitivity, he was able to use a larger portion of both his external environment and his internal psychological resources.
>
> Through man's overdeveloped and incessantly active brain, he had more mental energy to tap than needed for survival at a purely animal level; and he was accordingly under necessity of canalizing that energy, not just into food-getting and sexual reproduction, but into modes of living that would convert this energy more directly and constructively into appropriate cultural – that is, symbolic – forms. Only by creating cultural outlets could he tap and control and fully utilize his own nature.[27]

Rather than measuring humanity's extraordinary development by 'the chipping of a mountain of hand-axes', Mumford finds the evolution of language to be of incomparably greater importance, having involved a more intricate and complex coordination of motor skills and muscle control.

> To consider man, then as a primarily tool-using animal, is to overlook the main chapters of human history. Opposed to this petrified notion, I shall develop the view that man is pre-eminently a mind-making, self-mastering, and self-designing animal; and the primary locus for all his activities lies first in his own organism, and in the social organization through which it finds fuller expression.[28]

And most importantly for our discussion at this point, Mumford introduces an ecological notion of technology:

> At the beginning technics was broadly life centred, not work-centred or power-centred. As in any other ecological complex, varied human interests and purposes, different organic needs, restrained the overgrowth of any single component. Though language was man's most

> potent symbolic expression, it flowed . . . from the same common source that finally produced the machine: the primeval repetitive order of ritual, a mode of order man was forced to develop, in self-protection, so as to control the tremendous overcharge of psychal energy that his large brain placed at his disposal.[29]

It is 5000 years ago in Egypt under the sign of the Sun God Atum-re that Mumford identifies a new organizational mode of work and human energies coming into existence. Only through the large-scale exploitation of human labour, through the intricate coordination of a workforce as large as 100,000 workers, could the 'colossal works of engineering that marked the Pyramid Age' in both Egypt and Mesopotamia be realized. This new social structure gave birth to a new type of collective machine – the *megamachine* – that Mumford traces through human history until the present. This machine has never been discovered in any 'archaeological dig' simply because it consisted entirely of human components:

> These parts were brought together in a hierarchical organization under the rule of an absolute monarch whose commands, supported by a coalition of the priesthood, the armed nobility, and the bureaucracy secured a corpselike obedience from all the components of the machine.[30]

It was not an advanced toolset or innovative technological apparatus that allowed the Egyptians to realize such remarkable engineering feats, but their advanced skills in social organization and control.

Inside this human megamachine, the natural rhythm of life and release of energies in ritual was replaced by strict regimentation and hierarchical control. In the process, productive work became dissociated from other sociobiological functions, and came to be seen primarily as a burden and sacrifice or even a form of punishment. Mumford observes that, 'by reaction this new regimen soon awakened compensatory dreams of effortless affluence, emancipated not only from slavery but from work itself. These dreams, first expressed in myth, but long delayed in realization now dominate our own age.'[31]

Mumford identifies two important characteristics pertaining to this power machine that defines its course through history down to the

present. First, that the organizers of the machine derived their power from a 'cosmic source':

> The exactitude of measurement, the abstract mechanical order, the compulsive regularity of this labor machine sprang directly from astronomical observation and abstract scientific calculations. This inflexible, predictable order, incorporated in the calendar, was the transferred to the regimentation of the human components.

Secondly, the grave social defects of this machine were partly offset by its superb achievements in flood control, grain production and urban building that benefited the whole community:

> This laid the ground for an enlargement in every area of human culture, in monumental art, in codified law, and in systematically pursued and permanently recorded thought. Such order, such collective scrutiny and abundance, as were achieved in Mesopotamia and Egypt, later in India and China, in the Andean and Mayan cultures, were never surpassed until the Megamachine was re-established in a new form in our own time.[32]

> In short, mechanization and regimentation, through labor-armies, military-armies, and ultimately through derivative modes of industrial and bureaucratic organization, supplemented and increasingly replaced religious ritual as a means of coping with anxiety and promoting psychical stability in mass populations. Orderly, repetitive work provided a daily means of self-control: a moralizing agent more pervasive, more effective, more universal than either ritual or law. This hitherto unnoticed psychological contribution was possibly more important than quantitative gains in productive efficiency, for the latter too often was offset by absolute losses in wars and conquest.[33]

For Mumford, in our present age, the 'extravagant enlargement' of the megamachine has become the very condition of techno-scientific advancement 'with increasing compulsiveness'. He even goes so far as to claim that 'for many' this extension is understood as the predominant purpose of human existence. In this view, techno-scientific develop-

ment has become an end in and of itself. At such moments, Mumford's rhetorical style becomes something of a double-edged sword. While his passionate account of the fallacies of techno-science and unfounded positivism are revealing (and I would say most welcome), the absolutism underlying some of his postulates runs the risk of obscuring the invaluable insights that the concept of the megamachine provides for the complex interrelation between biology, culture, organization and technological (apparatus) developments.

Mumford's insistence on continuity in human affairs throughout the course of history clearly places him on a collision course with Michel Foucault's critique of the history of ideas as a practice that emphasizes consistency amidst contingency. However, in one important aspect, Foucault and Mumford seem to agree in their critique of linear conceptions of historical developments and the idea of 'progress'. It is interesting to note that after the acclaim and controversy surrounding the publication of Foucault's *The Order of Things* in 1966, he appears to have reached the peek of his career and influence as a forceful critical thinker. This work is more or less contemporary with the two volumes of Mumford's *Myth of the Machine* that appeared between 1964 and 1967, with the addition of a last chapter to the second volume in 1970. Mumford has always operated as a high-profile public personality and a similarly forceful social critic like Foucault, but at the fringes of the academic establishment. Mumford remained an independent writer, architectural critic and a kind of public intellectual. *The Myth of the Machine* concludes a lifetime of devoted study to the expansion of modern society and a continued critique of the relationship between culture and technology. The two volumes of *The Myth of the Machine* mirror and complement his earlier important study *Technics and Civilization*, which appeared as early as 1934. Mumford is difficult to place in relation to any of the now fashionable philosophical or theoretical categories. As little as his approach might be described as 'archaeological', he also seems largely unfettered by the phenomenological approach to elucidating questions of technology (technics) and human development.

Mumford and the Critique of Progress

The second volume of *The Myth of the Machine* starts at the threshold of the 'modern world', which Mumford locates at the end of the

fifteenth century – 'the Age of Exploration', both terrestrial and technological. Initially seen as two separate movements, to explore the regular movement of bodies in the sky, the repeatable, predictable measurement of space and time, and the uncharted territories of the earth, eventually beyond the confines of the planet, eventually fused together as one in Mumford's vision: a mechanical worldview that displaces both the natural environment and the 'diverse symbols of human culture', with a milieu 'cut solely to the measure of the machine', a vision that slowly developed into maturity by the eighteenth century. Mumford:

> By the eighteenth century, a subtle transposition of values had begun to take place, as technics itself began to occupy a larger place. If the goal of technics was to improve the condition of man, the goal of man was to become ever more narrowly confined to the improvement of technology. Mechanical progress and human progress came to be regarded as one; and both were theoretically limitless.[34]

Coupled to this idea of limitless mechanical and scientific progress was a recurrent disdain for the past, which served to solidify a monolithic, linear and inescapable path of historical development. The danger in this line of reasoning was that it made its protagonists blind to possible abuse and outright misconceptions, or oblivious to the human costs of techno-scientific and mechanical development, which were all too easily seen as a temporary ill, soon to be relieved by the benefits of this very same development. Mumford:

> If progress be considered a linear movement through time, it may be taken two ways: getting closer to a desired goal, or getting away from a starting point. Those who favored progress simple-mindedly believed that evils were the property of the past and that only by moving away from the past as rapidly as possible could a better future be assured. There were just enough traces of truth in this doctrine to make its radical fallacies more dangerous. All civilizations had carried with them some five thousand years . . . the traumatic institutions that had accompanied the rise of earlier power systems: human sacrifice, war, slavery, forced labor, arbitrary inequalities in wealth and privilege. But along with these evils had come considerable accu-

> mulation of goods, whose transmission were essential to man's own humanization and further improvement. The exponents of progress were too committed to their doctrine to anticipate that the authoritarian institutions they sought to destroy forever, might come back more oppressively than ever, fortified by the very science and technics that they valued as a means of emancipation from the past . . . (a) curious assumption of continuous and inevitable progress, which made no allowance for observable organic processes – decay and destruction, lapses and breaks, arrests and regressions.[35]

This linear conception of development as progress should, therefore, be discarded along with the ideological notion of human advancement as synonymous with technological improvement. And here, Mumford turns to some of the popular delusions of his own time, that I believe still resonate in our early twenty-first-century experience 40 years on:

> Today there are still 'avant-garde' minds cast in an old-fashioned 'progressive' mold, who continue to believe that instant communication by television will produce instant understanding, or who are even so bound to their dogmatic faith in technological progress as to believe that the direction of congested and impeded auto traffic by radio from a helicopter is evidence of superb technical efficiency – instead of what it really is, a revelation of a glaring bankruptcy alike in contemporary engineering, transportation planning, social control, and urban design.[36]

Let me situate Mumford's critique in a slightly more contemporary setting. The above example of instantaneity and failing traffic circulation reminded me of an article in *The Economist*, published on 2 February 2002, called 'How About Now? - A Survey of the Real-time Economy'. The concept of the real-time economy is very simple, by taking the temporal lag out of all business processes through the application of new information and transmission technologies (including advanced tracking systems based on practices such as RFID-tagging), it should be possible to eventually reach an optimum efficiency level across the spectrum of business activities. In this notion of real-time economics, one simultaneously hears a resounding of Virilio's assertion that time

itself has become an object of technological research and development, and that Mumford's megamachine has reached a final stage of evolution, a penultimate breed of instantaneous megatechnics.

In real-time, technological control over the labour force is taken to the extreme. The demand for 'always-on people', as one article on customer relationship management (CRM) puts it, requires that the boundary between work and leisure be abolished. In the 'ideal' version of this new work arrangement, instantaneous response has to be guaranteed and not all tasks of human operators can be taken over by an autonomous expert system (as the 1987 Wall Street Crash painfully revealed). Since people cannot functionally operate 24 hours a day – they need sleep and various forms of distraction – the new work arrangement requires an illusion of freedom. Thus, not only is the leisure sphere taken over by work demands, but the reverse also occurs: labour and the workplace increasingly begin to resemble a space of leisure, and to some extent, they even exchange their physical locality (for instance, in the case of teleworking from home). In this final reversal, the *oikos* or traditional nucleus of the household is dissolved.

Among its proponents, the integration into the real-time megamachine is mainly seen as a positive development, but also as an inevitable outcome (because of the demand for maximized efficiency). The article about always-on people ends on a curious note when taking Mumford's relentless critique of the megamachine into account:

> Nor will it be only the technicians who will have their next service call and even their lunch-break scheduled by an optimisation algorithm. Now that we have real-time information from a lot of sources, we can use it continuously to improve all kinds of economic activity, explains Barich Schieber, senior manager of IBM's new 'Optimisation Centre'. To him, a prime candidate is the service industry, where productivity has always lagged behind that of other sectors.[37]

A second example comes from the short editorial of the fifth anniversary issue of *Wired*, the brilliantly irritating frontispiece of the (then) so-called 'digital revolution'. The issue's title already conveys the main message 'Change *is Good*'. In the editorial, Louis Rossetto explains some of the motivations and beliefs that drove the creation of this magazine,

and still did – though incidentally, at this time, he was just about to leave the post of editor-in-chief. Rosetto writes:

> What we were dreaming about was profound global transformation. We wanted to tell the story of the companies, the ideas, and especially the people making the Digital Revolution. Our heroes weren't politicians and generals, or priests and pundits, but those creating and using technology and networks in their private lives – you . . . And a lot has changed these five years. The Internet has mushroomed from an obscure academic mail system into the fastest growing medium, marketplace, and community in history. Genetic engineering is conquering the disease, and new energy technologies promise to save our environment. The global financial network has created a force for change more powerful than the nation-state. And digital citizens are reinvigorating democratic discourse and reinventing civil society.

And finally, the disdain for the past that Mumford considers constitutive for the conception of progress as linear movement through time also reappears in Rossetto's editorial: 'After a century of war, oppression, and ecological degradation, we've entered a period of peace, increasing prosperity, an improving environment, and greater freedom for a growing proportion of the planet.'[38]

Obviously, it is not entirely fair to use Rossetto's words out of context, but on a discursive level, this editorial ideologically embodies so much of the networked megamachine that Mumford spent a lifetime developing a critique against. It perfectly illustrates the persistence of this particularly 'modern' idea, the germination point of which Mumford has placed in the eighteenth century: the equation of human improvement with technological progress.

On the title of the issue, 'Change is Good', Mumford already provides an astute anterior response:

> Change is not in itself a value, nor is it an automatic producer of values; neither is novelty a sufficient evidence of improvement. These are only catchwords and advertising slogans of commercial interests with something to sell. As for the notion that technological innovations have been the main source of all human development, this is

> a disreputable anthropological fable, which does not (as I showed in Volume One of 'The Myth of the Machine') stand up under a more comprehensive analysis of man's nature and culture. Once modern man understands the need for continuity and selective modification, in terms of his own capacities and purposes, instead of blind conformity to either nature or his own technology, he will have many fresh choices before him.[39]

> Let me sum up. Such visions of endless mechanical progress, such totalitarian utopias, such realistic extrapolations of scientific and technical possibilities all played a more active part in practical day-to-day changes than has usually been realized. These anticipatory subjective promptings were always in advance of actual experience, insistently beckoning, pointing ahead to the next step, breaking down resistance by suggesting that any attempt to reduce the tempo of change or to alter its direction was doomed by the very nature of the universe – by which those took this view meant the obsolete mechanical world picture. Only by understanding the role of this ideological preparation can one appreciate the ease with which the new megamachine finally came into existence.[40]

The End of Innovation

In a revealing TV appearance on BBC television, the over-hyped historian Francis Fukuyama was asked a very simple question in relation to his proclamation of the 'End of History' and the triumph of the liberal democracies and economies. Fukuyama, who lived at the time in Los Angeles, was asked by one of the participants on the panel if he had made any visits recently to downtown LA (a condensation point of material inequalities, racial segregation, gang violence and drug-related dilapidation, all primarily a consequence of generations of bad governance, or the very absence of it altogether)? The astounding result of this rather obvious question was that Fukuyama started to stutter, and was not able to come up with an appropriate answer. Finally, he excused himself by asserting that the trends he had signalled did not mean that all social problems were now resolved, but rather that a particular social form (the combination of liberal economy and liberal democracy) had superseded all others because of its overall success, and not because of

'ideology'. But also this point is clearly wrong, as recent developments in Russia and China demonstrate that is perfectly possible to run a liberal market economy successfully alongside an authoritarian state structure. While there is no evidence that the fusion of liberal markets and democracies is the necessary culmination of historical development, the fate of democracy itself is by no means settled. This moment seemed, rather, an unmasking of the 'illusion of the end of history', as Baudrillard would call it.[41]

Still, one idea appears to come to an end if we are to take the critiques of Foucault and Mumford seriously, the claim that technological development should be seen as a process of 'innovation'. This idea is entirely misguided. A series of arguments have been provided against this notion of historical progress, especially by Mumford in the assertion that perception of technological change from a contemporary point of view is inherently biased and tends to exclude alternative solutions. Foucault, meanwhile, emphasizes that such implicit biases are largely unconscious in the contemporary observer, and therefore, hardly intentional, which makes them even more difficult to critique. Most sociotechnological configurations, as Mumford has shown at length in his historical studies, tend to serve a dominant power agenda rather than to accommodate basic needs of 'human nature' (which is, of course, an entirely constructed notion that only makes the puzzle even more difficult to solve). New technological formations most often have unforeseen and unwarranted effects (social, ecological and sometimes also economic as evidenced in the dot.com and tel.com crashes at the turn of the millennium). New technologies also tend to erase older domains of knowledge and skills from the social body, sometimes beyond recovery – thus new technologies destroy as well as create, while their proficiency is not always immediately apparent. The drive for continuous innovation tends to work against the durability and sustainability of technological solutions, inviting error and collapse.

While it is obvious that technological improvements can be made that do benefit larger social, ecological and psychological concerns in society at large, caution should be allowed greater emphasis over triumphant belief in the unabashed power of innovation. Linear conceptions of progress should be rejected in favour of an iterative mode of consideration sensitive to the complex dynamics that operate in the contem-

porary social body. The potential for grand scale disaster that remains resident in many of the contemporary sociotechnological configurations (the fusion of nuclear technology and global politics for instance) only serves to further amplify and reinforce this point.

Instead of considering technological development in terms of *innovation* it would be more prudent to think of such processes in terms of *transformation*. The notion of technological transformation gives all the necessary conceptual space for change to be thought, designed and implemented, but refrains from pointing directions or assigning preconceived values. Transformation leaves room for careful deliberation, retraction and redirection. Its highest aims are not necessarily greater efficiency, but sustainability, durability, pleasure and enjoyment. In particular, the latter can take full force here. It might also offer an alternative to stagnant dichotomies, between positivism and nihilism – it points towards a healthy mindset of pragmatic idealism that offers a younger generation the chance to leave its marks on the still evolving story of 'human kind's historic development' (to borrow Mumford's terms).

Some of Mumford's insights, supported by a lifetime of devoted research, his detailed historical examinations and continuous presence as an outspoken public critic of twentieth-century American mainstream culture, technology, urban design and ecological concerns, would have been well worth reading for the evangelists of the 1990s cyberoptimism and their willing executioners at Meryll-Lynch, Goldman Sachs, in the head offices of WorldCom, Enron, and so many of the other failed enterprises of the anti-historical *fin de millennium* techno-enthusiasm.

Conceptual Inferences

It would be stretching the argument to consider Mumford part of the larger archaeological project as Foucault and his followers have outlined it. But there is much to be gained from his work. What then can be adopted from Mumford as conceptual tools or insights to our present concerns, to enrich our analysis, sharpen our perception and heighten our sensitivity towards the cultural, social and technological transformation currently under scrutiny?

A number of key-ideas and concepts developed by Mumford have been most useful for my own studies, and I briefly want to visit

them here as a preliminary conclusion of the examination of his contributions:

- Tool versus Machine: According to Mumford, the tool lends itself to direct manipulation, while the machine is geared towards automatic action. Their difference lies primarily in the degree of automation they have reached. This idea implies a deferral of human operation and intention in the 'programming' of an abstract machine that can then perform an 'intentional' action autonomously without human interference. This characteristic of machines is so obvious that it can easily taken for granted, but actually plays a crucial role in the technological imaginaries that permeate 'modern' culture.

- Assimilation of the Machine: In terms of a cultural dynamic around technological development, the idea of 'impact' is dead. It is useless to speak or think of one side influencing the other. Technology is always cultural and culture always has a material base, as much as 'culture is our nature'. All such dichotomies are merely distracting. Mumford instead understands all such socio-technical formations as constellations of diverse and often heterogeneous elements. Culturally he speaks of the assimilation of the machine, where the 'machine' becomes completely interwoven in the very fabric of culture and society – this idea already emerges in his early study *Technics and Civilization* of 1934.

- Technics versus Technology: Technology is for Mumford only part of larger whole, and so within his entire oeuvre, he consistently uses the term 'technics', which refers to the interplay of a social milieu and technological development. Again, to think of the technological and the social as distinct makes no sense to Mumford, it merely creates false dichotomies and gives rise to dangerous ideologies of technological determinism with disastrous consequences.

- Megamachine(s): Mumford defines this constellation as the construction of a collective machine, comprised almost entirely

of human parts, as a fundamental departure leading to the increasing mechanization and automation of all production. The megamachine integrates human components into productive wholes under authoritarian rule with the support of 'priesthood', 'armed nobility' (dominant social classes) and a highly developed bureaucracy. The gathering of (eventually real-time) information of its components forces the subjects of the megamachine into 'a corpselike obedience' to the demands of the machine. Mumford's detailed accounts of information control as a necessary functional part of the megamachine already prefigures the later rise of the concept of the Data-Body that still haunts us today in the era of radically distributed surveillance and profiling.

- Megatechnics: With this concept Mumford refers to trends in modern technology that emphasize constant, unrestricted expansion, production and replacement, and resist the design of lasting, durable, efficient and sustainable technical solutions that would work against the demands of highly profitable 'emerging markets'.

- The importance of the critique of technological progress as the erasure of knowledge and skills from the social body needs to be re-emphasized. Mumford shows that many skill sets that relate to nurture, the preparation of food and many other domestic techniques are either erased by automation, or are devalued because they cannot be easily integrated into the 'mechanical schemes of the megamachine'. This reduction by the new socio-technical configurations also serves to further remove work from the rest of lived experience.

Having established a series of tools and methodologies to describe and critique the course of technological development, the picture is not complete. Tracing an image of that development might provide some insight into how certain contemporary ideas emerge. Foucault's discourse analysis provides us with a useful set of tools to analyse the construction of a particular argument and identify the relevant stakeholders in a specific discussion. Mumford's detailed analyses and

powerful critiques, meanwhile, help to establish a more precise picture of technological and human development. However, this still does not tell us why these technologies are sought for in the first place. What is the fundamental drive, beyond food and shelter, the most basic of needs, that makes humankind pursue these technologies in the first place? Mumford's idea of the highly evolved brain and need to displace a continuous surplus of 'psychal energy' is too vague a concept. On the other hand, Foucault's contention that ultimately everything is driven by a quest for power still leaves an important question unanswered: if we see power as the possibility to impose a will against potentially adversary circumstances, then this still does not tell us how and why this will 'wants' something to be imposed. The picture is, therefore, at best incomplete. It must be complemented with a deeper understanding of motivation, of will and want, of desire and drive – in short the libidinal mechanics that drive the machine.

Opening the Grand Ephemeral Skin

Revealing the Libidinal Mechanics

The psychoanalytic theories of Jacques Lacan have revealed the fiction of the subject's unified sense of self that results from an impossible relation between three orders: the imagined, the symbolic and the real. The young child constructs the illusory sense of a unified self, famously identified by Lacan as the 'mirror stage', on the basis of perceptual images outside of the body of the child, primarily the reflection of its own body image in the mirror and the image of the nurturing mother – the important point being that these images are always outside the subject, and throughout life the subject continues to construct this (illusory) unified sense of self on the basis of images that come from outside her or himself (in the order of the 'imaginary'). Thus they become sites of a radical alienation for the self (or Ego). The imaginary is structured by a symbolic order (signifiers, speech, language, a system of 'differential elements') that operates on a linguistic level, further deferring the subject from the emanations of its own body. The subject continuously attempts to overcome this disunity by forging a connection to the 'real', while the 'real' is exactly that which cannot be imagined, that exists outside of the symbolic, because it remains prior to the assumption of the symbolic. For the subject, the real in its raw state is primarily con-

stituted by the unstructured emanations of the body and its biological needs, which in the very moment they become structured (articulated through the symbolic order) are deferred from their point of origin. Their articulation on the plane of symbolic order, however, 'produces' the subject as an effect. The real, as Lacan understands it, resists symbolization absolutely. Establishing such a relationship between the symbolic and the real is, therefore, 'impossible'. The experience of the subject is determined by this essential lack and a continuous but impossible desire to overcome it.

According to Lacan, desire emanates out of this impossible relationship as the difference between the biological needs of the subject's body and its incomplete articulation within the symbolic order, essentially determined by culturally acquired symbolic structures. After the biological needs have been satisfied, a surplus remains from that which had previously been articulated, identified by Lacan as the demand for 'love'. This demand for 'love' could be understood not just as the constitution of the (illusory) unity of the subject through the satisfaction of its own needs, but the articulation of this need in speech addressed at the Other. There is, however no equivalence between the need and the demand that articulates the need. Desire is the gap that remains between need and its articulation to the Other, the object of 'love'. Lacan understands desire as a pure effect of language. The subject is principally unable to close the gap between need and articulation, so desire never realizes its aim. It is predicated on this essential lack.[42]

In briefest terms, this machinery of frustration and alienation produces impossible desires, both as a force of estrangement (that always threatens to run out of control into 'madness') and as a fundamental 'animating' force, a basic life energy, without which no human aspiration would be conceivable.

Such fundamentally 'vitalist' energies run counter to engineering's primary concern with regularity, calculability and predictability; they create a fundamental divergence between lived experience and the 'inhuman' motions of autonomously functioning mechanical machines. This ambiguous tension has always accompanied technological culture, not just in the Western frame, but across a diverse range of historical and discursive settings. It by no means creates a simple dichotomy between living systems and automata. Instead, these two contradictory

energy flows continuously permeate and influence each other, creating in some cases extraordinary hybrid monsters.

If, from a Lacanian perspective, desire is a relationship to an essential lack that remains impossible to overcome, then this would allow us to understand a considerable part of human activity as a search for compensatory apparatuses to displace these impossible desires. Indeed, it is hardly surprising that desire to overcome this lack is also projected onto machineries that play an ever larger role throughout daily life in modern, industrial, and post-industrial societies. Both positive and negative significations (in a normative, rather than a logical sense) were ascribed to these machineries. For instance, similar types of machineries could equally be understood as machines of alienation as well as connection. Both positive and negative significations seem to emanate from the same source; they are two sides of the same coin.

Equally, the machineries could start to act, in an allegorical fashion, as articulations of the subject's own traumatic desire to unify the self. This theme reverberates throughout modern literature, the avant-garde and forms of popular culture. It resonates with machinic (re)conceptions of nature and the (human) body, which are by no means restricted to the 'modern' world. However, this is not to say that these allegorical images act as immutable symbolic archetypes, such a suggestion would invite false essentialism. While these images are continually reconstructed, redefined and reconceptualized in different cultural, historical and discursive contexts, similar mechanisms seem to be at play in shaping locally specific instantiations.

The construction of such allegorical images of the machine, as the displacement of various types of impossible desires, can additionally be understood as serving different functions and objectives. Some of these emanate from the subject's biological and social needs, but these images can also be supplied with a strategic intention, since they are always necessarily supplied from the outside. For instance, Foucault has shown how the function of modern disciplinary systems is a mode of control through normalization – the integration of the subject in a locally specific system of rules, values and norms. However, the structuring of the imaginary on the level of the symbolic order can also serve much more specific and localized objectives – the imposition of false images, desires and false consciousness through the spectacle of

consumption, as famously critiqued by Guy Debord, could serve as a possible example.

The problem here, however, is that the symbolic order operates both on the conscious and unconscious level, each of which are, according to Lacan, structured like a language, a kind of discourse. Most importantly, the implication is that both the order of the imaginary and the order of the symbolic are entirely constructed. Although second-order signification can be superimposed on underlying or 'erased' first-order significations, both levels remain constructed. The question is not how strategic intent can come into play, this is clear in the functioning of an superimposed second order signification (which Roland Barthes came to understand as the operational principle of myth), but rather, how this second-order signification can be identified as 'false', when the quality it aims to erase, or blot out through superimposition, is equally fabricated? Meanwhile, the subject remains desperately struggling to construct a 'unity' out of these disparate forces that operate on it, awash in an ocean of signification, clinging to imaginary constructs structured by an abstract symbolic order, unable to move beyond them against the abyss of an absolute experiential void. Such is the relentless image of the delusive self that Lacan presents us with (or perhaps we could say, the image he left us stuck with).

In particular, the case of corporeal machines, that is the (imaginary) construction of machine bodies and the conceptualization of the biological body as a machine (first of animals, then of humans), seems to heighten and intensify the 'production' of deliriously impossible desires. I started to notice this ambivalent, multilayered and contradictory character of the body machine/machine body long before I was aware of Lacan's psychoanalytic theories. I noticed something excessive and seemingly uncontrollable about the cultural assimilation of this cross-projection of body and machine images onto each other, something that could be witnessed in a variety of different cultural and historical settings. These observations led me to one of the most fascinating hybrid constructs in culture and technology, the machine body/body machine.

The construct of the machine body/body machine[43] seems to be a particularly potent embodiment of the supposedly limitless power of the machine. This notion of the infinite power of machinery invokes a double sensation that occurs simultaneously and reinforces itself auto-

catalytically as an animating force. The power of the machine invokes both fear and fascination, anxieties that heighten the appeal for limitless power and a sense of panic in response to this imaginary object, which in its turn again intensifies its fascination. There seems to be an inherently transgressive power in the signification of this machine body/body machine. It highlights a particular complex of fear and fascination that appears as a recurring figure in the culture of societies characterized by intensive technological development. This fear/fascination complex appears to be similar to the 'approach/avoidance syndrome' that psychologists recognize in the erratic behaviour of adolescents who show signs of severe difficulty in their sexual adjustment. Since the object of their desire is deeply fearful to them, it is also deeply fascinating. Instead of merely provoking abjection, sexual desire can, in such cases, quickly develop into obsession and lead to extreme psychological stress. Similarly, the perception of the machine (the technological complex), because of its imagined infinite power, can easily run out of control. One can hardly imagine the science fiction genre to have emerged without this particularity, and needless to say, machine bodies abound in sci-fi imaginaries, as they do in their literary precursors from the late nineteenth century onwards.

Human affairs are rarely uncomplicated, and our entanglements with apparatuses even less so. When considering the 'role of technics in human development', this insistence on the imaginary, the desirous, mythological, the magical and phantasmatic – a perspective I share with Siegfried Zielinski, among others – moves against a purely 'mechanicist' picture of engineering as primarily concerned with the regular, the calculable and predictable. On the one hand, I insist on these qualities as a prerequisite to develop a more diversified understanding of our connections with machines, but also to avoid the dangers that transparent and linear conceptions of progress regularly invite. The sidelining of the phantasmatic in many histories of technology and media should be considered a grave mistake, overlooking the complexity of human affairs, their unpredictable incentives and motives, many of which we are not aware of ourselves in the process of conducting them. Besides, after more than half a century of critical theory, placing agency in the subject, as most linear conceptions of history and progress generally insist on, just seems patently absurd! Paradoxically, however, this rejection of

subjective intent does not automatically imply the absence of subjectivity in technological culture. Instead, the subject returns centre stage, but not as a reconstituted and unified whole. On the contrary, it might be characterized as a 'perverse' subjectivity, one that rests primarily on a hedonistic pleasure found in the very impossibility of its own desires. To this reconstituted form, I will return later.

An 'Ecological' View of Technology

Adopted from Oliver Roessler, the immersive image of media that Siegfried Zielinski describes is striking: 'We swim in it like the fish in the ocean, it is essential for us, and for this reason it is ultimately inaccessible to us.' This picture seems to dissolve the object character of the machine into an ecological concept. The diversification of media technologies, pervasive or ubiquitous computing, wired and wireless networks, and other recent technological trends are sometimes discussed as a 'landscape' – this also points in the direction of an environmental notion of media and technology. 'Ecology', however, first of all denotes living space. But doubt creeps in upon further consideration of Zielinski's metaphor: being immersed in a virtually boundless ocean, are we not like goldfish in a glass bowl, rather than free fish in the open sea, going round in circular experience, as in a wonderfully paranoid song by Peter Hammill?[44] Or, to be more precise: how open is this transparent techno-ecology? How confining are these pervasive information systems that project an image of transparency, but always seem to keep us locked out at the immutable circularity of the interface?

A further dimension that invites an ecological consideration of media and technology is the increasing permeation of living systems by technology. In 1985, theorist, feminist scholar and activist Donna Haraway had already declared us all cyborgs (cybernetic organisms), fusions of biology and technology. We know that story. The cyborg had already entered the fictional worlds of literature, cinema and popular culture, and it has not left them since. Manga and Animé are also crowded with cyborgs. The sphere of everyday life is increasingly informed by cybernetic conditions, through medical practice (prothesis), wearable communications and tracking devices, skin implants (pets and animals in agricultural industries fitted with RFID tags have become an absolute normality), and advances in genetic engineering. In particular, the later

relies on more sophisticated methods of bio-informatics, where the application of information technologies to the study of living systems has reshaped our understanding of the very 'nature' of life itself.

Within this 'ecological' consideration of technology, Haraway signalled the breakdown of three crucial boundaries, speaking specifically in relation to late-twentieth-century American scientific culture: (1) the distinction between human and animal; (2) the boundaries between organisms and machines; and (3) the boundary between the physical and the non-physical.[45] Without clear conceptual borders between organism and machine, it seems inescapable that we have to shift our thinking to a more 'ecological' approach to the technological environment. The radical expansion of interconnected communication networks has reinforced the point. The process of miniaturization and integration of circuit boards on ever smaller scales, which has enabled the radical ubiquitous distribution of technologically enabled objects, distributed and virtually imperceptible sensor technologies (smart dust), 'disappearing computers' (ambient computing), mass produced RFID tags (radio frequency identifier chips), smart objects, 'the Internet of Things', wireless networks, locative media (GPS), all constitute further steps along the same path that transports the boundary breakdowns identified by Haraway into the experience of everyday life.

Being completely immersed in this process, it seems difficult to 'think these developments to the end'.[46] They can, however, be ascertained through radical experimentation; a practical mode that correlates more or less with the role that Siegfried Zielinski ascribes to artistic subjectivity;[47] to push the limits of what language and machines are capable of expressing as far as possible, and reveal the borders within which our experience is contained. Such an approach suggests an attractive hybrid of critical theory and experimental-artistic praxis.

Some Final Questions:

So where are Gilles Deleuze and Felix Guattari? Surely these masters of the machinic phylum should be brought to bear on this? Are these desiring, libidinal, machines that I've described not exactly the same as the desiring machines of Deleuze and Guattari?

I'm not sure, not at this point. This analysis has brought me to the very border of the Deleuzo-Guattarian universe, which I will not

traverse as yet. The machines that Deleuze and Guattari describe are abstract machines. They have little concern for the apparatus as such, rather, the Deleuzo-Guattarian universe is constructed in a conceptual sphere already far beyond the boundary breakdowns that Haraway has signalled (from her point of view, apparently, still seen as a traumatic, or at least disconcerting event). In the notion of the machinic phylum, as Deleuze and Guattari understand it, all the elements mentioned so far (machines, bodies, energy flows, libidinal flows, inorganic matter, attraction and repulsion forces, self-organizing dynamics) are already placed in a connective plane in which all elements 'communicate' with each other in rhizomatic fashion. Thus philosophical emphasis and attention is placed on the complex dynamics of continuous reconfiguration into self-organizing local and temporary formations. I am aware that the next step in this exploration will have to proceed into, or at least through, the work of Deleuze and Guattari, but for now I want to keep some of the categories introduced above intact: the apparatus, the subject and a sense of history – albeit with some significant modifications. I understand the apparatus as always being a fusion of the imaginary and the actual; the subject returns to us after all its critical scrutiny in the previous century as 'dismembered'; and history finally, stripped of its linear causality, re-emerges as 'decomposed' and without any unified sense of direction.

Along such lines, Manuel De Landa has already produced some excellent work, for instance, by integrating the machinic phylum into a consideration of culture and technology. In his study *War in the Age of Intelligent Machines*, he examines the emergence of autonomous fighting machines as a military technological trend.[48] De Landa explicitly takes Deleuze's neo-empiricist philosophy and the concept of the machinic phylum as a starting point for a critical examination of increasingly autonomous military apparatuses within a wide historical setting.[49] What the present archaeology will show, however, is that De Landa's war machine and the machine body/body machine share a common lineage.

At this point, however, I have attempted to extend my analysis of the relationships of culture, media and technology in a historical direction, without necessarily writing a history of technology and media, or creating a unified theoretical framework. Three elements have been brought to bear on this analysis. First, the consideration of a possible methodol-

ogy of historical description rooted in Foucault's original project of discourse analysis, and the extension of such work into the realm of media and technology more specifically by, among others, Zielinski's (an)archaeology of the media. Secondly, a deeper understanding and critical perspective of the relationship of 'technics' and human development that Mumford has sketched, so as to give the overall analysis a more precise focus. And thirdly, some attempts to grasp the motives and desires that drive the machine, or perhaps one should say that drive humans towards the machine. In the essays to follow, I will attempt to create a more detailed picture of the object of this analysis by considering the clockwork of the heavens, the cosmic machine, the time keeping machine, the mechanical clock itself; and the machine body, its extension and integration into the fabric of war making, the war machine; before bringing these perspectives together in some final thoughts on libidinal machines and imaginary media.

Cosmic Machine

Assessing the Clockwork Metaphor of the Heavens

For six centuries, the mechanical clockwork held its ground as the embodiment of high technology and the epitome of engineering in Europe and the Western world. Most famously, according to Lewis Mumford, it was the mechanical clock and not the steam engine that stood at the origin of the industrial age. The mechanical clock appeared as an autonomous machine producing even motion late in the thirteenth century and continued to play a tremendously important role in measuring time and 'synchronizing the actions of man' well into the twentieth century. The mechanical machinery itself underwent dramatic changes in the 600 years in which it was the dominant and most advanced technological form until it was finally supplanted by new industrial production techniques and electric devices.

It is tempting to regard this remarkable 600-year technological history as a continuum, in part because of the clear lineages that exist between different generations of mechanical clocks, the adoption of similar mechanisms from one generation of clockworks to another, and the references of the clockmakers to each other's work, their predecessors in particular. However, on closer examination and particularly when viewed as a cultural history, this idea quickly falls apart. The cultural assimilation of the mechanical clock actually reveals a remarkable heterogeneity. First, there are the obvious intensifications and breaks in the development of clockwork technology, their embeddedness in specific economic, social and military contexts that occasionally stimulated their development, and at other times slowed it down tremendously. But most striking are the completely contradictory significations of the mechanical clockwork that emerge in various settings and times.

What the clockwork signified to one particular time, person or group of people, had absolutely no identifiable relation to what it might mean in another historical or 'discursive context'. The range of significations is extremely wide, as will be discussed, ranging from the communication of eternal divine wisdom through regularity, the disclosure of a kind of Platonic idealist sphere of timelessness (because of the

apparent absence of irregularity so characteristic of daily experience), to the clear demonstration of the rational and non-deistic nature of the (mechanist) universe, the testimony of human genius (in engineering), to finally the suppressive inhuman character of the Moloch machine (under pressures of grand-scale industrialization). In each instance, the mechanical clock figured as a symbol embodying one of these wildly different and heterogeneous significations, depending on who was using them in what context. What is so striking is that it covers more or less the whole range of human experience, biological, metaphysical/spiritual, social, economic and scientific knowledge, and of course all the inherent contradictions between these different modes of moving through the world.

Furthermore, neither these significations nor the actual development of clockwork technology can be neatly fitted into a series of successions. We cannot genuinely devise a history of the clock as a master-machine that creates a linear path of evolutionary progress. Instead, the mechanical and symbolical dimensions of the clockwork's development should be discussed within the wider social context or setting in which they emerged. This would demonstrate, on a much wider scale, how aspects of the signification of the clockwork are 'put to use' for particular purposes, especially in terms of individual concerns, of the desires of groups or social formations whose objectives the technology was made to serve. Some of these uses are clear, 'down to earth' and pragmatic in every sense of the word. Others, however, appear highly obtuse, ambiguous and even mystical.

To develop the argument more clearly, I will initially distinguish between two broad categories of clockworks. The first is a historical series of mechanical clockworks, or rather an archaeology of the apparatus, and the second is a group of metaphorical clockworks. Obviously, these two dimensions are deeply interwoven and converge at certain moments in time, but it is still useful to distinguish between them in order to better understand their points of intersection.

The desire to create a mechanism whose chief product is regular movement and through which it becomes possible to measure the flow of events as a series of regular intervals far precedes the origins of the European mechanical clock as it emerged late in the thirteenth century. The impetus seems to have been the relatively regular succession of

dark and light periods in nature and the course of seasons. The succession of day and night has brought countless behaviour patterns into existence, far beyond the specific development of the human species. Predators in nature would specialize in the hunt at night, while other species would adopt their nesting behaviour to nocturnal conditions in order to enhance safety. For humans, with their over-developed cognitive abilities, predicting the flow of natural events became of strategic interest. And it was quickly understood that the succession of daylight and the cyclical return of seasons were somehow connected with what we would now call astronomical phenomena – the movement of sun and moon in the sky, the shifts in position of the stars and constellations, that showed themselves to be anything but irregular and thus could provide a measure for calculating the daily flow of events.

The examination of the cultural assimilation of the mechanical clock should, therefore, begin where its initial impetus can be found, in space – 'the final frontier'. The time-measuring machine can be quite safely considered as deriving its inspiration and purpose (the production of even movement) from the regular flight of the visible astronomical phenomena. Thus, it can be said that the clockwork is modelled on movements in the cosmic expanse. Conversely, quite soon after its invention and adoption, the cosmic theatre increasingly became to be understood in terms of the clockwork mechanics that were modelled after it. This awkward reversion of object and design already reveals the essential (tautological) weakness of 'mechanomorphism' here in its earliest incarnations: the mechanical clock is modelled after a cosmological order that then is regarded as another mechanical clockwork simply because its movements correspond to those of the model. There is no logic to this mode of reasoning; it does not as such provide any additional knowledge or insight in the object at hand: the cosmological order. Moreover, it would appear that such self-referential, non-explanatory loops underpin most, if not all, mechanomorphic descriptions of nature, leaving them redundant as an explanatory model.

Still, the 'real-life' social and economic significance of the mechanical clock in its various stages of development, its enormous symbolic power, its ability to seize the imagination of generation upon generation (albeit ascribed within highly heterogeneous and sometimes completely contradictory significations) remains absolutely remark-

able. Countless possible analogies suggest themselves to present concerns. However, before I begin a more detailed examination of such mechanomorphic monstrosities, I want to shift attention away from clockwork mechanics for a moment to quite another construction of space: the construction of linear perspective in the new Italian arts of the fifteenth century, one of the standard chapters of art history, and yet, as discussed earlier, a deeply contentious one. Despite its somewhat 'primary' character, some quite unveiling connections with the current consideration of the cosmic machine can be established here.

The Ars Nova of the Fifteenth Century and the 'Legitimate Construction'

The ideal of the 'ars nova', the new art of the fifteenth century, was different in Italy than in Northern Europe, where Flemish painting rose to great heights. In Northern Europe, the mastery of representational skills was primarily exerted to control the representation of nature in all her detail and distinctive qualities. In Italy, however, the new style in painting was, from the beginning, intimately linked with the conviction that art could achieve the greater perfection of nature. 'Creative as she, the artist has the ability to surpass nature, by avoiding her imperfections and selecting her most refined elements.'[1]

In many ways, the new aesthetic and artistic ideals that emerged in Italy at that time reflected the social, economic and political changes in a number of city states during the first half of the fifteenth century, in particular, the rising prominence of a mercantile class that managed to assert its dominant social and political position against various increasingly impoverished clerical and religious orders.[2] The artistic ideals of what has subsequently been called the Italian Renaissance involved much more than simply a new aesthetic. They formed an ideological programme in which religious convictions and fourteenth-century humanist philosophy were closely related. For the influential architect and architectural theorist Leon Battista Alberti (1404-1472), this new artistic programme found its foremost protagonist in the architect Filippo Brunelleschi (1377-1446), to whom Alberti also devoted his influential treatise on painting (*Della Pittura* – 1436). Brunelleschi is said to have developed the method of central perspective in Florence around 1420.

The art historian E.H. Gombrich has described the process through which Brunelleschi demonstrated the method of central perspective as follows:

> He is said to have demonstrated the principle by depicting the Baptistery as seen through the door of the Florentine cathedral, having extended a net or veil over the entrance . . . All the draughtsman has to do is to turn the grill into a corresponding grid on his drawing pad and enter into each of the openings what he can see of the church through any particular gap, while closing one eye and keeping the other at one point. If he moves and incorporates in his drawing something he could not have seen before, the picture will become distorted . . . What is needed for the understanding of this method is merely the fact, already known to the ancients, that light travels along straight lines through a uniform medium and is stopped by opaque objects. This permits us to work out by means of projective geometry what can be seen from where, except in those freaky cases when light does not travel in straight lines and produces a mirage through refraction.[3]

Mathematically determined relationships applied not only to the new system of rendering the perception of space. An ultimately concise description found in one of the standard references for the study of art history, Hugh Honour and John Flemming's *World History of Art* about Brunelleschi's Pazzi Chapel in Florence (begun ca. 1440) helps to illuminate their metaphysical significance:

> Renaissance churches are sometimes thought to be unspiritual. But the attitude which they embodied was no less intensely devout for being predominantly cerebral. Divinity is revealed in them by equilibrium and the harmonious relationship of the parts to one another and to the whole – as in the human body, created by God in his own likeness – rather than by the mystery and aspiration towards the otherworldly. The Pazzi Chapel is ascetic and spiritual in its renunciation of superfluous ornament and in its concentration on the purity of geometrical volumes. Simple proportional relationships, mathematically determined and emphasized by the articulation of the

walls and even the grid of the inlaid marble floor, have a metaphysical significance, reflecting the perfection of God and the divinely ordered cosmos. As one of Brunelleschi's Florentine contemporaries, Gianozzo Manetti declared, the truths of the Christian religion are self-evident as the axioms of mathematics.[4]

It was Masaccio who first introduced the principles of linear perspective developed by Brunelleschi to painting. Indeed, his fresco 'The Holy Trinity' in the Santa Maria Novella church in Florence (1425) figures

Massacio, Holy Trinity, 1426-1427, fresco, Santa Maria Novella, Florence

as a landmark in the European history of painting for this innovation. Divine figures, the patron of the painting and his wife, are bound together in one unified space, in which pictorial relations are determined by the mathematical principles of a central perspective rendering of the scene. Besides the architect Brunelleschi and the sculptor Donatello, Alberti mentions Masaccio as the most important contemporary artist in his Treatise on Painting (*Della Pittura*).

In this treatise, Alberti introduced his concept of the *construzione legittima*; he proposes that the laws of linear perspective and their application to painting are the only correct measure of visual order. This visual order is, however, more than just a formal representational device, as Michael Levey points out in his discussion of the painting 'An Ideal Townscape', which emerges from the circle of Pierro della Francesca:

> Untidy actuality has been replaced by this silent unpopulated city which combines harmonious restraint with variety (each palace being differently designed). Art has put the world we know into order and made us perceive the truth of things; to reflect just the appearance of a known city would be to ignore the principle of beauty which lies in construction. In a view of the real world there are only too many things which, on the Albertian principle, would have to be removed before true dignity and harmony could become apparent.[5]

The aesthetic ideal of Renaissance art thus is an expression of the divine and harmonious order of the universe. But man is at the heart of this universe. Having been created in the image of God, man is the (divine) measure of all things, as he was in the classical orders of the architecture of Antiquity. It is this principle that Leonardo da Vinci's 'Vitruvian Man' symbolically encapsulates. 'Vitruvius had described how the well-proportioned man with extended arms and legs fits into the perfect geometrical figures of the circle and the square. And thus man really seems at the centre of the universe.'[6]

Humanist philosophy emerged in Italy in the fourteenth century. Its main proponents in Italy were the poet/philosopher Dante Alighieri (1265-1321), the philosopher and poet Francesco Petrarca (1304-1374), and the writer Boccaccio. (And in the Netherlands, of course, Desiderius Erasmus (1466-1536). The humanists turned themselves against Scholas-

ticist doctrines that were primarily oriented on Aristotelean philosophy, which was useful to underscore the primacy of the rule of the Christian Church. As historian L.W. Cole points out, after a fruitful period of scientific enquiry in Ancient Greece, the Greek scientific movement was halted by the static Aristotelian worldview. No medieval scientific revolution was responsible for this arrested development, but rather:

> A lack of interest in natural phenomena, a disregard of individual judgement and a supernatural and other-worldly mentality. Since this present existence was regarded entirely as the prelude to man's fate hereafter, it considered the brief span of human life on earth as of little importance compared with the eternal life in heaven. Thinkers, therefore, were concerned with the true 'end' of human existence on earth, and they sought to justify the truths of Christianity as upholding this. The most important knowledge of all was the divine scheme of salvation for mankind, taught by the Church and realised through its sacramental and penitential system. Medieval thought was directed towards the ordering of all knowledge and experience to produce an explanation of nature and the universe which would convey to men what they should know to fulfil the purpose of their existence on earth.[7]

The Humanists, rather than orienting themselves upon some other-worldly and mystic truth, sought to give full scope to the faculties of human consciousness, free from any 'alienating' supernatural or sub-human domination. The assumption was that the human consciousness could gain a greater knowledge of the universe by understanding the mathematical relationships that were thought to determine its structure. Revealing these relationships would unveil its metaphysical construction. Through the system of central perspective, the 'divine geometry' of actual space could be transcribed into its representations (in painting and drawing). At the same time, however, its fixed viewing point also incorporates the beholder (that is, the primacy of human consciousness), standing in front of the painting or the drawing, into the scene – the point in physical space where all the visual lines of the perspectival image converge in a unique and singular visual location, as demonstrated in Alberti's famous experiment.

Two things are of particular interest to the discussion of the cosmic machine. First, the application of quantitative measurement to the organization of visual space in pictorial representation stands in absolute and marked contrast to the spiritual hierarchies expressed in clerical writing and Christian scripture that spelled out the rules for the organization of the pictorial space under Scholasticist dictums. Secondly, this new visual order is based on a primacy of observation and the application of geometric techniques that placed human consciousness, and not divine wisdom, in the centre of the pictorial universe.

The geometric universe, illuminated by Alberti's 'legitimate construction' is an ideal universe, that is, it is composed of ideal substances, universals behind the incongruent appearance of everyday life; geometric ideal shapes determined by mathematically ascertainable principles. Through the application of quantitative measurement and mathematical principles, human consciousness could penetrate this ideal universe. However, this neo-Platonic conception still produced an entirely static picture of the universe. To account for movement (of among other things the heavenly bodies), a more dynamic model was necessary and the mechanical clock fulfilled this conception.

The interesting point here is that it is precisely the application of quantitative measures to the study of nature and the primacy of the humanist subject (again pointed out most clearly by Lewis Mumford) that would collide head to head some hundred years later in the teachings of Galileo Galilei and his followers. The scholastic, humanist and mechanic doctrines, meanwhile, seemed equally eager to embrace the mechanical metaphor to explain their version of the cosmological order. Obviously, each readily translated and expanded this conception to their own advantage, so that from this historical distance, we now might look upon empty analogies of non-explanatory (cosmological) models with bliss.

The Clockwork Universe

Humanist philosophy turned its attention to the here and now, and paved the way (ideologically) for the assimilation of a long series of scientific discoveries and technological inventions. For a variety of reasons, mechanical systems could offer good models of living and non-living systems in nature to the 'scientific mind', and became par-

ticularly prevalent in astronomy. Mechanistic models of the universe (comparisons between the universe and mechanical systems) had, in fact, already been proposed and studied throughout Greek antiquity.

The most important device that embodied this analogy was the Astrolabe. In the introductory essays to the catalogue of the exhibition 'The Clockwork of the Heavens', A.J. Turner writes that the astrolabe:

> represents the development of a manually operated model primarily designed to shorten astronomical calculations. An early form of analog computer, it is possible from the scales engraved on it to determine immediately the positions of fixed stars in relation to the horizon, the position of the sun, moon and planets in relation to the stars, and much other data of a similar kind. It could also be used for time finding.[8]

The mathematical technology of the ancient world was primarily transmitted to the West through Islam. After the break-up of the Roman Empire, the Greek scientific tradition continued for the most part throughout the East, whereas it remained fragmentary in the West, partly because of the replacement of the Greek language by Latin. At first scholars sought refuge in Byzantium, but political and religious struggles forced them to move even further East to Syria and Persia, only to return during the late ninth and tenth centuries in the form of new instruments and later also translations of Arabic texts, through the Maghrib (Moslem Spain and North Africa). Translations of Arabic and Classical texts were mainly carried out by Jewish communities in Spain and Southern France and reached their peak during the eleventh and twelfth centuries.[9]

With the return of these mechanomorphic models of the universe, and in particular, the planetary system, an important problem remained to be solved. Turner: 'the heavenly spheres moved of themselves; how could a model be made to follow them.' An apparatus moving evenly by itself was indeed a great technical challenge, but by some mysterious wonder, it suddenly appeared in an English monastery in the thirteenth century: 'the verge and foliot', the origin of the mechanical clock (a development that I will analyse in more detail later). Ever since this moment, clocks exerted a growing fascination on scientists, philoso-

phers and the general public; much of this appeal being a consequence of their autonomous operation, as will become apparent when tracing the story of that machine.

In the late medieval Scholastic tradition, the clock was useful as a metaphor for the divine-cosmos. Turner comments:

> If by the mid-fourteenth century, clockwork was already providing philosophers with a mechanical analogy for the universe, and God had made his appearance as the divine clock maker, the reason for this was that astronomical clocks represented mechanical versions of mathematical models of the heavens. These mathematical models set out to give an account of the observed complexity of the heavens in terms of simple elementary principles; to display the essential harmony and regularity of the arrangement of the stars and planets. This regularity could now be represented by a celestial model; it therefore offered an image of harmony. The arrangement of gears, weights, ropes and spindles, which made up the mechanism driving the model however was itself a complex of many parts the action of which was caused by a single motion. Thus the clockwork part, as well as the visual model, supplied an image of harmony, and was used by religious writers to represent the relationship of the soul with God . . .
>
> In most metaphors derived from clocks, what is emphasized most strongly is the ordered complexity resulting from the simple initial pulses produced by the wise contrivance of God and carefully maintained. It was in this way that man's body and soul should act together, responding to the force of the weight of the love of God. Used like this, the image extrapolated back from the small man-made mechanical celestial model – the macrocosm – to imply the mechanical basis of God's whole universe – the macrocosm – in which it was man's place to play only a part. The means by which the great world worked were not known, but man was granted a sufficiency of insight into God's mechanical skills to copy it in little and therefore to know that regular principles existed which guaranteed the perfect adaptation of each part to the functioning of the divine whole. It followed therefore that man as a rational and spiritual being had

> no alternative but to follow the precepts of divine law. If he did not, the perfect harmony of the creation would be upset. It was how to do this that Wisdom taught, and it was in a popular mystical work on this theme, the Horologium Sapientiae, that the clock metaphor reached its most comprehensive expression.[j]

The purpose of this manuscript, which was written by the German mystic Heinrich Suso (1300-1366) was to summon man back to the eternal truths of God, comparable to a clock which sounds its bells several times a day to summon man to divine practice. When the catholic Suso published his widely read manuscript *Horologium Sapientiae* (Wisdom's Watch upon the Hours), most commonly dated to 1339, mechanical

Minature after Heinrich Suso's Horologium Sapientiae, c. 1450
collection Royal Library of Belgium, Brussels

clocks worked their way into civic life throughout major cities in Europe. Late in the thirteenth century, the mechanical clock had appeared in monasteries belonging to the Benedictine order, and was used to mark the seven canonical hours of the day and the call for prayer. By the time of Suso's writing, the clock had already spread throughout city cen-

tres, and its function changed to become a central medium structuring and ordering the life and communication of late medieval city dwellers.

Suso's thinking was deeply informed by the juxtaposition of the erratic temporal nature of earthly human life versus the divine order of his Christian God's eternal wisdom. With the spread of the clock in religious and social life, the entire world system of mortal 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 a divine clockwork that ruled and governed earthly existence. Suso structured his book in a series of imaginary dialogues between 'the Eternal Wisdom', represented allegorically by a female virtue figure and himself, divided into 24 chapters following the 24 hours of the day (the ability to register the hours of the day was an important innovation brought about by the mechanical clock). It was Eternal Wisdom that instilled order in this heavenly clockwork, and the device became the medium for ordinary man to bring his life into unison with the divine order. In popular depictions of the Wisdom's Watch at the time, she is portrayed holding her hand on one of the main cogwheels of the clock; thus it was Eternal Wisdom that animated the machine and regulated its motions.

The construction of Suso's 'imaginary medium' is twofold: he portrays the world system as a universal 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 translates this order into perceptible form and becomes a technology for the lesser mortal to establish contact with the divine, most notably in the call to prayer at regular intervals on 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 the human and the divine. In the centuries following Suso's mystical imaginations of the divine clockwork, the idea that technology amends the deficiencies of human conduct begot a rich history. As society became more secular, the emphasis shifted away from an orientation to the divine and towards the direction of more strictly human affairs. It might be claimed, however, that a certain mystical inclination never left the realm of technological invention.

The Copernican Revolution

One idea in particular shook the scholasticist conception of the universe to the core, a shock from which it was never to recover. The astronomer, philosopher and humanist Niklaus Copernicus (1473-1543) maintained, based on his observations at the beginning of the sixteenth century, that the earth revolved around the sun and not vice versa. This concept would take more than a century to filter down into mainstream thought. Indeed, the 'Copernican Revolution' effectively did away with the static Aristotelian and scholasticist conception of the earth being at the centre of the universe. Objects no longer fell to earth because they sought their natural destination, but due to a system of forces operating in a space where objects were moving relative to each other, and not towards their ultimate predestined place.

The conflict of the experimental scientific view of the universe and the Christian dogmatic truths became apparent in the life story of the physicist and mathematician Galileo Galilei (1564-1642). Galilei used his great scientific reputation to plead for the Copernican conception of the universe, but was ultimately forced to recall his views before a tribunal of the Roman Catholic Church.

The transition from a scholasticist purpose-driven conception of the universe to a mechanical and deterministic mindset is reflected in the biography of another astronomer, Johannes Kepler (1571-1630). In his *Mysterium Cosmographicum* of 1596, Kepler still proposes a model of the universe where the orbits of the planets are integrated through a system of complete harmony, reflecting a harmonious divine order of the universe. The planets were presented as moving on scales that formed perfect circles, represented as five regular geometric bodies, the Platonic bodies. Accordingly, there could only be five planets, because there were only these five regular geometric spheres. The planets were driven by a kind of living soul that moved to its inner predestination.

Later, Kepler himself rejected these views. He was forced to alter his ideas based on the observations of the Danish astronomer Tycho Brahe, with whom Kepler cooperated in Prague. Brahe's observations, uncommonly accurate for the time, could only be explained if the orbits of the planets around the sun were not considered as perfect circles, but rather as ellipses. Kepler accepted the primacy of observation over the internal logic of his previous models, and thereby transformed his static picture

of an unchanging ideal (Platonic) cosmos into a temporal cosmos,[10] a universe of process and change, no longer the object of one universal teleological doctrine.

Galileo's Crime

Lewis Mumford offers a startling reading of Kepler's and especially his fellow and contemporary Galileo Galilei's (1564-1642) mechanicist conception of the universe. For Mumford, Galileo committed a crime far worse than the charge of heresy he was accused for by the Roman Catholic Church. For it is most of all Galileo's curious reduction of the world to a set of principles of 'mass and motion' ascertainable exclusively via mathematical principles – as stated long before Kepler and Galileo by Roger Bacon in his *Opus Majus*, where he claimed that 'all that is necessary for physics can be proved by mathematics'[11] – that inevitably led to a disqualification of the reality of experience. Mumford claims: 'Galileo constructed a world in which matter alone mattered, in which qualities became "immaterial" and were turned by inference into superfluous exudations of the mind.'[12]

In *The Assayer* (1623),[13] Galileo writes:

> Philosophy is written in this great book, the Universe, which stands continually open to our gaze. But the book cannot be understood unless one first learns to comprehend the language and to read the letters of which it is composed. It is written in the language of mathematics, and its characters are triangles, circles and other geometric figures, without which it is humanly impossible to understand a single word of it; without these one wanders around in a dark labyrinth.

Galileo divides reality into two broad categories, that of material and observable bodies whose behaviour can be understood mathematically in terms of principles of mass and motion; and secondly, the category of 'immaterial' qualities that effect the complexity of life-experience, but should ultimately be regarded as a side product, or mere effect of the movements and interactions of these postulated material bodies. The material world is objective, it can be measured and analysed by mathematical methods (and thus be made predictable and controlla-

ble), whereas the world of immaterial qualities can only be experienced subjectively, which makes it unsuitable for consideration by science. Moreover, this secondary subjective sphere is regarded as inferior since it merely derives from the first by extension, or indeed as a product of the mind, which has no real existence, or reality outside of it. The countless ontological questions that arise about the status of this subjective sphere are discarded as irrelevant or simply left unaddressed.

But there is an inevitable conclusion that emerges from Galileo's world picture that he himself would most likely not have dared to put into words, had he been aware of it. Mumford writes: 'To understand the physical world, and ultimately man himself, who exists in this world as merely a product of mass and motion, one must eliminate the living soul.' If the removal of the earth from the centre of the universe had already resulted in a charge of heresy against Galileo, then this bold conclusion would certainly have spelled out a premature end to his life. It would take well over 100 years before someone had the audacity to put this conclusion into words and commit it to print, as the French army doctor and philosopher Julien Offray de La Mettrie was to do under pseudonym in 1748, and he was still to face persecution from the church and the French state for this act of defiance. Mumford concludes: 'At the center of the new world picture man himself did not exist, indeed he had no reason for existence.'[14]

The irony of Galileo's conceptual purification is brought into perspective by Mumford's comments. Under influence of the humanist philosophy that had engulfed Europe in the fifteenth century with the rise of the mercantile class, the redirected attention of scholars, philosophers and scientists prompted the birth of a conceptual model of the universe at whose centre was placed human consciousness, rather than divine wisdom, which was now poised to exclude this very historical humanist subject completely and irrevocably from its universe!

What is truly amazing is that all three 'grand historical narratives' discussed so far, scholasticism, humanism and mechanicism, could so effortlessly adopt the mechanical model of the universe to their completely contradictory ideological programmes. Of course, this is not to claim that the mechanical worldview is 'beyond ideology', but to suggest that it remains semantically void until meaning is evoked through ideological appropriation. Mumford:

> [Galileo's] real crime was that of trading the totality of human experience, not merely the accumulated dogmas and doctrines of the Church, for that minute portion which can be observed within a limited time-span and interpreted in terms of mass and motion, while denying importance to the unmediated realities of human experience, from which science itself is only a refined ideological derivative. When Galileo divided experienced reality into two spheres, a subjective sphere, which he chose to exclude from science, and an objective sphere, freed theoretically from man's visible presence, but known through rigorous mathematical analysis, he was dismissing as unsubstantial and unreal the cultural accretions of meaning that had made mathematics – itself a purely subjective distillation – possible.

The division pointed out here by Mumford is exemplified by Galileo's division of primary qualities of objects versus secondary qualities such as smell and taste (which he considered subjective and therefore inferior). 'I do not believe that there exists anything in external bodies for exciting tastes, smells, and sounds, etc. except size, shape, quantity and movement.' This striking assertion demonstrates the crude reductionism applied to organic life in these earliest incarnations of the mechanicist worldview. In the argument leading up to this declaration, Galileo denies that objects can have in themselves any of the qualities that we might perceive 'in' them. Such secondary qualities (as opposed to size, shape, quantity, or motion – the primary qualities) exist only in the 'sensitive body', that is, they are a product of the mind, but have no external reality, simply because by Galileo's standards, these qualities could not be measured and quantified, that is, mathematically asserted. 'If ears, tongues, and noses were removed shapes and numbers would remain, but not odors, nor tastes, nor sounds.'

If such claims seem baffling to the 'contemporary observer', then it should be noted that in Galileo's time the chemical elements were as yet undetermined. As Mumford observes, 'not merely human personalities and organisms, but likewise the chemical elements . . . were absent from Galileo's universe.'[15] What this example reveals is how different the 'imaginary universe' of Galileo actually is from any contemporary sense we might have of it. Almost nobody today would question the material existence of scent and taste-provoking chemical substances, let alone

the reality of sound waves. Certainly not if one proceeds from any kind of materialist or empiricist perspective – regardless of one's personal inclination towards the sceptical or rather positivist versions of such approaches. It would require a remarkably austere form of mysticism to still be able to cling to such idealist conceptions.

After the Crime

For the better part of three centuries, Mumford contends, scientists followed Galileo's lead, despite this curious and unsustainable reduction. The question is why? Are we facing a case of severe 300-year conceptual blindness? Or a slavish obedience to what was institutional doctrine? Hardly, several generations of people are simply not that stupid! Instead, what should be added to this picture (and indeed Mumford does add considerable amounts of factual material about this) is the sheer performativity of this mechanicist model of the universe and nature. Through the brutal reduction of the complexity of daily realities, enormous advances in the material sciences and especially in engineering were made possible, regardless of their limited fields of application. These 'innovations' served to amplify and strengthen political and institutional power, especially through new production techniques and military technology, planning methods, logistics, automation and, eventually, the birth of a managerial science.

In part, such 'innovations' and 'advances' were only made possible *because* of the extremely limited fields of application of the new knowledge technologies. Precisely because they tended to exclude living systems, the complexities of organic life, the inter-dependencies of ecosystems, the qualitative extensions of human culture, complexity of human psychology and other disciplines that only reached any kind of mature status within the Western scientific body at the turn of the twentieth century, could attention be focused with limited scope and great intensity to produce exceptional results.

What the system primarily required was rigorous social control and effective deployments of power, processes greatly aided both conceptually and materially by the expansion of the mechanicist worldview and its machines.

Ecological concerns accompanying the deployment of such 'megatechnics', and concerns about the 'dehumanizing' effects of the mech-

anicist worldview and its radical application to everyday life, were simply disregarded, marginalized, or at best considered temporary ills to be overcome by the inevitable triumph of progress. In fact, none of these concerns ever played a role in conceptions and practices of megatechnic development until effective sociopolitical mass insurgency (social movements, labour unions and later environmental pressure groups) managed to make these counterclaims inescapable. It is, therefore, predominantly the interaction of this new conceptual universe with the forces of social, economic and political power that define its erratic trajectories through time.

After the Copernican conception of the universe had gained a stronghold throughout mainstream scientific and philosophical thought in the seventeenth century, the clock metaphor continued to flourish. But now, its meaning had changed. The comments on the idea of a clockwork universe by, for instance, the seventeenth-century writer Thomas Powell are characterized by Turner as 'the optimistic, operative approach to nature typical of many sections of the 16th and 17th century'. According to Powell, writing in 1661:

> God framed the world by Geometry (as we may say) that is, with wonderful Art: he did all things in Number, Weight, and Measure. Aristotle calls him . . . The great Engineer of the World, that tacked this rare Systeme of heaven and earth together, tackt the Center to the Sphears, and made the whole Frame to move in a wonderful order from its first creation to this day . . . If, however, the entire fabric of the world be taken as a single machine, it is a greater wonder then all the wonders in the world. It is a kinde of an Automaton or Engine that moves of itself, much like a great Clocke with wheels and poyzes and counterpoyzes, that is alwaies in motion, though no bodie moves it.[16]

And Turner adds:

> Just as the great world, the macrocosm, is an automaton, so is the little world of man – the microcosm – and that of animals. All things are machines designed by God; by imitating their principles Powell believes man can himself make further machines. To do so would be godly work.

Until well into the seventeenth century, these ideas remained limited largely to circles of astronomers. It was the influential French philosopher René Descartes who provided them with a broader basis. Descartes proposed a new integrated vision of man and nature in which the mechanical model was extended from the heavens to the rest of nature, including animal life (*bête machine*) and the human body, reserving only a special place for the disembodied soul, floating above the rest of nature as an immaterial principle.

Descartes held that a major purpose of scientific knowledge was to secure man's conquest of the material world. Or in his own words:

> A practical philosophy can be found by which, knowing the power and the effects of fire, water, air, the stars, the heavens and all the other bodies which surround us, as distinctly as we know the various trades of our craftsmen, we might put them in the same way to all the uses for which they are appropriate, and thereby make ourselves as it were, masters and possessors of nature.[17]

Two other ideas of Descartes were extremely influential, although one turned out to be completely beside the point. Descartes identified matter with volume; 'Give me motion and extension and I will construct the world,' he wrote. He imagined the universe as tightly packed with ether, a subtle fluid which filled the space between opaque bodies, and in which the heavenly bodies floated. Motion of the planets was caused by whirls (vortices) in the ether that carried the planets along. His universe was devoid of attracting and repelling forces. Although Newton would soon after propose his theory of gravity, ignoring the concept of ether altogether, Descartes' views remained influential, partly because he exploited a purely mechanical model of the universe.

Newton simply followed his observations and calculations, which were incompatible with Descartes ideas, and generalized them into mathematical principles. The modern scientific view of the world is synonymous with this principle of the primacy of observation and its formalization in generalized mathematical principles. The classic physicists view of the universe has, therefore, become synonymous with the name of the British mathematician, physicist and philosopher Isaac Newton (1643-1727). However, the fact that Newton has exten-

sively analysed the principles of the movement of solid bodies and gravity does not mean that his universe consisted exclusively of motion and change. On the contrary, he sought to identify the unchanging principles, the eternal laws of nature that determined this temporal world of motion. In his view, all objects moved in an absolute space, on an autonomous time-scale that flowed evenly. Newton's world was cyclic and all events within it were entirely reversible, and therefore, timeless.

The mechanical clock, with its even motion and periodic cycles, was the perfect metaphor for this conception of the universe. Though we see the hands move across the dial and register the passing of time, behind its face operates the unchanging mechanisms of clockwork. Surprisingly perhaps, Newton considered this immutable order (absolute space and time) behind the fleeting appearances of things, to be the 'sense-organ' of God, so that his laws of gravity and motion reflected the divine order of the universe.

The second idea that Descartes proposed was more influential. It related to geometry and proved to be of enormous value. L.W. Cole describes the anecdote leading to this important idea:

> The traditional story tells that Descartes, who did not like early rising, observed as he lay in bed a fly circling round his room and realised that its position in space could be defined at any moment by its distance from the three planes formed by the adjacent walls and ceiling. If two of three dimensions are considered, a point in a plane may be defined by its relation to two instead of three 'Cartesian co-ordinates' as they are now termed. By this discovery, Descartes laid the foundations of analytical geometry, being the first to apply algebraic quotations to represent the lines and curves described by moving points. From this method developed the graph, which was to be of the highest importance in scientific calculations.[18]

This coordinate system, with its XYZ axes, is what today is still often referred to as Cartesian Space. It offers the possibility of defining every given point in three-dimensional geometric space. That space whose representation on a two-dimensional plane was demonstrated by Brunelleschi 200 years before Descartes, and applied to painting for

the first time by Massacio. With the Cartesian system, the position of a *moving* body in space could be determined and represented at any given moment in time. And with the proper knowledge of the principles and forces operating on it, its behaviour could be predicted and 'put to all the uses that man sees fit for it'.

Mumford summarizes this temporal curve succinctly:

> Astronomy prepared the ground for the great technical transformation that took place in the sixteenth century: for it provided the frame for a depersonalized world picture within which mechanical activities and and interests took precedence over more human concerns. The organization of this world picture was largely the work of a series of mathematicians and physicists who count among the great luminaries of all times. Beginning with Copernicus, Kepler, Galileo, and Descartes and culminating in Leibniz and Newton, their systematic description of space, time, motion, mass, gravitation eventually brought about a major shift in technology: from the workshop to the laboratory, from the tool-using craftsman and artist, himself a prime mover as well as a designer, to the complex power-driven automatic machine under centralized direction and remote control. And it was this world picture, not individual mechanical inventions alone, that contributed to the final apotheosis of the contemporary megamachine.[19]

Time Machine

On Machines for Measuring Time and Machines for Travelling in Time

In the introduction to his book *Technics and Civilization*, Lewis Mumford sketches an important interdependence between the changing notions of time, the mechanical clock and the development of the machine in modern society. *Technics and Civilization*, originally published in 1934, is one of the classic surveys of the influence of technological developments on the culture of 'modernity'.[1] Mumford himself describes it as 'a history of the machine and a critical study of its effects on civilization'.

Mumford introduces an important distinction between a tool and the machine: 'the essential distinction between a machine and a tool lies in the degree of independence in the operation from the skill and motive power of the operator: the tool lends itself to manipulation, the machine for automatic action.'[2] He then asks when the machine first took shape in modern civilization, to which there can be no single clear answer. However, Mumford writes:

> The first manifestation of the new order took place in the general picture of the world: during the first seven centuries of the machine's existence [roughly from the late thirteenth century onwards] the categories of time and space underwent an extraordinary change, and no aspect of life was left unchanged by this transformation. The application of quantitative methods of thought to the study of nature had its first manifestation in the regular measurement of time.[3]

The invention that would provide the 'regular measurement of time' was, as noted earlier, the mechanical clock. Indeed, Mumford stresses its importance to the development of modern industrialism when he famously describes the clock as the most important technological prerequisite for the industrial system of production to emerge, and not, as most historians of technology tend to do, the steam engine.

The origin of the mechanical clock, meanwhile, provides one of the great paradoxes of modern civilization, since it was within the

Benedictine monastery, under the strict regulation of worldly life by medieval scholasticism, that the technology came into being. In the dogmatic teachings of scholasticism, foundations for science and philosophy were provided by the orthodoxies of the Christian Church (most notably, its holy scriptures). This primacy of the rule of the Church could hardly have been farther removed from modern scientific conceptions, relying on the primacy of empirical observation and quantitative mathematical capturing of observations, as discussed earlier.

However, Mumford indicates that a number of favourable conditions for the emergence of the mechanical clock existed in the Benedictine monastery:

> Within the walls of the monastery was sanctuary: under the rule of the order surprise and doubt and caprice and irregularity were put at bay. Opposed to the erratic fluctuations and pulsations of the worldly life was the iron discipline of the rule. Benedict added a seventh period to the devotion of the day, and in the seventh century, by a bill of Pope Sabinianus, it was decreed that the bells of the monastery be rung seven times in the twenty-four hours. These punctuation marks in the day were known as the canonical hours, and some means of keeping count of them and ensuring their regular repetition became necessary.[4]

Looking upon the Benedictines, 'that great working order', as perhaps the original founders of modern capitalism, Mumford maintains that:

> One is not stressing the facts when one suggests that the monasteries – at one time there were 40,000 under the Benedictine rule – helped to give human enterprise the collective beat and rhythm of the machine; for the clock is not merely a means of keeping track of the hours, but of synchronizing the actions of men.[5]

The Development of the Mechanical Clock

In two beautifully written essays, Dutch philosopher Douwe Draaisma has described the development of the mechanical clock and what he refers to as the creation of a uniform system of measuring time.[6] While Draaisma also relates the origin of the mechanical clock

to the monastery, around the end of the thirteenth century, he considers it farfetched to claim that the strict regularity of the Benedictions and their canonical hours somehow heralded the technological rhythm of the industrial age, as Mumford does. Nonetheless he still feels that the regularity of monastic life prompted the need for a uniform measurement of time.

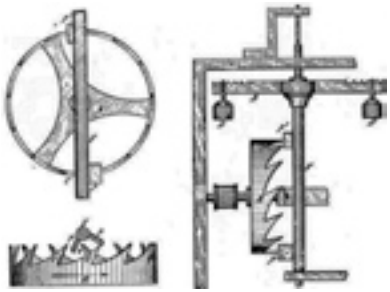
The transition from a natural to an artificial regulation of time is reflected in the character of the chronometers. The first, oldest and slowest of all clocks, the calendar, followed the repetition of natural events, the cycle of seasons, the twelve new months in each year and the change from day to night. In analogy to the twelve new moons of each year, the Babylonians divided the day up into twelve 'hours' measured by a sundial. It is important to remember that the length of each day – in other words, the duration of each period of daylight – varied significantly throughout the year and, as a consequence, the length of each 'hour' indicated by the sundial would vary proportionally.

Nonetheless, the time registered by the sundial, a form of measurement that has existed over ten times longer than the mechanical clock, was long perceived as the real time. Indeed, this view was still expressed by writers up until the eighteenth century, stressing the need to adjust mechanical clocks to the time registered by the sundial.

Other non-mechanical means of time measurement included the water clock (or *clepsydra*) and, to keep track of the nightly hours, candles and oil lamps. The hourglass was not invented until after the first mechanical clocks, and its first representation can be found on a fresco in the Palazzo Pubblico in Siena, dating to approximately 1337. Aside from their sensitivity to external influences (heat, cold, wind, and so forth), there is one important disadvantage to these elementary chronometers; they could only register the duration of an event, not its exact position in the day. It was the mechanical clock that made it possible to register the precise point of time of both the beginning and end of any event within the course of the day.

To make a uniform measurement of time possible, it was necessary to introduce a 'digital' notion of time. Instead of considering the passing of time as a continuously flowing process, there had to be a minimal constant unit of duration through which the duration of an event could be expressed. Where chronometers relied on natural processes, uniform

repetition in natural processes was the key to the problem. Here, the earth revolving evenly around its own axis provided such a means: it could be observed in the passage of celestial bodies across a fixed position in the sky (Every 23 hours, 56 minutes and 4 seconds). Each repetition, or a sub-division of it, provides an 'atomic' unit in terms of which the duration of any event can be expressed. In our case, it is the vibration of the Caesium 133 atom that provides the measure for the second. This measure relies on agreement, not on an absolute and independent standard of time. Thus time may be considered a cultural construction, a convention.



The oldest type of escapement, the verge and foliot

Every mechanism that provides even and repetitious movement can be used as a clock. This even motion can be achieved by using a uniform energy to propel the mechanism. Where there is an uneven source of energy (as in most mechanisms), the propulsion has to be *made* evenly. This function is performed by the escapement. Draaisma:

> The oldest type of escapement, the 'verge and foliot' consists of a pivot, or axis, to which two spoons are attached at an angle of 90 degrees to each other. A tooth of the crown-wheel pushes one of the spoons away each time, causing the other spoon to block the opposite tooth. The foliot sways back and forth and keeps the pivot turning. Hanging the weights nearer to the centre of the foliot causes the clock to run faster. By letting the energy 'escape' tooth by tooth an even motion is created (thus: escapement) . . . Earlier attempts to create an even supply of energy made use of restraining mechanisms such as friction. The foliot on the contrary stops the movement for

> a short moment entirely, to then let it reach momentum again. The genius of this construction is that while the pivot continues to move because the crown-wheel is pushing it, the crown-wheel is halted for a moment each time because of the motion of the pivot. The escapement regulates the flow of energy in the clock by appropriating part of it for itself. Weights and springs control their own energy through the escapement.[7]

It is unknown who invented the escapement, or even where it was invented, although England seems most likely. The mechanism had no predecessor in any machine or invention. It suddenly appeared, and with it the mechanical clock. Draaisma calls it an invention *ex nihilo*, one of the greatest enigmas of the history of technology. As pointed out earlier by Mumford, the mechanical clock spread through the monasteries at the end of the thirteenth century. Documents of that time relating to mechanical clocks can be traced back to various English monasteries: Exeter (1284), St Paul's, London (1286), Merton College, Oxford (1288), Norwich (1290), Ely Abbey (1291) and Canterbury (1292).[8]

During the fourteenth century, the mechanical clock spread through the cities. The newly acquired autonomy of the city-states and their civil governments made it possible to raise taxes and thus finance their public clockworks. The clock spread across the cities as swiftly as it had across the monasteries: Milan (1335), Padua (1344), Genua (1353), Brussels (1362), Augsburg (1364). In the Netherlands, the first public clockworks appeared a little later: Utrecht (1369), Maastricht (before 1373) and by around 1400 most major cities all owned their own public clockwork.

One possible factor that could explain this swift dissemination of the clock across Europe could be the mobility of the professional clockmakers, who travelled from city to city offering their services. But more important still, according to Draaisma, was the adoption of *even hours* (1345), one of the most important reforms in the history of time regulation. Traditionally, the day had been divided into twelve even segments. The duration of these hours varied from season to season, and progressively from the south to the north. Whereas the sundial could take account of this uneven duration, the mechanical clock, as mentioned earlier, could only measure hours of even duration. The

adoption of even hours went hand in hand with the proliferation of the mechanical clock. Day and night would from now on consist of twelve even hours.

Draaisma holds that it is difficult to say whether the adoption of even hours was a prerequisite for the proliferation of the mechanical clock, or whether it was the invention that led to the adoption of a different time regulation. He feels that the measurement of time was more probably adapted to the possibilities of the machine. In Japan, for instance, even hours were only adopted in 1872, a few years after the introduction of the first mechanical clocks in the country. It illustrates, he says, the precedence of technology over tradition.[9]

The adoption of even hours meant more for the citizen of the fourteenth and fifteenth centuries than a mere change of a convention. It meant that a mechanical device, rather than the sun, was the principal means of orientation in the day. It also prompted a greater need for accessible clocks. In the fifteenth century, the mechanisms of the clockwork were miniaturized and a spring device was adopted to drive the mechanism (instead of weights). The clock could, therefore, enter the private home. A new market was provided for clocks, at first by court and nobility, later also by wealthy citizens.

Clocks and Navigation

Draaisma finds it ironic that the need for an improved spatial orientation prompted the development of more precise mechanical clocks.[10] For seafaring countries like Spain, Great Britain and the Netherlands, navigation at sea was a major problem. Although many trade routes along the coasts of Europe and Africa were well documented, navigation across the seas and the oceans was a hazardous affair.

Satisfactory methods to determine the degree of latitude at sea, by taking the height of the sun or the polar star above the horizon, had been available for a long time, but a good method for determining the degree of longitude remained difficult until the end of the eighteenth century. Many ships, cargos and lives were lost as a result of this deficiency, making a method for determining the longitude at sea a commercially interesting challenge.

One proposal was to use mechanical clocks to determine the longitude at sea. The idea was simple: by measuring the difference between

the moment when the sun reached its highest point in the sky (noon local time) and the time in the harbour where the ship had left, the longitude could be determined. Knowing that the earth revolved around its axis in 24 hours, each hour of time difference meant a distance of 15 degrees longitude (360 degrees in all, divided by 24 hours). All that was needed was a clock precise enough to enable reliable calculations, and robust enough not to be influenced by the movements of a ship in a harsh sea. And this clock indeed had to be uncommonly precise, since one degree of longitude on the equator equals 69 miles.

In 1714, the British government established the *Board of Longitude* and offered an award of 10,000 pounds (at that time an astronomical figure) 'for such Person or Persons as shall discover the Longitude at Sea'. It had to be precise within one degree. For a method precise within a range of half a degree, the sum would be doubled. The prize spurred the imagination of inventors and inspired a great number of entries. It was, however, eventually awarded to John Harrison, who developed five such clocks during his lifetime. The last of these, completed in 1760, was a miniaturized version based on a portable watch he had developed alongside the other clocks, measuring no more than 15 cm across. Harrison spent his entire life on the project, but was only given the prize in 1773, after an intervention by King George III, three years before he died.

By the end of the eighteenth century, other manufacturers began to produce increasingly miniaturized and precise mechanical clocks in greater numbers. The navy was the principal customer for these clocks, using them not only for navigation, but also to synchronize and coordinate the actions of their fleets at sea. Clocks became part of weaponry.

On land, the need for more precise clocks was initially less urgent. But with the ongoing industrial revolution in the course of the nineteenth century, the clock became an important device for the coordination of social activities and public services. During the fifteenth century, the first forms of mass production that relied on this improved coordination of activity came into being (mainly involving textiles). This development shifted attention in the exchange of labour for goods or currency for a finished product, to the distribution of a working day and the time invested in the manufacture of a given commodity.

The mechanical clock exerted an increasing grip on daily life. It became a prerequisite for the division of tasks over various parts of society. The complex interrelations of modern industrial society could only emerge because more sophisticated means of coordination and *control* were available. The industrial societies could only function by virtue of this coordination device that relied on the uniform mechanization of time. Thus the clock made itself increasingly invaluable for the modern fabric of society. The tragic aspect of this domination of machine over man (and nature) prompted the anti-utopian futuristic literature of the nineteenth century (especially Samuel Butler). In the second half of the nineteenth century, it materialized in the form of yet another clock, a time-checking machine, the time clock.

The Metaphorical Clock

From the fourteenth century onwards, the clock would be given a metaphorical significance in literary and philosophical writings and artistic representations. The escapement, for instance, became a key symbol for reason and restraint. 'Where desires and passions stirred human behaviour, reason has to control and direct this energy, alike an escapement.'[11] Even in the seventeenth century, Comenius represented the will as the crown wheel, the desires as weights and reason as escapement.

Within the iconography of time and death, however, there is a significant difference between the symbolic meaning of the mechanical clock and the hourglass. While the hourglass was usually associated with the finite nature of life, the passing of time and the inevitability of death, the mechanical clock was a symbol of eternity, for the timeless order behind the temporary appearance of things.

Also, for the civil-state, the clock was a useful metaphor. Draaisma:

> The mechanical clock was the embodiment of what was missing in the natural state, or in real life: in contrast with the disruption by epidemics and bad harvests stands the regularity of the clock-work, against the chaos of wars the order of the harmonious machine, against the caprice of natural disasters the predictability of determinism. For the constitution of the state in which people could live safely and comfortably, and to which the measurement of time

belongs as self-evidently as architecture and literature, Hobbes uses in his *Leviathan* the image of a clock. Comparable to the conception of the human body as an automaton ('A machine that moves itself by springs and wheels, like a clock'), with the heart as a spring, the nerves as snares and the joints as wheels, so the state too is a delicate arrangement of parts that drive and restrain each other, a controlled balance of forces.[12]

'Leviathan on Wheels'

But it is exactly the extension of the mechanicist picture of the human body (and indeed the whole of human nature) to the social body that, according to Lewis Mumford, laid the final foundation for the

Frontispiece of Hobbes' Leviathan, 1651

emergence of the modern megamachine. In Hobbes' conception, primitive man's life was 'short, brutish, and nasty'. Unregulated life in primitive societies was, in his view, exclusively determined by conflict and strife. Only under absolute control could some form of socialization be achieved that would guarantee a minimal degree of security, safety and orderly behaviour. Such social order was to be established under the rule of a Kingship that functioned as an absolute monarchy, and whose commands were imposed through Leviathan – the all powerful state apparatus, portrayed as a well-balanced machine into which all its subjects were seamlessly incorporated. (We could say, much like a Borg cube from *Star Trek – The Next Generation*: the cubic spaceship of a ruthless cyborg metaspecies that continuously tries to 'assimilate' all biological and cultural specificity they encounter by integrating the hardware, software and wetware of these species into their technological matrix.) Needless to say, blind acceptance of the commands of the 'sovereign' (the monarch) was obtained by rigorously imposed discipline under threat of severe punishment. Mumford:

> The submission to absolute authority was for Hobbes the condition for enjoying as isolated individuals the benefits of civilization, including the dubious benefit of collective warfare, which Hobbes shrewdly held to be the inevitable price for protection against civil violence at home.[13]

Like Descartes, Hobbes greatly admired the art of mechanical automatons and androids, an attraction that became popular among the ruling class throughout Europe during the seventeenth century and continued to mesmerize audiences well into the eighteenth century. Hobbes cheerfully reduces the life of man to 'nothing but a motion of the limbs', a severely simplistic reduction of organic complexity to the mechanical absurdities of android puppetry. From there, he eventually extends his mechanical model to the whole of society. As Mumford comments:

> If indeed automata are artificial organisms, why cannot man, whose life is 'but a motion of the Limbs' be brought equally under the control of external forces initiated and operated by the sovereign? Predictable behavior and remote control from the center – this is the

> ultimate goal of megatechnics, whether mechanical or electronic, though it has taken a long time to perfect the inventions and assemble the organizations that would make the final outcome possible.[14]

And in another of his characteristically sweeping statements, Mumford connects the function of the Leviathan machine to the contemporary moment, transferring the autonomy of each social member to obedient machine-like parts in the organized whole:

> From this effort many institutions followed: to begin with the regimented mass army in which every part was standardized and regulated . . . the new bureaucracy, that efficient product of Italian despotism; in the eighteenth century, the factory; and in our own time the new educational and communications systems. These were the new components. Thus the ultimate product of Leviathan was the megamachine, on a new enlarged and improved model, one that would either completely neutralize or eliminate its once-human parts.[15]

Standard Time

Through various technical improvements, by the eighteenth century, the clock had become increasingly reliable and precise. Through miniaturization and mass production, it had become transportable and accessible for individuals. The portable watch became a status symbol for the wealthy citizen. This prompted the need for a general time standard to which these clocks could be adjusted. A common method was to fire a gun once a day, when the sun had reached its highest point (at noon). There were two obvious problems: because of the change of seasons, the sun does not always reach its highest point at the same moment in the day; the other was more banal, *no sun, no gun.* The system, furthermore, could only provide a local time standard.

Many cities, therefore, developed a system of *average time*, taking the average moment throughout the year when the sun reached its highest point in the sky as a reference. After the adoption of even hours during the fourteenth century, the system of average time was the next step towards a clock-oriented time. This system, however, still had the disadvantage of being only a local standard of time. The sun, after all, reaches its highest point in the sky in each place at a different moment in time.

Draaisma provides three prerequisites for the introduction of a general standard of time. (1) It has to be *produced*, (2) it has to be *distributed*, and (3) there have to be *clients* for it. All three requirements were not met until the middle of the nineteenth century.[16]

In England, the standard time was 'produced' by the observatory of Greenwich, a standard we still know today as Greenwich Mean Time. However, even within England, there were considerable time differences because of the change in longitude between the various cities (London and Plymouth, for instance, already differ by some 15 minutes). The need for a general time standard arose when activities had to be coordinated closely between various places, or nationwide.

In England, it was the mail transport system (operated with mail coaches) that necessitated closer coordination. During the last quarter of the eighteenth century, the British mail services developed an increasingly dense transportation network. A general standard of time for the entire country became necessary to make exchanges between the various coaches more efficient. The second category of early clients for this standard time were the watchmakers, who needed to synchronize their clocks. Thirdly, the development of a railway system was an important factor in establishing a general standard of time.

The standard time was initially distributed through visual and auditory signs. Big Ben in London, installed in 1859, is a good example. It struck its clock every hour on the first second of Greenwich Mean Time. The map of London was charted with concentric circles indicating the time delay of the travelling sound so that clocks could be adjusted quite accurately throughout the city. Portable watches, so-called 'timekeepers', were literally used to transport the proper time to other places. People were specially employed to carry the time around the city. In rail transportation, a time traveller of sorts brought the correct time indicated by the timekeeper to railway stations down the line, enabling them to synchronize their clocks to Greenwich Mean Time.

The greatest improvement for the distribution of standard time was provided by the telegraph service. In the Netherlands, where the adoption of a general standard of time followed along similar lines as in England, a time signal was sent out by telegraph from the observatory of Leiden from 1859 onwards. Draaisma points to the fact that from the moment that Amsterdam watchmakers were granted permission to

receive the time signal at the telegraph office, the precision of their time measurement increased by a factor of 1500 within a few years. Their time signal was precise to within half a minute in 1856, 1 second in 1858, and 1/50th of a second from 1859 onwards.

In 1884, the contemporary world time standard was fixed by international agreement through the *International Meridian Conference* held in Washington DC, USA. Its main purpose was to determine the 'Prime Meridian' for the earth from which all other time zones could be derived; a constant that was assigned to Greenwich. How much this world time standard is a product of political negotiation can be detected from the many irregularities in the time zones that quite often reflect territorial definitions rather than the 'astronomical' time of a particular region (such as the GMT +5 ½ time standard that was fixed for the entire subcontinent of India). The fact that the Prime Meridian was fixed at Greenwich/London, obviously reflected the hegemonic position of Britain as a colonial world power, a position which it relinquished to the USA only after the Second World War. Incidentally, the French, who abstained from voting at the conference, resisted the adoption of the GMT time standard until 1911, another strong indication of the political sensitivity of the issue.

Particularly remarkable within this development is the confluence of the ongoing development of mechanical clock technology and time measuring devices; the increased integration and intensification of global trade systems during the second half of the nineteenth century, mostly still within the colonial frame and the emergence of a transcontinental real-time telecommunications system (the telegraph combined with transatlantic transmission cables). All the constitutive elements of what is now often called 'globalization' already converged in the adoption of the new world time standard in 1884. These elements together deployed an increasingly finely-tuned grid of control over both space and time on a global scale. This control grid has as yet to reach its highest state of perfection via the notion of the *real-time economy*; where the coordination of production, distribution and consumption are ideally optimized to eliminate all temporal lag (non-productive time) from these processes. This can be achieved through the radical deployment of information and networking technology, combined with ever-tighter feedback loops and a broader application of flexibilization and automation of labour.[17]

This project of the absolute intensification and flexibilization of labour in the real-time economy has already called forth its own resistance movement in the form of the subdued class of the precariat. Through political campaigns, the appropriation of May Day and intensive theoretical debate, the increasing precarization of life and work has been elucidated by a variety of theorists, artists, activists and labour campaigners. Precarity refers to a general condition of growing uncertainty of material and life conditions as a consequence of the extreme flexibilization and just-in-time coordination of supply and demand for work, combined with the absence of proper social benefits and collective insurances.[18] Ironically, the creative professions and new media industries have been at the forefront of determining this new model of labour exploitation.

Thus, during the nineteenth century, the clock became the regulator of societal life, a tyrant that abstracted the modern citizen from the natural flow of the physical world. The rhythm of the clock started to dominate social life, and the rhythms of the machines dominated industrial societies as a whole. Around the turn of the eighteenth to the nineteenth century, the clock/machine metaphor of the universe, as well as human and animal life, began to change in character. Instead of a reliable, wondrous and almost divine mechanism, it began to be perceived as a threat to human life, a potent symbol of domination and control, or unguided destructive forces. The clockwork now reflected the horrors of an alienating machine-driven society; it was seen as a mechanism that destroyed the traditional fabric of society and brought terrible living conditions upon a large mass of underprivileged people. It is no wonder that Marx choose the machine as the metaphor to describe the social effects of industrialization.

The Time Machine

The sophistication of techniques for the measuring *of* time may indeed be understood as an attempt to synchronize and control the flow of processes *in* time, to *synchronize the actions of men.* This desire for control could still be taken one step further: instead of controlling processes *in* time one should also be able to control *the flow of time itself,* to bring time to a halt and become immortal, and to be able to travel *in* time to the past and present. Such a shift evidently requires a conceptual leap

into the realm of the imaginary, the phantasmatic, and literature typically provided that opportunity. Time travel narratives were a popular late-Victorian literary theme. Along with the rising scientific interest in the concept of time during the late nineteenth century (speculations about the fourth dimension), the prospect of travelling in time stirred the popular imagination. In 1895, H.G. Wells published the final version of his famous novel *The Time Machine*, which had appeared in earlier versions as *The Chronic Argonauts* between 1888 and 1894. The serialized version of *The Time Machine*, published in the *National Observer* between March and June 1894, had already attracted considerable attention and debate. When it was finally published as a collected whole, the novel left an inextinguishable mark on the popular imagination of the time, and continues to do so today.

Several features in particular mark the evocative power of this story. By extrapolating from the social conditions of his own time, Wells predicted the formation of a hegemonic regime uncannily reminiscent of Mumford's modern megamachine, but also analogous to the ruthless militaristic authoritarianism of Nazi Germany and the Stalinist-era of the Soviet Union. Wells' narrative then 'predicted' a kind of nuclear holocaust, an obsession that would vigorously re-emerge into public consciousness during the Cold War era. In yet another future, humanity is portrayed as alienated through a frightening devolution into two perversely symbiotic degenerate subspecies, each cannibalizing the other. In his final and farthest journey, the protagonist of Wells' story travels to the end of times to witness a dark and cold universe about to be extinguished into nothingness, a place where only manic-depressive robots hold their ground.

What is most interesting to our current discussion, however, is that Wells employed a new narrative device in his story that enabled him to let his protagonist travel through time in a controlled manner – the Time Machine itself. Travelling through time, personages being thrown from one era to another and from one corner of the universe to another, abound in world literature. However, these radical shifts in time are usually brought about by divine intervention, by some magical spell, sometimes in a quasi dream state, or by some other kind of supernatural force. To bring the flow of time under the control of human agency through a machine, to make movement through time possible

technologically, back and forth to any point at will, was a new concept. Paradoxically, this new idea simultaneously introduced a hyper-phantasmatic dimension to the concept of modern (that is late nineteenth-century) technology and science, while it took the notion of time travel itself out of the context of the supernatural, and turned it into a 'rational problem' to be solved by physics and engineering. It is important to note that this shift operates in both directions at the same time – it demythologizes the supernatural *and* introduces a severe case of phantasmatic affliction to the world of the natural sciences and engineering. For the time machine is clearly an imaginary machine. No such device has ever been built, nor could it be seriously considered possible within current understandings of space and time, regardless of the temporal ambiguities of general or special relativity.

The time machine has not left the world of popular fiction. Countless novels, stories, films and other incarnations testify to its continued vitality. Most of these narratives introduce the time machine as a purposeful device – it operates under strict performativity, sometimes in the service of evil, but then still as a device that serves a clearly circumscribed utilitarian agenda. This is a bit surprising for an imaginary machine. One of the few and highly noteworthy exceptions to this general rule is the ironic appearance of the time machine in the absurdist fiction of Alfred Jarry. In the epilogue to his neo-scientific novel *Gestes et opinions du docteur Faustrol, pataphysicien*, Jarry describes a fantastic time machine. The machine is built inside an ebony bicycle frame fitted with gyroscopes. These enable it to move extremely fast while remaining, like a spinning top, perfectly immobile in a fixed position. The time traveller operating the machine can travel independently of time, and can see how the surrounding space constantly transforms as they 'cycle'. Like the ether,[19] penetrated by light waves without changing its structure, infiltrating all substances in turn, the time traveller is influenced by time, but can also penetrate time and move independently of both past and present.[20]

For Jarry, the time machine was but one of the devices he could employ for his study and practice of *Pataphysics* – the realm of imaginary solutions. The boundaries between the 'real' and the 'phantasmatic' are quite irrelevant here.

Ballet Mécanique

Mumford's rhythm of the machineries of the modern capitalist production lines were given an enigmatic visual form by the French avant-garde artist Fernand Léger in his film *Ballet Mécanique* of 1923-1924. The film is aesthetically directly related to a series of paintings he produced in the period 1919-1924, usually referred to as his *mechanical period* (interestingly, some critics have described these machine paintings as 'mechanomorphic', the very term Mumford uses to illustrate the failure of the mechanical worldview). In this period, Léger shows an obsessive preoccupation with the artefacts of the modern world, the dynamism of the city and the perfection of machine-made forms.

In the book *The Cubist Cinema*, Standish Lawder discusses the film in detail, partly on the basis of Léger's own notes. He identifies five principal formal instruments that the film employs to create its specific dramatic tension: non-narrative form; speed, movement, rhythm; the close-up; contrast; and modern urban life. The emphasis on speed, movement, rhythm and modern urban life are of particular interest here. Léger is first cited on speed: 'Speed is the law of the world. Cinema will win out because it is lively and swift.' And Lawder observes that *Ballet Mécanique* is experienced as 'a kind of high-speed visual happening which floods our minds with a seemingly inexhaustible supply of images, infinitely variable, in new and surprising combinations, dynamically interacting with each other, and pouring off the screen with the apparent inexorable necessity of a natural phenomenon'.[21]

It is interesting to note how Lawder, writing in 1975, still experiences *Ballet Mécanique* as a deliriously fast montage and overwhelming flow of images. Visually numbed as the contemporary television viewer has become by the constant barrage of music video clips and their far more extreme montage techniques and visual densities, the film today is remarkable more for its poetic quality and less because of the density or flow of images. In the post-MTV era, *Ballet Mécanique* might be aesthetically read as a proto-music video. The combined effect of the rhythmical visual montage linked to a dedicated music score (originally composed by George Antheil but never used by Léger and director Dudley Murphy) and the absence of any narrative structure already contains all the required elements for an experimental music video, some 60 years before the invention of the genre. However, what the film succinctly

expresses is the experience of a machine-driven society as it had come into being at the beginning of the twentieth century. This machinic rhythm and techno-aesthetic was not to leave popular culture for a long time. And is it an understatement to say that cinema has managed to seize the popular imagination more strongly than any other medium or art form in the twentieth century?

Lawder picks out another crucial observation that Léger makes situating the 'drama' in the film in modern urban life:

> On a main street two men carry gigantic golden letters in a wheelbarrow: the effect is so startling that everyone stops to look at it. There is the origin of the modern performance. . . . The street thought of as one of the fine arts?'[22]

This notion, presenting the street of the great urban centres of the industrialized world as the theatres (in an almost literal sense) of modernity is a recurring theme of the twentieth-century avant-garde. Walter Ruttman's documentary masterpiece *Berlin Symfonie einer Großstadt*, produced only a few years after *Ballet Mécanique* in 1927, exhibits the same preoccupation with the hectic rhythms of the grand urban centre and attempts to find an adequate visual grammar to express them. Also the silent documentary film, *The Man with the Movie Camera* by Russian director Dziga Vertov of 1929, another great classic of early experimental cinema, treats similar themes in masterly fashion. The work of Man Ray and René Clair could also be added to this list.

Through their general visual and narrative motives, all of these films display the same fascination with a society operating on a new collective beat of the machine. Whether or not this actually reflects the ticking of that first mechanical clock in Exeter around 1280, I will leave open. But there is an important nexus here between avant-garde artistic practice (a relatively unproblematic term at that point), the nascent medium of film with its under-defined visual language, and the impending translation of this machine aesthetic to a broader popular imagination.

Mumford was certainly not ignorant of these new phenomena, nor of the artists in question and their relevance to the culture of modern industrialized society. In *Technics and Civilization*, he devotes attention to these new machine artists and a number of prominent works, now

revered in art collections across the world, appear as reproductions in the image section of his book. However, Mumford maintains the role of the sceptic. To him, the culture of the early-twentieth-century machine age epitomizes the rule of the megamachine and the mechanomorphic worldview. He also would manifest himself as a bitter public critic of the fallacies of modern urban planning, especially in the USA, the construction of high-rises and the demographic, logistic and environmental pressure zones they conjured into existence.

For Mumford, the hectic rhythms of life in the *Großstadt*, as portrayed so beautifully by Léger, Ruttman, Vertov, Ray, Clair and others, are the soundings of the mills of oppression of the megamachine and the foreboding of greater disaster and 'inhumanity' that was to come. In this last prediction, he unfortunately was proven right by subsequent events. Shortly after, the authoritarian megamachine would grind its wheels over Europe, Russia and many other parts of the world, at unprecedented human costs.

In a series of lectures delivered at Columbia University in 1951, Mumford further developed his critique of these mechanomorphic art forms – subsequently published in 1952 as a small essay collection titled *Art and Technics*. In my opinion, Mumford's reading of these artistic expressions and his continued attempt to fit them into the pattern of the rising hegemony of the megamachine is too monolithic. What Mumford does not consider, or at least not sufficiently, is the ambivalent, often deliberately ambiguous nature of these art works (paintings, photographs, films, theatre pieces, performances, interventions, and so on). Most of these works seem to be born out of a fascination for the expanse of this new man-made and machine-driven world, but the mood of these works is hardly ever singularly positive. What the most successful of these films instead seek to highlight is how intrinsically the fascination of this 'new world within the old one' derives exactly from the pressures and strains it exerts on human life and experience. It is this constant ambiguity that gives these works their enigmatic intensity.

In Mumford's monolithic critique of mechanomorphic culture and the mechanicist worldview, culminating in the apotheosis of the nuclear megamachine (the ultimate doomsday machine), the emphasis appears to be targeted at a univocal rejection of this technological trend

in order to reach a new state of 'purity', where 'fresh choices' become available to humankind; how to shape the future and accommodate the machine within it, to place it under some kind of democratized control. This image is, of course, highly attractive, but equally unrealistic, given the complexities of technologically advanced societies. Instead, a certain deliberate 'critical perversion' of attitudes towards the machine, an ambivalent embrace of fascination and abjection, could actually prove to be a much more productive strategy for engagement with technology. This 'perversion' might be constituted by taking both the critique of the mechanicist worldview and the devastation wrought by Mumford's modern megamachine fully on board, while at the same time practicing a willing and conscious submission to the lure of the machine, so as to operate on it from the 'inside'. Such an attitude is always necessarily split between fascination and abjection, but submits to this ambiguity knowingly and willingly.

The activities of such 'perverse tinkerers' could introduce diverse forms of subtle deregulation of the megamachine: opening up its libidinal mechanics, deploying tactical operations inside the body of the machine that can temporarily destabilize or functionally transform certain operations of its vital internal organs. This, at least, would seem more productive than a wholesale confrontation, the kind of frontal collision that Mumford proposes. In part, this head-on approach seems to be determined by a *Zeitgeist* of the Cold War era in which the confrontation of world powers, and their strategy of nuclear confrontation based on the MAD doctrine (Mutually Assured Destruction), did not show any sign of weakening or finding any kind of 'political' resolution. While the threat of nuclear annihilation (the final phase of Mumford's megamachine) is by no means eliminated today, geopolitical conditions are more generally determined by the proliferation of small- and medium-scale regional conflicts and the threat of limited nuclear exchange or nuclear terrorism ('dirty bombs'), rather than the madness of MAD.

The works of the artists mentioned (and also referenced by Mumford himself), and many others after them, highlight a new sensitivity towards the conditions of the unfolding machine-driven society, and thereby reveal possible directions in which to proceed. Mumford, however, is neither willing nor able to understand the ambiguity of these works and the attitude they present.

Léger himself, on the contrary, was acutely aware of the double-edged nature of his artistic obsessions. He seems, above all, to have been driven by a mixture of fascination and fear for the modern machine-driven world. His wartime experiences serving with the artillery and the medical corps seem to have been decisive in shaping his interest. He writes that his experiences at the front were:

> A total revelation to me, as a man and as a painter . . . Once I bit into this reality, the object never left me . . . I never made drawings of cannons, I had them before my eyes. During the war I stood on solid ground. In the space of two months, I learned more than I had all my life.[23]

After the war, Léger broke with the concerns of Analytic Cubism that had preoccupied him earlier. Instead, he developed his mechanomorphic style in which he tried to express the spirit of his times and render it in forms of the mechanical world about him. About his choice for the cinema, Léger said: 'Le Cinema c'est l'age de la machine. Le Theâtre, c'est l'age du cheval.'

Body Machine/Machine Body

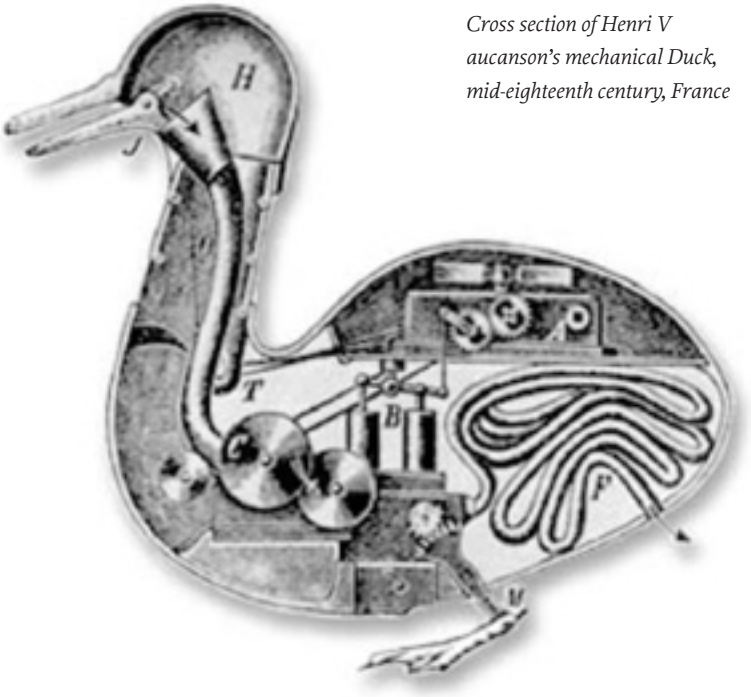
Excess of the Libidinal Machine

Considering the extended lineages of the clockwork metaphor of the heavens, and the ever-increasing grip of mechanical time-measuring devices on virtually all aspects of social life from the fourteenth century onwards, it is hardly surprising that this clockwork metaphor would eventually be extended to living systems as well: first to the bodies of animals, and later also to the bodies of men. The intimate fusion of body and technology, which can be observed as a persistent trend in contemporary medicine, bioengineering, the development of intelligent prostheses, biometric control systems, and of course in popular culture, is tightly linked to the idea that the body itself is some kind of (biochemical) machine. This idea has a long history in science and philosophy, which dates back at least to the mid-seventeenth century. It is also a controversial idea since it has fundamental repercussions for moral thought, theology and the self-conception of man. It became a popular idea in modern literature, art and film, and it still remains so for contemporary popular culture. In this text I want to explore some of the pertinent moral questions this conception has raised.

Origins of the Machine Body

The 'modern' idea to understand the human body as a machine originates from seventeenth-century Cartesian philosophy and corresponds exactly with the widespread acceptance of the picture of the universe as a giant (mechanical) clockwork. Nature in the Cartesian philosophy was thought of as a gigantic interconnected set of machinery. The immaterial soul is seen floating above this machinic nature as a non-physical principle that 'inhabits' and operates the machinery of the body. Animals were considered to be mere machines or automata, that is, machines that moved by themselves, but without souls.

That animals can indeed move by themselves and exhibit certain reactions to their environment is in no way contrary to the notion that they do not posses a soul or will of their own. For, as Descartes explains in his doctrine that became known as the *Bête Machine*:



Cross section of Henri V aucanson's mechanical Duck, mid-eighteenth century, France

> This will not appear in any way strange to those who, knowing how many different automata or moving machines the industry of man can devise, using only a very few pieces, by comparison with the great multitude of bones, muscles, nerves, arteries, veins and all other parts which are in the body of every animal, will consider this body as a machine.[1]

For Descartes, the advances in human and animal physiology of his time posed a problem. Extraordinary similarities were found between the human body and that of many animals. It appeared that physiology alone could not explain the real distinction between beasts and men, nor could it explain the special human faculties of language and reason that he cherished so much. Descartes, therefore, concluded 'that our soul is of a nature entirely independent of the body'.

La Mettrie

This exact conclusion would be rejected altogether some hundred years later by another radical and influential mechanicist thinker, the French philosopher Julien Offray de La Mettrie. La Mettrie was a trained physician and army-doctor. Philosophically, he was the first and most extreme representative of French Materialism. During his lifetime, he also became a deeply despised polemic, as well as a brilliant rhetorician, a famous conversationalist and exuberant bon-vivant. His portrait for the Royal Society of Sciences in Berlin depicts him loosely dressed with a huge mocking grin on his face. The painting filled his contemporaries with disdain, for anyone who had portrayed himself in such a fashion could not be anything but a thoroughly vile person.

One momentous event seems to have been crucial in shaping La Mettrie's convictions. During a campaign in the fall of 1744, he suffered from a severe attack of fever. The fever not only unsettled his entire body, but equally his mind. La Mettrie concluded from this experience that body and soul had to be one. Later he would write in his notorious

Portrait of Julien Offray de La Mettrie, at the Royal Academy of Sciences, Berlin, c. 1749

L'homme machine of 1748 that 'since all the faculties of the soul depend to such a degree on the proper organization of the brain and of the whole body, that apparently they are but this organization itself, the soul is clearly an enlightened machine'.[2]

La Mettrie denied the existence of an autonomous immaterial soul. The human body, like the bodies of animals, was a composition of mechanical systems in which movement was the central propelling force. The soul was not considered to be the cause of these movements, but rather its product. La Mettrie derived this conclusion from the fact that physiological experiments had shown how parts cut loose from the body could be made to move separately, for instance, through electrical stimulation. La Mettrie:

> The soul is therefore but an empty word, of which no one has any idea, and which an enlightened man should use only to signify the part in us that thinks. Given the least principle of motion, animated bodies will have all that is necessary for moving, feeling, thinking, repenting, or in a word for conducting themselves in the physical realm, and in the moral realm which depends upon it.[3]

Extending the Cartesian tradition in which animals were thought of as machines – also in the title of his polemic treatise, a deliberate pun on the Cartesian *Bête Machine* doctrine – the human being, for all its physical similarities to other animals, and the dependence of the soul on the functioning of the well-ordered body, should also be considered a machine. The specific faculties of man were but the mere result of the specific organization of the human machine.

The metaphor once again is the mechanical clock:

> Is more needed . . . to prove that man is but an animal, or a collection of springs which wind each other up, without being able to tell at what point in this human circle nature has begun? If these springs differ among themselves, these differences consist only in their position and strength, and never in their nature; wherefore the soul is but a principle of motion or a material and sensible part of the brain, which can be regarded, without fear of error, as the main-spring of the whole machine, having a visible influence on all the parts.[4]

Incidentally, the only 'innovation' that La Mettrie introduces here, aside from his controversial application of a purely mechanicist model to human functions previously attributed to an immaterial soul, is the use of the spring metaphor. Early mechanical clocks were operated by weights. The invention of the spring-driven mechanism propelled the development of mechanical clocks, and initiated their miniaturization and broad public adoption during La Mettrie's time.

La Mettrie then draws his inevitable conclusion: 'Let us then conclude boldly that man is a machine, and that in the whole universe there is but a single substance differently modified'.[5] Thus the mechanicist image of the human is connected to a strictly materialist view of nature, in which physical materials and their different modifications, are considered to be the exclusive substance of reality.

La Mettrie's book, published under a pseudonym while exiled in Leiden, provoked such an outrage that it required him to flee even the relatively liberal Netherlands. He soon found refuge, however, at the court of Frederic the Great in Berlin. The outrage was understandable. To legitimate their claims to power, the clerical orders, Christian dogmatism and morality, and the feudal power structures all relied on the divine order, which in turn relied on the principal separation of body and soul as the ultimate proof for the existence of god. But it was precisely this principal separation of body and soul that was fatally undermined by the ideas of La Mettrie. The Cartesian formula of the immaterial soul that resided inside and controlled the machine of the human body was a fairly arbitrary and unsustainable construction. La Mettrie's flamboyant and polemic character lead him to mercilessly tear this concept to shreds.

La Mettrie's Moral Philosophy

La Mettrie's contemplations did not stop at demonstrating the dependence of the mind on the physical organization of the body. In another polemic text entitled *Anti-Sénèque* (1750-1751), later published under the title *Discours sur le bonheur*, he developed a deliberately provocative and shocking set of ideas on moral questions. The work is primarily an anti-stoical tract and a complete rejection of Christian dogmatism. Throughout the text, as the historian of philosophy Ann Thompson writes, he opposes the Stoics' moral teachings by advocating:

'the enjoyment of pleasures and the rejection of all attempts to suppress man's physical instincts.'[6]

Man, according to La Mettrie, cannot but seek fulfilment in happiness. The sources of happiness are primarily physical and largely determined by the 'organization' of the body. Thomson comments:

> La Mettrie vehemently rejects the teaching of Seneca and the Christian Moralists, that only the virtuous man is happy and free from remorse, while the wicked and those who indulge in the pleasures of the flesh suffer pangs of conscience and ultimate misery; he points to the simple evidence that one can be a happy sinner. Similarly he shows, also in contradiction with the Stoics' teachings, that one can perfectly well be ignorant, or stupid, and happy. He gives a large number of examples gained from his medical experience, to show that happiness is organic and 'mechanical'.[7]

La Mettrie considers happiness as a condition of emotional wellbeing independent of any doctrine or religion, achieved simply by exploiting freely what is given by human nature. Nature's purpose is to make man happy, whereas an excessive subjection to cultural legislation can produce deep anguish. Morality attempts to regulate the instincts, but at the same time brings about all sorts of 'tensions in the machine' that obstruct man in attaining an automatic state of happiness (as with animals). These tensions are captured in the metaphor of a spring wound up too tightly. So much so that it can break up at any moment and destroy the mechanism of the soul. What disturbs this natural state of happiness is remorse. Thomson:

> Remorse is purely the result of prejudices inculcated in childhood, and arbitrary, religious standards of good and evil which force the individual to suppress his natural instincts and to condemn physical pleasure as inferior and even wicked. It is education in particular which conditions the individual to develop certain habitual forms of behaviour, as a kind of second nature, which are most often in conflict with man's natural tendencies. Man's original nature usually reasserts itself over education, but this second nature is often strong enough to result in remorse and much psychological suffering...

> Remorse is therefore the main object of La Mettrie's attack. For him it is both the chief means used by religious and political authorities to repress the individual, and a cause of much unnecessary psychological suffering. Repression by means of the inculcation of arbitrary standards and rules, combined with the fear of punishment if these rules are contravened, is the best way to keep in check man's natural instincts to seek his own happiness, generally in anti-social ways. Without these restraints there would be no authority, and society would crumble. For man is by nature anti-social and amoral. Indeed, in the state of nature there is no such thing as morality; for man is naturally determined to commit all sorts of 'crimes' and 'sins' which he sees as necessary for his own well-being. There are therefore no abstract ideal standards of good or evil, of just or unjust: such concepts are instituted by societies to ensure their survival, but have no meaning outside society.[8]

Interestingly, La Mettrie's attempt to construct a radical liberalization of the individual is combined with a highly conservative political ideology. He sees only a certain elite as fit to be elevated to his own standards of conduct. The masses would only be inclined to 'crime' and self-indulgence, which would surely bring about collapse. Therefore, he considers education and the church, entirely functionalized as political instruments without any metaphysical significance, to be highly effective means to control the mass of citizens, and thus integrate society.

La Mettrie's moral theory was equally shocking to the enlightened thinkers of his time as it was to Christian institutions. The moral maxim of 'enlightened' thinkers such as Voltaire and Rousseau: '*Do not* do upon others, what you would not have them do upon you', displayed their belief in the natural inclination of man and animal to do good. This inclination, in their view, was solely disturbed by society. They conceived of this principle as an inborn 'natural law', present in every animal and human being. La Mettrie, instead considers this to be the hypocritical nonsense of feeble thinkers shying away from the inevitable conclusions of their own ideas.

Although his ideas were scorned at the time, La Mettrie's 'medicalized' conception of human nature (the soul as the product of the organization of the biological body machine) created an extremely important

conceptual foundation for modern medicine and (medical) psychiatry. Simultaneously, they revealed some of the inherent paradoxes and inconsistencies in the aspirations to liberate humanity from repression and social inequality according to man's inner logic, conjured up by the fundamentally antisocial constitution of human nature, whose principal aim is the fulfilment of (bodily) pleasures.

A Sadean Twist

La Mettrie soon found an infamous admirer (ironically of noble blood) in the late eighteenth-century novelist and philosopher Donatien Alphonse François de Sade (1740-1814). His notorious works *Justine* and *Juliette* were, as claimed by de Sade himself, nothing less than a literary exposé of his understanding of La Mettrie's materialist philosophy, in particular, *L'homme machine*, which de Sade greatly admired.

For de Sade and La Mettrie, the moral disposition of man as an inborn natural law was too simplistic and unsustainable. In nature, there is no place for weary hopes of salvation, as the continuously raped and scorned Justine discovers. In the end, only death awaits her, as if by divine intervention (she is struck by lightning – it seems even the gods turned against her). Her sister Juliette, however, commits herself to an alliance with crime and the 'true corruption of nature', and she triumphs victoriously over her struggling sister Justine.[9] While we can recognize in Justine the deceived ideology of the enlightened thinkers who desperately tried to believe in man's natural inclination to do 'good', Juliette presents an idealized self-portrait of de Sade as a woman, as he had wished to be recognized in real life.

Juliette has been taught early in her life that there is only one basic principle of moral conduct: '*Do* upon others what you would not have them do upon you.'

One of de Sade's characters explains that crime and virtue are mere processes of nature, terms such as vice and virtue, crime and morality, are meaningless in a mechanicist universe. In de Sade's conception, there is no place for the rational benevolence that the Enlightenment philosophers had hoped to replace Christian morality with. As he explains in *Philosophy in the Boudoir*, in nature, rape and murder are innate acts for which there is no penalty. The inescapable conclusion, therefore, is that if nature is now considered the 'moral imperator', instead of

some social or religious code of conduct, it is absurd to consider murder and rape as crimes.

Libraries have been filled with contemplations on de Sade's works, his person, his poetic language and his philosophical and sociopolitical position. It strikes me as strange to consider de Sade as an 'outgrowth' of the Enlightenment. He is an aristocrat and adheres to a reactionary political ideology, even without metaphysical legitimization. He is to some extent a 'libertarian', in that he gives free range to indulgence in his own obsessions. But, like La Mettrie, he sees only a particular elite (aristocrats) fit to share in this passion. All others have either to obey or endure his obsessions. That quite clearly puts him and La Mettrie on an altogether different trajectory, one of radical hedonism and antisociality, which opposes more than adjoins the general positivism of Enlightenment thought. These traits link La Mettrie and de Sade more or less directly with those priests of the 'negative' that cultural history has come to call the 'historical avant-garde' about a century later.

Towards the Machine Woman

The liberally oriented bourgeoisie, who gained tremendous power with the rise of industrialization, eagerly embraced the materialist theories of La Mettrie and his followers. This materialist philosophy perfectly legitimated a liberal ideology that would enhance the technologization of human life on an unprecedented scale, via industrialization in the eighteenth and nineteenth centuries. As Andreas Huyssen has rightfully observed:

> This extreme materialist view, with its denial of emotion and subjectivity served politically to attack the legitimacy claims of feudal clericalism and the absolutist state. It was hoped that once the metaphysical instances, which church and state resorted to as devices of legitimizing their power, were revealed as fraud, they would become obsolete. At the same time, however, and despite their revolutionary implications such materialist theories ultimately lead to the notion of a blindly functioning world machine, a gigantic automaton, the origins and meaning of which were beyond human understanding. Consciousness and subjectivity were degraded to mere functions of a global mechanism. The determination of social life by metaphysical

> legitimations of power was replaced by the determination through laws of nature. The age of modern technology and its legitimatory apparatuses had begun.[10]

Huyssen highlights a striking aesthetic change at the turn of the century in the perception of the automaton, which he thinks reflects a feeling of technological domination. The attempts of 'literally hundreds of mechanics' during eighteenth-century Europe to create autonomously moving machines, animals and androids that were able to write, play harpsichord or the flute, and which became popular attractions at courts and in cities throughout Europe, captured the popular imagination and the spirit of the time. Two of the most famous watchmakers that specialized in the creation of mechanical animals and androids, Jacques de Vaucanson (1709-1782) and Pierre Jaquet-Droz (1721-1790), built mechanical machines of unprecedented complexity and ingenuity, widely admired to this day. Audiences marvelled at androids that, seemingly autonomously, could produce music or writing, but it seems that Vaucanson's mechanical duck captured the most attention as people thought to have witnessed the birth of a new mechanical form of life. The automation displayed a series of behaviour patterns typical of regular ducks, but also ate food, processed it into small balls, which it then excreted as duck-droppings – artificial life was born. Huyssen comments that these automata seemed to embody the realization of an age-old human dream, to create life by means of mechanical engineering.

A shift in public perception was to take place, however, towards the end of the eighteenth century. Huyssen:

> With the subsequent systematic introduction of laboring machines, which propelled the industrial revolution, the culture of androids declined. But it is precisely at that time, at the turn of the 18th to the 19th century, that literature appropriates the subject matter, transforming it significantly. The android is no longer seen as a testimony to the genius of mechanical invention; it rather becomes a nightmare, a threat to human life . . . It is not hard to see that this literary phenomenon reflects the increasing technologization of human nature and the human body which had reached a new stage in the early 19th century.[11]

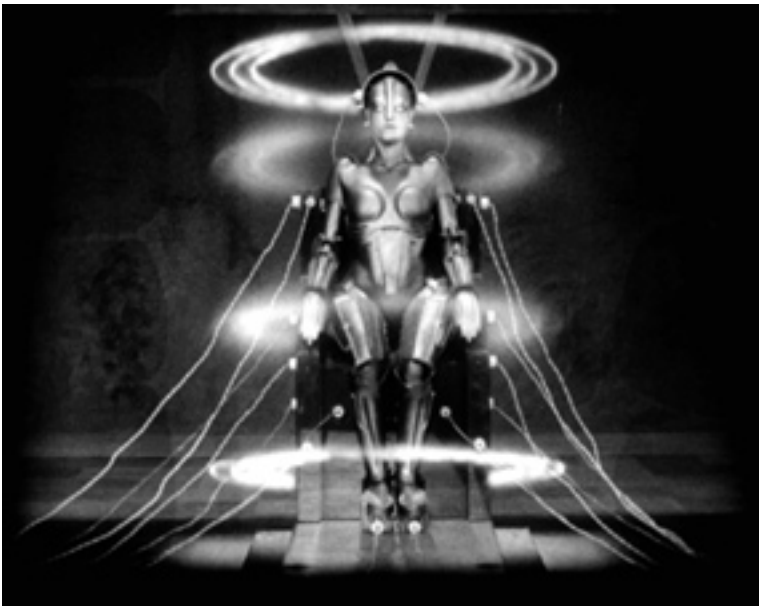
While the constructors of the androids of the eighteenth century did not seem to have a specific preference for either of the two sexes, nineteenth-century literature displayed a special penchant for the machine-woman. Huyssen:

> There are grounds to suspect that we are facing here a complex process of projection and displacement. The fears and perceptual anxieties emanating from ever more powerful machines are recast and reconstructed in terms of the male fear of female sexuality, reflecting, in the Freudian account, the male's castration anxiety. This projection was relatively easy to make; although woman had traditionally been seen as standing in a closer relationship to nature than man, nature itself, since the 18th century had come to be interpreted as a gigantic machine. Woman, nature, machine had become a mesh of significations which all had one thing in common: otherness; by their very existence they raised fears and threatened male authority and control.

But Huyssen's reading requires a slight correction. In fact, as discussed, nature had already been interpreted as a giant machine, as mechanical clockwork, much earlier than the eighteenth century. This vision was rooted in the image of a divine clock that gradually became transformed into a blind machinery, 'illuminated' first by god, then by man, and finally by nothing but darkness. The notion of a clockwork nature reached its full (Cartesian) articulation in the middle of the seventeenth century, and held its ground as a discursive system until vitalist explanations of nature started to take precedence over mechanicist conceptions during the nineteenth century.

The Ultimate Male Fantasy: The Daughter Born without a Mother

Huyssen made these historical comments as part of an analysis of Fritz Lang's Expressionist cinema classic *Metropolis* (1926), in his famous essay 'The Vamp and the Machine'. Here, Huyssen focuses his attention on the role of the woman-robot. The 'otherness' of woman is, according to him, represented in the film by two traditional images of femininity – the virgin and the vamp. Both images are defined in sexual terms as imaginary male (patriarchal) constructs. Huyssen typifies these



Creation of the Woman Robot, still from Fritz Lang's Metropolis, 1926

constructions as the *male gaze*. They are deeply ingrained in the social and psychological conventions, which have determined the image of women in society.

Metropolis projects a vision of a future machine-driven society in which a mass of workers is reduced to subservient parts of the mega-machine, working as pacified drones underground, while the elite enjoys the splendour of a magnificent city filled with parks and leisure grounds above the earth. The master of Metropolis, Frederson, controls the megamachine remotely from his office, much like the sovereign of the Leviathan machine.

Control and authority are always under threat, and one potent threat emanates from a saint-like worker woman who preaches to the subdued masses. Her message is not one of incitement to revolt but of the *reign of the heart* (affection, emotion, nurturing). This saint figure called Maria (what else!) prepares the ground for the film's heavily criticized ideological punch line: 'It is the heart that mediates between the

head and the hands.' This blurring of politics and emotion, still highly popular today, was the perfect formula for the slowly germinating National Socialist political movement in Germany. Apparently, Joseph Goebbles and Adolf Hitler, upon jointly seeing the film shortly after its release in 1926, decided that Fritz Lang should become the national filmmaker for the Nazi vision of Germany's future. And not long after the National Socialist Party swept into power, Goebbles summoned Lang to his offices to offer him this 'prestigious' post – upon which Lang left Germany to work in the USA. Goebbles' own claim to power through the 'art of political propaganda', based not on the excretions of the barrel of a gun, but on the ability to 'capture the heart of a people and to keep it', testifies to this principle, as Huyssen also points out in his influential essay.

In the film, Maria's reign of the heart poses a direct challenge to the rule of Frederson and the social structure of Metropolis based on strict discipline and the subservience of the worker class. Huyssen reflects:

> The result of Frederson's fear of femininity, of emotion and nurturing, is the male fantasy of the machine-woman who, in the film, embodies two age old patriarchal images of women which, again, are hooked up with two homologous views of technology. In the machine-woman, technology and woman appear as creations and/or cult objects of the male imagination. The myth of the dualistic nature of woman as either asexual virgin-mother or prostitute-vamp is projected onto technology, which appears as either neutral and obedient or as inherently threatening and out-of-control.

In the film, the machine-woman reflects both archetypical images of mythologized femininity. Frederson is seen visiting the robot-constructor Rotwang, who has been working on a secret project to create automated workers, androids to replace the menial tasks of human agents. Curiously, Rotwang – a perfect embodiment of the 'mad-scientist' figure of twentieth-century popular culture (Gyro Gearloose, Dr Emmett Brown from the *Back to the Future* blockbuster series, or Duran Duran from the cult classic *Barbarella*, to whom we shall return later) – has constructed a female robot. Frederson comes to check Rotwang's progress to find the machine-woman obeying every command as she/it

makes a kind of sensual catwalk appearance under the strict control of the mad inventor.

There is, however, also a significant ambiguity. With dramatic gestures, Rotwang explains that in the construction process of the woman-robot, *the daughter born without mother*, his hand had been shrivelled in an unspeakable accident. But, he exclaims, holding out his machine hand covered by a black glove: 'Is it too much to have lost a hand to create the workers of the future? The Machine Men!' As cultural critic Mark Dery has noted, this moment connects him perfectly with another archetypical 'mad scientist', Dr Strangelove from Stanley Kubrick's cinematic masterpiece; the old Nazi fanatic in his wheelchair controlling the USA's nuclear arms programme. Dr Strangelove is bothered by an uncontrollable right arm covered in exactly the same type of smooth black glove that Rotwang wears, like a fetish garment, which at times blocks the wheel of his chair, and at other times, incessantly brings out the Hitler salute.

Frederson and Rotwang are now faced with the problem of how to replace the human workers with robot workers. It is clear that they need to find a way to discredit the workers and they decide on a vile plan. The idea is to abduct Maria and apply her likeness to the robot, who can then be sent as an *agent provocateur* to the workers and incite them into revolt. Crushing this revolt will create the perfect pretext for replacing the human workers by robot workers and thus for introducing perfect control of the machines sustaining Metropolis. To test the believability of the transformed robot, she is brought to a 'gentleman's' club, where she performs an exciting oriental dance and striptease. She performs so well that sexual tension reverberates across the room and the 'gentlemen' in attendance lie at her feet – the scene ends with the gazing eyes of the men in close-up, literally Huyssen's 'male gaze'.

When the woman-robot is sent to the workers to seduce and stir them into rebellion, she is so convincing that she unleashes a self-destructive burst of libidinal energy on the part of the workers. In an absolute frenzy, they attack their machines of oppression, the underground Moloch machines that sustain the proper functioning of the city above the ground. In doing so, they also destroy the antiflooding systems that keep their own living quarters and locked-up families from drowning. Disaster ensues, while the woman-robot continues to incite her men to further debaucheries and revolt. She is hunted by the heroes of the

film and finally burnt on the stake as a witch, another archetypical embodiment of female sexuality and nature out of (male) control. The unleashed libidinal force of the machine, therefore, reverses authoritative power. Only by purging this threatening 'otherness' (through a cleansing fire) can the machine be brought back under (patriarchal) control. Huyssen:

> This view of the Vamp's sexuality posing a threat to male rule and control, which is inscribed in the film, corresponds precisely to the notion of technology running out-of-control and unleashing its destructive potential on humanity. After all the vamp of the film is a technological artefact upon which a specifically male view of destructive female sexuality has been projected.

According to Huyssen, the danger that an uncontrolled active female sexuality poses for the desire for unchallenged male authority originates from a fundamental ambiguity in the male perception of this threat. The sexually active female is perceived with a fatal mixture of fear and absolute fascination. Both feelings reinforce each other and trigger an autocatalytic process that ends in transgression: a destruction of accepted norms and patterns of behaviour, in favour of potentially destructive instincts. The same mixture of fear and fascination is similarly felt towards an unbridled expansion of the technological system. As a consequence of this specific affective mixture, a violent reaction is always immanent, and poses a particularly strong threat to the social and patriarchal order.

To underscore this point, Huyssen refers to a particularly poignant comment by the art collector and critic Eduard Fuchs on the painting *Allégorie sur la machine dévoureuse des hommes* by Jean Veber. For Huyssen, Fuchs' comments in 1906 apply equally well, even more rightfully so, to the film *Metropolis*:

> Woman is the symbol of that terrifying, secret power of the machine which rolls over everything that comes under its wheels, smashes that which gets caught in its cranks, shafts and belts, and destroys those who attempt to halt the turning of its wheels. And, vice versa, the machine, which coldly, cruelly and relentlessly sacrifices heca-

> tombs of men as if they were nothing, is the symbol of the man-strangling Minotaur-like nature of woman.

'A perfect summary of male mystifications of female sexuality as technology-out-of-control!' Huyssen adds.

Picabia: filles née sans mère

In the period 1915-1922, under the pressures of the First World War, one of the most remarkable collaborations of the early twentieth century was formed between Marcel Duchamp and Francis Picabia; two iconic artists, both living in voluntarily exile in New York to escape the horrors of war in Europe. During this period, Picabia produced his now famous, but often mocked and controversial series of machine paintings. A phase in his career that the American art-critic William Camfield has described as his 'mechanomorphic' period, which extended to 1928 when Duchamp and Picabia were again working and living in Paris.[12]

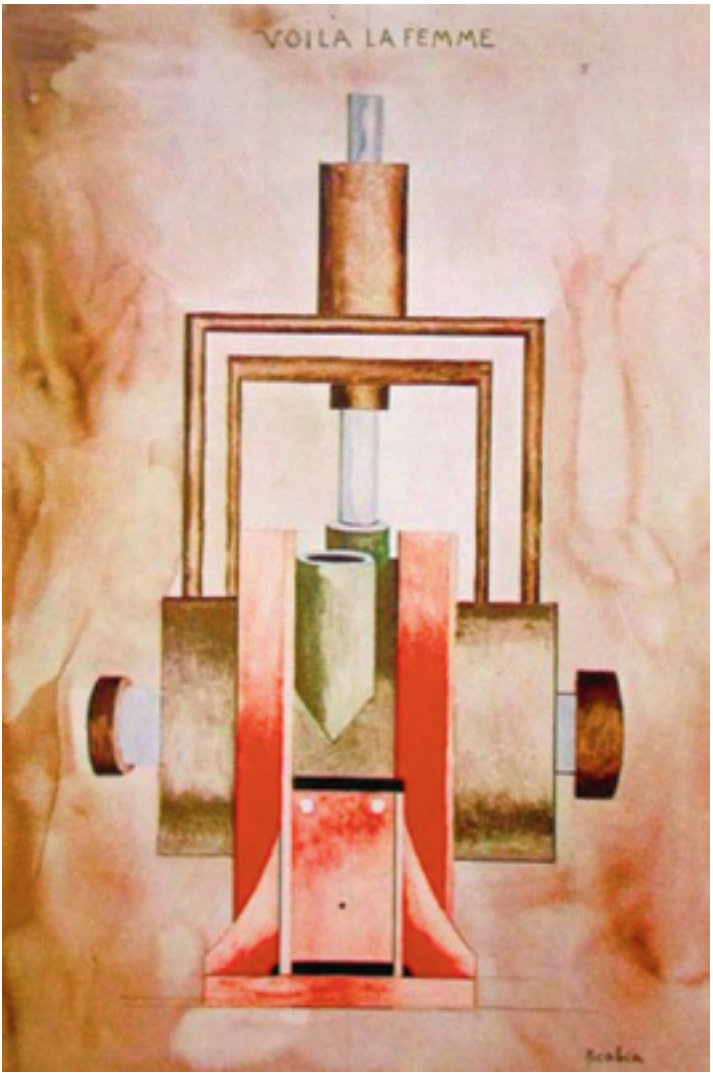
In the *New York Tribune* of 24 October 1915, Picabia wrote:

> I have been profoundly impressed by the vast mechanical development in America. The machine has become more than a mere adjunct of life. It is really a part of human life . . . perhaps the very soul. In seeking forms through which to interpret ideas or by which to expose human characteristics I have come at length upon the form which appears most brilliantly plastic and fraught with symbolism. I have enlisted the machinery of the modern world, and introduced it into my studio. Of course I have only begun to work out this newest stage of evolution. I don't know what possibilities may be in store. I mean simply to work on until I attain the pinnacle of mechanical symbolism.

Pontus-Hulten, who put together the monumental 1968 exhibition on the role of the machine in the avant-garde of the twentieth century for the Museum of Modern Art, 'The Machine as Seen at the end of the Mechanical Age', comments on Picabia's series of machine paintings:

> For Picabia, machines represented a new unsentimental, 'mechanical' kind of life that he tried to lead, free from any conventional restrictions or responsibilities. The idea that machines have no morals

was one that he found highly attractive. He uses his love of the machine as a platform for a pyrotechnic display of his attitude toward life – skeptical, ironical, hedonistic.[13]



Francis Picabia, Voila la femme, 1915

Throughout Picabia's work of this period, the woman constructed by man (*fille née san mere* – the 'daughter born without a mother') depicted as a machine, emerged as a recurring theme. Regarding one his earliest machine paintings from 1915, *Voilà la femme*, William Camfield observes:

> *Voilà la femme* . . . is a fanciful invention which . . . introduces Picabia's use of color with associative and symbolic properties. 'Woman' is presented as an upright apparatus resembling a mechanical drawing of some sort of pump or compressor. She is attractively tinted in red, green, blue, brown and black, and set afloat in brown fog which enhances her formidable presence as an icon-machine or machine-goddess. Although her nature and function are not explicit, sexual analogies are suggested by the center shaft, the two receptacles, and a color scheme which reserves the hot reds for what is literally portrayed at the bottom center of the machine as the 'door' to 'woman'.

Here again, in a slightly different guise, the machine-woman is framed through a patriarchal view of female nature as a device whose primary purpose is to invoke (male) desire and unleash libidinal energies. Moreover, Picabia does not depict these factories of desire according to a naturalistic portrayal of the female body. The ephemeral skin has been cut open and removed entirely to lay bare a bizarre production apparatus of erotic machinery. All subjectivity has been stripped from these machines, removed as irrelevant contrivance, cast aside as a bourgeois illusion. What remains is the biological mechanism, which is not eroticized as procreative, but operates to elicit desire, a desire that cannot be fulfilled – they are machines of impossible desire.

In her extensive monographic study on Picabia, Maria Lluïsa Borràs develops this theme further. She writes:

> Picabia's machines are not stupid toys or aesthetic designs; they are machines that respond to a law: This mental law, established by Picabia as from 1915, comprises two equal and equivalent ensembles: a sexual one (with its corresponding male and female elements) and another, mechanical one in which the two elements are opposed. In general the sexual act is not consummated, so that we would hardly

know whether to classify these as machines of pleasure or of torture. In Picabia's work the metaphor of the machine is an erotic smile, which excludes procreation and states man's absolute right to pleasure. Frustration constitutes the determinant structure of his machines, which are just as 'spinsterly' as Duchamp's, even though he may call them by such names as Daughter born without mother, the machine born out of man's brain and not destined for procreation.

Bachelor Machines

For literary theorist Michel Carrouges, these machine-woman hybrids are described as *Bachelor Machines* (*Machines Célibataires*), a concept that he traces through a variety of important literary sources:

> The Bachelor Machine is a fantastic image, that transforms love into a mechanism of death . . . Contrary to real machines and even contrary to imaginary but rational and useful machines (like the Nautilus of Jules Verne or science-fiction rockets) the bachelor machines appear to be impossible, useless, incomprehensible, insane. At times she is not discernible at all, in those cases where she is one with the surrounding landscape. The Bachelor Machine can therefore consist of only one peculiar, strange and unknown machine, or of an apparently useless arrangement of parts. It can unify a lightning rod, a clock, a bicycle, a train, a dynamo, and even a cat or any part of an object or its remains. It is of no importance. The Bachelor Machine is not connected with any purpose, like a machine that is subject to the physical laws of mechanics or the social demands of usefulness. The Bachelor Machine is a simulacrum, one encounters in a dream, in the theatre, in cinema or at the practice sites of Cosmonauts.[14]

The Bachelor Machine belongs to the realm of imaginary solutions, according to the *un*logic of pataphysics. It consists of a double system of complementary images. There are two domains: the sexual and the mechanical. The sexual is divided up into a male and a female principle, while the mechanical forms male and female elements in a complementary manner. The originating structure, however, derives from the sexual domain: the separation of the sexes is the foundation of the image and its meaning. Carrouges:

> For a better understanding we will turn to the simplest prototype of a Bachelor Machine. It can be found in the famous exclamation of Lautréamont: 'He is beautiful . . . like a accidental encounter of a sewing-machine and an umbrella on a dissection-table' (Comte de Lautréamont, Les Chants de Maldoror, Chant VI) In this seemingly peculiar situation the umbrella can be recognised as the male symbol, and the sewing-machine as the female. The dissection-table then remains as third. It appears to be conclusive, but in another sense. The dissection-table is neither a mechanical element, nor a sexual. It assumes the specific function that results from the double-system of Sex and Mechanics. Where the bed, love used to be, signifying unity and life, now enters the dissection-table in the specific function of the Bachelor Machine: as harbinger of solitude and death'.[15]

The Bride Stripped Bare

The art critic William Camfield has observed of Marcel Duchamp's *Large Glass* (*The Bride stripped Bare by her Bachelors, Even*) that this complex, enigmatic work can only be properly understood – decoded – by referring back to the extensive notes Duchamp wrote alongside the creation of this piece. It's various pictorial programmes were developed in a highly-concentrated process, dispersed over several years and through various techniques, including drawing, painting (most importantly the painting of the bride-machine, *La Mariée* of 1912, which precedes the *Large Glass* altogether), and later studies in the double glass technique that would give the work its nickname, where images are constructed by plastering lines and shapes between two plates of glass, as a result of which the image is always entirely visible from two sides, floating as it were in an 'in-between space'. Camfield:

> By correlating Duchamp's notes and the Big Glass it becomes evident that he has stripped the sexual act of all love, intimacy and delight by making its procedure preposterous and by frustrating its consummation. And this devaluation of love, devastating as it is, is only a piercing means to the larger comment that man is not a creature distinguished by powers of reason and love. Outwardly, man as represented by the malic molds, is determined by (and often judged by) his uniform or mold; inwardly he is activated by biological drives, which

Marcel Duchamp, The Bride Stripped Bare by her Bachelors Even (The Large Glass), 1915-1923

> function with the relentless rhythm of a machine, and taunted from above by woman, an erotic motor whose parts and their relationships are incommensurable. Duchamp perceived in machines not the beauty and logic that thrilled Léger, not the speed and power glorified by the Futurists; he dealt with animated mechanisms that operated without will, intelligence, or passion – mechanisms fraught with visual, functional, and psychological analogies to his view of life as a folly-ridden affair wanting meaningful communication on earth and knowledge of any final goal.[16]

In fact, the whole of the *Large Glass* may best be understood as one gigantic Bachelor Machine; more then merely imaginary, it is foremost an impossible machine, or at least it seemed to be at the time of its inception. Duchamp's machine is a sarcastic comment on the impossibility of human cross-gender relationships and their inability to satisfy the bourgeois demands of unity and love, continuously sabotaged by the libidinal mechanics of the biological machinery. Duchamp's own highly ambiguous relationship to women and sexuality seem to play an important role in defining this theme. He remained without a spouse for most of his life and only married quite late. With masterly mystification, however, Duchamp kept us in the dark as to whether he ever actually engaged in 'the act'.

The iconographic schema of the *Large Glass* is that of Assumption. The visual field is clearly separated in two domains: The upper is the Bride's Domain and the lower is the Bachelor's. They are fully separated, and belong to different worlds, yet they relate to each other. The use of this scheme was quite popular in various stages of art history to depict the moment of the Virgin Maria ascending to the heavens. She is usually shown standing on a cloud, while being observed with awe and admiration by the lowly earthly dwellers below tied down to the ground by gravity. Maria appears in the scene as a weightless and immaterial creature (after all, she can be carried by a cloud), visibly crossing over from the embodied domain of the living to the disembodied realms of the heavens. This scene was, for instance, highly popular with Italian Baroque artists like Titian and Annibale Caracci.

In the *Large Glass*, the bachelor apparatuses below are motivated, or driven, by the desire to transcend to the bride's domain, excited and

seduced by the bride-machine with her long tentacle that allows her to scratch the border of the bachelor's domain, attract their attention, and elicit their desire. Yet the bachelors can never reach her because the world they inhabit is three-dimensional and physical, whereas the bride inhabits an impenetrable four-dimensional temporal world. The bride that is visible in the work is, according to Duchamp's notes, 'a projection of the fourth dimension in the form of a three-dimensional geometrical section, which in turn has been reduced to the two dimensions of the glass'.[17] Thus the bachelor apparatuses, stripped from their outer uniforms (the *Malic Molds*) are driven endlessly to 'grind their chocolate' by the unfulfilled desire for the consummation of the sexual act with the bride they can never reach. They are *Perpetuum Masturbeas*. The cacao they produce is the love gasoline through which an intricate mechanism of alchemical sieves transcends from one dimension to another to fuel the bride-machine. She is a 'love machine running on love gasoline' as Duchamp writes, and she can only survive as long as she manages to elicit the bachelor's impossible desire so they continue producing their love gasoline. Thus, bachelors and bride belong to each other and depend on each other. They can, however, never reach unity and, therefore, the entire love machinery is destined to become Carrouges 'harbinger of solitude and death'.

In her excellent essay, 'The Language of Industry', Molly Nesbit observes how the stripping of the bride's skin and the bachelor's uniforms in the *Large Glass* is reflected in Duchamp's use of the visual language of engineering.[18] The machines unveiled by the flaying of the bride and bachelors are represented as if they are design schematics for the future construction of machines; abstract schemes of pure functionality. Nesbit contrasts this interior view with the atmospheric depiction of external appearances, which only probes the surface, remaining more intimately tied to sensuous experience. Duchamp uses the 'language of industry', the design schematics of productive machines – in this case, the machine's purpose is to produce 'impossible' desires. Nesbit also notices that Duchamp uses a specifically gendered visual language, coming from the almost exclusively male-dominated domain of industrial engineering. Desperate as it may be, the bride-machine seems the product of this specific patriarchal engineering project of the construction of daughters born without a mother, much like Picabia's machine-women.

The futile attempt of the patriarchal male mind at mechanical reproduction without (the need for) women, in order at long last to eradicate this excruciating otherness.

Long-Distance Sex

The Bachelor Machine emerged as an imaginary construction, a sarcastic mockery of the ineptitude of both Christian and bourgeois morality, as well as the excesses of an overly rationalized modern life and its inherent disregard for human and spiritual concerns. But in the age of ecstatic (tele)communication, pataphysic insanity has come to life. The Bachelor Machine has materialized in the enormous popularity of phone-sex 'services', through which the frustrated bachelor can converse with the object of his desire: the telematic bride. This bride is a being that exists only in the realm of electromagnetic waves, she is a phantasm performed by an invisible actor. She has ascended beyond the earthly realm to which the sexually frustrated bachelor is tied. The object of this desire, reaching unity with the bride, can therefore never be accomplished.

The tentacles of the telematic bride are the adverts with fake photographs for the phone services, the late-night adult commercials calling to *confide in me*. The love gasoline for the bride machine is delivered by the telephone bill of the bachelor operating his telematic apparatus, a device that will become increasingly refined through the prospects of virtual sex. In retrospect, Duchamp's ironic mockery of the bourgeois conceptions of romantic love offers the exact model for this contemporary Bachelor Machine to come into existence. True to the nature of this celibate machine, the whole process is completely frustrated. It produces nothing: no love, no life, no communion; only alienation, insanity, death and expensive telephone bills.

Barbarella: Duran Duran's Machine Erotique

One of the most famous and amusing Bachelor Machines can be found in the sci-fi cult classic *Barbarella*, the film that launched Jane Fonda to world fame overnight as a seductive space vamp. Directed by Roger Vadim and released in 1968, it was originally based on a popular French cartoon character developed for *V-Magazine* by Jean-Claude Forest (who was a famous science fiction cover artist at the time). In

1964, Paris-based *Le Terrain Vague* published the Barbarella cartoon as a book. The graphic novel became such a huge success that it was quickly translated into several other languages, including English. While the character already had some degree of popular fame when the film version was conceived, Vadim's cult hit movie gave Barbarella a lasting presence in popular culture. The 1984 video accompanying the hit single 'Put Yourself in My Place' by Australian soap-actress and singer Kylie Minogue, for instance, is just one example of the lasting presence of the movie. In the clip, Minogue re-enacts the famous opening scene of *Barbarella*, performing a slow weightless striptease inside the fluffy interior of her spaceship – only when the last garment is removed does she decide to switch artificial gravity on.

In the little narrative of the film, Barbarella is sent to a faraway planet to retrieve a scientist, Duran Duran, who has gone missing and is reportedly being kept in a dark underground city. When Barbarella arrives after various adventures, the city is revealed to be constructed on top of a psychoactive sea of lava that feeds on, amplifies and reinforces 'negative human energies'. Moreover, the scientist that Barbarella is supposed to rescue appears to be residing there quite happily of his own free will. In fact, he has used his time to construct a wonderful machine, a love-organ, or 'machine erotique'. Barbarella is plunged into this device when she first meets Duran Duran and he explains that when a special musical score is played on the organ, the machine will invoke intense bodily sensations. As he begins to play the musical piece, Barbarella responds that the sensations are actually quite pleasurable, to which Duran Duran asserts 'Yes at first!' But the purpose of the machine is truly devious. It is designed to conjure up continuous orgasms in the person captured by the machine – right up to the point when she or he is no longer able to sustain another climax. At this penultimate moment, the machine swallows and destroys the person inside. Here, the machine is a classic instance of Michel Carrouges 'machine célibataire', a harbinger of destruction and death.

Barbarella, however, miraculously survives this ordeal by going into perpetual orgasms. Duran Duran keeps on playing more and more intensely, but instead of destroying the captive, the machine itself becomes completely overheated and starts to emit steam at all ends, until it finally breaks down completely. It leaves a devastated Duran Duran

behind, who exclaims: 'What have you done? You've blown its fuses!! Have you no shame?!?'

Rise of the Cyborg

The cyborg, or cybernetic organism, has already been mentioned in previous sections. In social and critical theory, this figure has been given some consideration and familiarity through the work of the feminist theorist Donna Haraway and her 'Cyborg Manifesto'. In the discussion of the machine body/body machine, the cyborg should be given a special mention since it introduces a significant new dimension to the autonomous (anthropomorphic) machine. Androids and robots are strictly mechanical constructs, regardless of whether they were actually built, or existed purely in fictional form: the *Wizard of Oz*'s Tin Man, the machine-woman of *Metropolis*, the android writers and musicians of Pierre Jaquet-Droz, Karel Capek's Werstand's Universal Robots, and most robots in Stanislav Lem's and Isaac Asimov's robot mythologies, or the android Data in *Star Trek: The Next Generation*, they all are purely mechanical/electromechanical constructs.

The cyborg, however, consists of a fusion of (electro)mechanical parts and organic matter, even brain tissue. The cyborg made a particularly well-known fictional appearance as the Terminator, performed by Arnold Schwarzenegger, in the film directed by James Cameron, *The Terminator* (1984). Here we are to understand that a robot has been grafted with organic skin on a metallic skeleton in order to travel through time and operate relatively unnoticed in a historic society (Los Angeles in the mid 1980s). The cyborg is sent back to eliminate a future leader of the resistance in the coming war between humans and machines.

In 1987, Robocop made his first appearance in the movie of the same name directed by Paul Verhoeven. Robocop is a reconstructed policeman who was killed 'in the line of duty' in a dystopian future version of downtown Detroit. Parts of his face have been preserved but are now covered by a protective helmet. His brain has also survived, but has been thoroughly reprogrammed for new tasks – although it is implied that certain moral subroutines have carefully been left in place (valour, loyalty, and so on). Robocop is a more complete fusion of organism and machine, which forms a tightly interwoven whole, as opposed to the Terminator, who is only covered with an ephemeral organic skin. In the

movie *The Terminator*, the killer robot has to ritually shed his skin in a blaze of fire, so as to loose the last remnants of humanity, and reveal its true destructive purpose and identity (even though it ultimately fails to fulfil its task). In Robocop, the struggle between humanity and machine continues 'within'.

In the 1991 sequel to *The Terminator*, a new type of android is introduced. This is a case distinct from the rest – it is neither mechanical nor electromechanical as previous androids or robots, nor is it a combination of organic and machinic parts as other cyborgs. This model, the T-1000, consists of a kind of liquid metallic substance with strong morphomimetic qualities. It can assume the shape of anything it touches, whether a living organism or a lifeless object. Most organisms it touches are killed in the act of doing so. Again this is a killer machine sent from the future to alter the course of history. This morphomimetic machine that appears in the film primarily in the shape of an android is sometimes taken to be an expression of a fractured and multiple self, reminiscent of the many social roles that people have to play in complicated over-populated societies. The T-1000's ability to 'blend into the environment' and continuously take on new shapes (and thus perform different social roles) determines its fitness for survival and its killing efficiency.

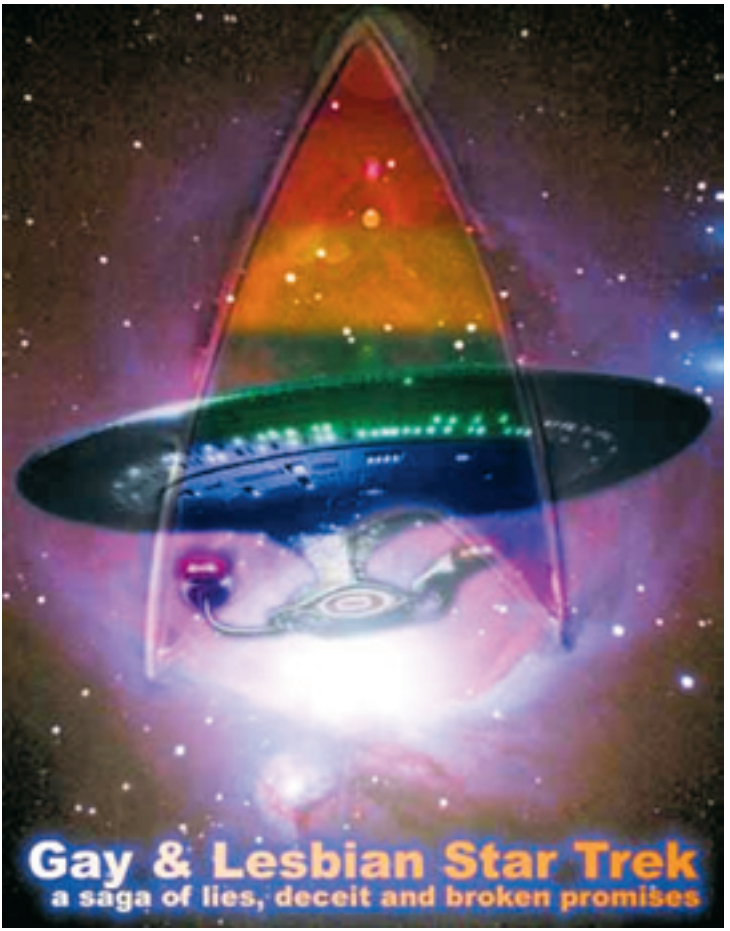
Birth of Locutus/'Slashing the Borg'

The image of the cyborg is often considered, in its fictional form, as an expression of ever-closer relationships between bodies and machines in technologically saturated societies. Partly under the pressure of expanding populations and, therefore, a growing complexity of the social body, the dependence on machines for biological survival – for maintaining social relations (communication), information gathering, filtering and retrieval – has been growing tremendously. When the Internet was popularized throughout the late 1980s and early '90s, various ideas of a distributed intelligence or consciousness started to emerge, at times described as 'collective intelligence' (Pierre Lévy), 'connective intelligence' (Derrick de Kerckhove), or as a kind of swarm intelligence (at first with Kevin Kelly and recently by Antonio Negri and Michael Hardt). Although several of these ideas stressed the increased knowledge sharing and collaborative production that might be enabled

by such 'connective' structures (attributes also envisioned by pioneers such as Ted Nelson and Tim-Berners Lee), these visions of a global interconnection of brains, bodies and machines were generally met with ambiguous feelings.

Again in *Star Trek: the Next Generation*, anxieties around collective hive minds and the fusion of biological organisms with electromechanical machinery was given expression through the frightening encounters of the Enterprise crew with an aggressive and imperialist meta-species known as 'The Borg'. In a double episode called 'Best of Both Worlds', the charismatic starship captain Jean-Luc Picard is abducted by the Borg and 'transformed' into one of their own species. This metamorphosis is achieved by injecting nanoprobes into the circulatory system of the entity to be 'assimilated' on a genetic and molecular level. The body is reconfigured so it will interface properly with the machine implants, communication interfaces and mind links of the Borg species and with the machine ships by which they travel.

Picard, however, is given a specific task. He is transformed into 'Locutus of Borg', the spokesman to announce to the human species that its days as an independent and autonomous species are numbered. 'From this time forward, you shall service us!' Locutus announces. The Borg, who stand to lose the battle in this double episode, will reappear time and again in the *Star Trek* saga, always introducing themselves with a similar 'welcome speech': 'We are the Borg. Existence, as you know it, is over. We will add your biological and technological distinctiveness to our own. Resistance is futile, you will be assimilated'. The Borg, travelling through space in their monstrous cubic spaceships, looking for new species and cultures to assimilate into their machinic empire, represent the ultimate embodiment of an intergalactic megamachine, in which human/organic components have been made completely subservient to the overall functioning of the machine. This truly universal empire is, so the narrative unveils through countless twists in the plot, remote controlled from a central node called *Unimatrix One* (much like Mumford's megamachine), which is placed under the control of a Borg Queen, the point of origin and the final destination of the Borg meta-species, once all other species have been assimilated into its collective.



Gay & Lesbian Star Trek, poster of the Star Trek Visibility Campaign, in conjunction with the Star Trek - The Next Generation TV series

Resistance is Fertile!

In a hilarious essay titled 'Slashing the Borg: Resistance is Fertile', New York cultural critic Mark Dery discusses a series of subcultural appropriations of the Borg theme, most notably in queer and gay cultural

outlets.[19] Dery discusses a variety of these appropriations in ironic comic-strip parodies. For instance, one comic portrays the cubic Borg spaceship, where its crew insert parts of their cybernetic bodies into the machine, as a giant darkroom – quite another space of interconnectivity, one that projects a highly ambiguous reading on the original narrative. Picard also figures prominently in these countercultural versions. In the original television series, the sexual preferences of Picard are quite unclear. He is not seen romancing women either on the ship or in the many exotic locations encountered on their boundless travels. Picard is not married, and it is only revealed much later in the 'next generation' saga that his origins are in France on Earth, where his family has run a wine production business for many generations. The absence of any distinctive sexual marks, in sharp contradistinction to the testosterone-rich captain of the original *Star Trek* series James T. Kirk, is discussed here as a possible sign that the character Picard is actually a closeted homosexual, who has yet to experience his final coming out.[20]

Needless to say, in the countercultural appropriation of the series, Picard more than makes up for James T. Kirk in non-heterosexual activity, but there is a more serious side to this story. Part of the intense appropriation of the *Star Trek* theme in gay and queer subculture is the complete absence of homosexual or lesbian characters in any of the *Star Trek* series that have been produced so far. If *Star Trek* displays a vision of the future of humanity in an era of space exploration, then this future has been thoroughly cleansed of any kind of non-heterosexual identities, or for that matter, of any type of subcultural activity or deviant opinions.

This rather appalling, homophobic and sordid state of affairs prompted gay and lesbian fans of the series, as well as gay and lesbian rights activists to start a number of *Star Trek* Visibility projects, addressing the absence of gay and lesbian characters in the series.[21] In particular, a continued discussion has emerged with the series' producer Gene Roddenberry, who from the second incarnation of the series (*The Next Generation*) in the mid 1980s has been promising the inclusion of gay and lesbian characters, as 'neither objects of pity nor melodramatic attention',[22] in the words of actor Leonard Nimoy who played the Vulcan science officer Spock in the original *Star Trek* series. A promise that as yet stands to be delivered.

Tetsuo – The Iron Man

The cyborg is also a central theme of the 1989 independent Japanese film *Tetsuo - The Iron Man* by director Shinya Tsukamoto (part of his 'regular-size monsters' series). Here, the fusion of the machine and the human body is portrayed through a disturbing mixture of obsessive surrealistic imagery, avant-garde film language, fragmentary storylines, motifs from science fiction and manga, sexual obsessions, all underscored by a hypnotic techno soundtrack.

The story is as equally bizarre as the style. An ordinary clerk and his girlfriend are terrorized by a metal fetishist that they have accidentally run over with their car. The fetishist, who is depicted violently inserting metal parts into his body during the opening scenes, infects the clerk with some kind of virus that causes machinery to grow and burst through his skin. After a ferocious confrontation that delivers no winner or loser, the clerk (who by that time has become more machine than human) and the metal fetishist decide to melt together. As a nightmarish two-headed cyborg monster, the duo set out to turn the whole world into metal, ironically called 'New World Order'.

There is a continuous ambiguity in the film's atmosphere. The penetration of the body by machine is met by the characters of the film with a confused mixture of fear and fascination, which is directly linked to aggressive eroticism. This uncertainty then drives the characters beyond themselves, a transgression through which technology and sexuality run completely out of control and inevitably lead to destruction, insanity and death.

The transformation of the organic body into metallic destructive machinery is reminiscent of the adoration of war by the Futurist spokesman Marinetti when he ecstatically exclaimed: 'War is beautiful because it initiates the dreamt-of metallisation of the human body.' William Gibson, author of *Neuromancer*, has commented on the film: '*Tetsuo* is primal 21st century cinema, a pure manga sensibility transferred to the screen with gorgeously deranged energy.'

In the final scene, all borders are transgressed: the two opponents, the metal fetishist and the infected office clerk, having fought off their mutual rejection in a furious battle, melt together in a final sensual embrace. They merge into a two-headed monster on wheels. This hybrid creature of machine parts, auto-motion, and the organic remains of two

men, fused in a delirious union, becomes the harbinger of full 'metallization'. Fitted with a double consciousness, both heads of the men appear from the body machine to state: 'Ah, I feel great!! Let's turn the entire world into metal!' and they ride off into the fading sun to establish their 'New World Order'.

The projection of these machinic metaphors onto the body is never articulated as neutral. It seems that when the heavens or even animal life is considered as mere machinery, there is a tendency to accept the mechanicist worldview. However, when that same conception reflects back on the human, it is met with immediate resistance. Especially when this mechanicist model begins to question the privileged status of human consciousness, or attempts to reduce that conception of the self to a specific organization of the brain. Moreover, there is something inherently violent that accompanies the image of the machine body/body machine. The anxieties of the uncontrollable machine within, and its implicit hyperviolence, is brought out most vigorously in the narratives of *Tetsuo* and *The Terminator* series. This violence of the body machine is linked this inextricably to the conduct of war and the calculated release of excessive violence.

War Machine

The Formation of the Modern War Machine and the Disciplined Machine Body

The formation of the modern war machine relies on the disciplining of the human body. And in the 'modern programme', that disciplined subject is inseparably related to the concept of the body as nothing but a machine. Human behaviour, thinking and feeling relies, in this view, on the proper organization of the body machine. Complete control of the disciplined body provides the best guarantee for turning individuals into effective instruments for strategic objectives.

Long before the intensive technologization of warfare, controlling and disciplining the body was understood as an essential technique for creating effective fighting collectives. A certain depersonalization of the individual is necessary to achieve this larger unity – a unity that Lewis Mumford has come to understand as the founding principle of the megamachine, and which he traces back to several ancient civilizations. In this 'abstract machine', technology is not the central connective element, but much rather language, protocols, systems of body-to-body control, procedures, census, surveillance, penalty and reward, bureaucratic administration, profiling, repetition, regimentation – in short, the superimposition of a non-material grid of control over corporeal experience.

In *Discipline and Punish*, Michel Foucault famously analysed this regimentation of the body in great detail. But so has Manuel De Landa, in his groundbreaking study on the emergence of autonomous fighting machines, especially on the importance of the drilled, depersonalized and regimented body for the efficient functioning of armies.[1] De Landa awards the dubious honour of recapturing largely forgotten Roman principles of disciplined warfare to the Dutch, particularly the extensive drilling and regimentation of soldiers into tightly controlled formations. These principles of martial organization, reinstated in the late sixteenth century, would not disappear from the subsequent conduct of warfare. In 1587, Prince Maurice of Nassau, at the tender age of 20, was appointed the military head of the newly founded Dutch Republic, then

immersed in a war of independence to free itself from Spanish rule (only achieved in 1648). The conflict revolved around a series of disputes concerning the privileges granted to an increasingly prosperous Dutch merchant class, and the local defiance over excessive taxation that resulted from Spain's continuous armed conflicts. Almost immediately after his military appointment, Maurice of Nassau began to 'refurbish Roman drill and disciplinary techniques to form composite masses into an integrated war machine'.[2] Before his leadership, the Dutch army had mostly consisted of a rather disorganized band of mercenaries, as was quite common in those times, complemented occasionally by troops supplied by temporary alliances with England, who were similarly immersed in a variety of trade-based conflicts with Spain. Systematic drill allowed any mass of men, or even entire populations, to start '*oscillating in a synchronised way*', allowing its 'constituents individuals' to acquire a 'natural esprit de corps', in the words of De Landa: 'This "team spirit" allows them to behave as if they were a single organism.'[3]

According to Mumford, the problem of assembling a disciplined and regimented esprit de corps first occurred when small groups of hunters, roughly made to accept and follow the commands of their leader, needed to control a mass of unorganized peasants. Out of the demands of such a task, the principles of military organization were established, gradually becoming a standard model for the organization of other domains of social life. Mumford: 'Through the army, in fact, the standard model of the megamachine was transmitted from culture to culture.'[4] However, as Mumford observes, it is not the disciplining of bodies alone that brought about the complex mechanisms of the megamachine – that is, the increasing sophistication of constructive tasks and systems of coercion. This more complex arrangement would require the invention of writing, as Mumford explains: 'This method of translating speech into graphic record not merely made it possible to transmit impulses and messages throughout the system, but to fix accountability when written orders were not carried out.'[5] Most importantly, the control of bodies is made subservient to a system of writing, a symbolic code that could, by means of fixing rules in abstract signs, enforce coercion, penalty and even annihilation upon subjected bodies. Writing additionally allowed for the handling of large numbers, larger and more complex than those that could be handled in oral exchange or

by recourse to natural memory. Unsurprisingly, the earliest written documents are most often records of stocks, payments made and payments due, taxes, and other quantitative files regarding peasant labourers.

It was also written language, more than anything else, that made the remote control of the megamachine possible. Mumford writes: 'The secret of mechanical control was to have a single mind with a well-defined aim at the head of the organization, and a method of passing on messages through a series of intermediate functionaries, until they reached the smallest unit.'[6] In this description, the character of military organization is clearly evident. However, the model of mechanical control was by no means to remain restricted to the war machine, or the army, alone. As discussed earlier, the regimentation of the social as a tightly drilled machine controlled at a distacne by a 'sovereign', crystallized in the Hobbesian vision of the Leviathan. This Leviathan machine appropriated the military mode of organization to install a new form of rationally organized power politics whose authoritarian objective was to control every aspect of social life, and make it subservient to the will of the sovereign. Significantly, the model employed by Hobbes for this vision is that of the mechanical (clockwork) machine. Here, his obsession with the art of androids is particularly fitting; mechanical men functioning according to a precisely defined programme.

In the introduction to his book *War Machine: The Rationalisation of Slaughter in the Modern Age*, historian Daniel Pick points out a fundamental dilemma implicit in the very design of the Leviathan. He notes how Sigmund Freud, in his essay of 1915 'Thoughts for the Times on War and Death', had noticed the irony that 'progressive' scientific advances produced ever more destructive technological capabilities. War, in Freud's time, was 'more bloody and more destructive than any war of other days, because of the enormously increased perfection of weapons of attack and defence', while military conduct remained 'at least as cruel, as implacable as any that preceded it'.[7] Pick:

> Technology changes; civilisation progresses, it seems; but primitive human aggression, the desire to inflict pitiless violence upon an enemy, apparently endures obstinately intact. The First World War confirms amongst other things for Freud the inexhaustible rage of the unconscious.[8]

Despite relentless disciplining and penalization, the libidinal nature of the human body machine appears inextinguishable, as Freud noticed. The more severe its suppression in discipline, the more devastating its physical emanations become in moments of violent transgression. Although, as Hobbes had already observed, this transgression could be used as a power principle (in war and military conduct, or in putting down eternally smouldering revolts), the relationship to these libidinal forces remained ambivalent. They were difficult to control, hard to guide remotely and continually transgressed the very symbolic orders that had conjured them up, if even only temporarily. Thus, the inextinguishable libidinal energies of the body machine proved to be unreliable for the sovereign's system of detached and deferred authority.

The reliance of the Leviathan machine (and its modern equivalents) on the libidinal body machine constituted a liability that eventually had to be eliminated. Perhaps consciously, but certainly subliminally, megamachine philosophers such as Thomas Hobbes and later Frederick the Great should have been dreaming about transforming their beloved androids into the technological army of the future. A perfectly administrated, pre-programmed and remotely controlled fighting machine, cleansed from any libidinal desires for transgression, pure functionality and efficiency, with absolute clarity of design and purpose. The android machine body and the mechanicist body both clearly pointed the way to the contemporary Terminator-like autonomous fighting machines.

Frederick the Great

The formation of the army as a 'war machine', both conceptually and materially through the coordination of human and mechanical elements, achieved its most explicit definition in the military doctrines of the German Emperor Frederick the Great during the middle and second half of the eighteenth century. Frederick the Great considered himself an enlightened monarch who gathered much of the European intellectual elite to his court in Berlin. At the same time, he was feared as a ruthless sovereign and military commander, organizing armies with iron discipline and an unprecedented tight drill. He thought of legions as clockwork mechanisms and organized them as such, rigid formations operating according to standardized procedures. The con-

ception of man as a machine assisted the legitimization of this disciplinary regime, with the individual soldier becoming a part of the overall war machine.

In *Discipline and Punish*, Michel Foucault also traces this formation back to Frederick the Great, and observes how it had become a general trend only a few years later:

> By the late eighteenth century, the soldier has become something that can be made; out of a formless clay, an inapt body, the machine required can be constructed; posture is gradually corrected, a calculated constraint runs slowly through each part of the body, mastering it, making it pliable, ready at all times, turning silently into the automatism of habit; in short, one has 'got rid of the peasant' and given him the 'air of a soldier' (ordinance of 20 March 1764).[9]

For Frederick the Great, the radical materialist theories of human nature as advanced by Julien Offray de La Mettrie were of supreme interest. When La Mettrie was forced to flee France and subsequently the Netherlands upon the publication of his treatise *L'Homme Machine* (1748), he quickly offered him asylum at his court and the Berlin Academy of Sciences. La Mettrie and Frederick the Great also soon discovered a more personal *entendu* – both army men understood each other's interests all too well. While admittedly remaining difficult to verify, anecdotes recount how La Mettrie, an exceptionally eloquent bon-vivant, quickly became Frederick's favourite guest at the dinner table. Until this time, the highly serious Voltaire occupied the seat of honour to the right of Frederick at the table. But the joyful presence of La Mettrie convinced him that La Mettrie should now take Voltaire's seat, who surrendered it mockingly. La Mettrie was also well known for his rather limitless indulgence. The precise cause of his untimely death in 1751 is still contested. There are two competing versions, both deeply invested in carnal pleasure that relay the same basic impression, however. According to one, La Mettrie choked on a chicken bone that got stuck in his throat as a result of his over-indulgence in devouring its 'former owner'. The other version recounts that La Mettrie fell ill after eating a spoiled pastry, apparently eating it too hastily to notice its decrepit quality.

La Mettrie's impetuous character in eating and feasting was certainly matched by his ruthless philosophizing and his incessant drive to polemicize. The radical assertion of 'Man the Machine' fit perfectly with Frederick's obsession with tightly controlled and disciplined armies. Understanding the soldier as a pure mechanism made it simpler to make his body subservient to the sovereign's (Frederick's) strategic imperatives. Furthermore, La Mettrie's contention that only a certain elite is sufficiently able to enjoy the freedom of instinct without regressing to an animalistic state – implying that the mass of the population should be strictly controlled to prevent this kind of 'automatic' regression – effectively neutralized any remaining moral concerns raised by the ruthless control and deployment of Frederick's clockwork armies. Indeed, they became the most efficient and destructive force in Europe at that time.

Foucault has also commented on this double function of La Mettrie's materialist philosophy:

> The great book of Man-the-Machine was written simultaneously on two registers; the anatomico-metaphysical register, of which Descartes wrote the first pages, and which the physicians and philosophers continued, and the technico-political register, which was constituted by a whole set of regulations and by empirical and calculated methods relating to the army, the school, and the hospital, for controlling or correcting the operations of the body. . . . La Mettries's 'L'Homme machine' is both a materialist reduction of the soul and a general theory of 'dressage', at the centre of which reigns the notion of 'docility', which joins the analysable body to the manipulable body. A body is docile that may be subjected, used, transformed and improved. The celebrated automata, on the other hand, were not only a way of illustrating an organism, they were also political puppets, small-scale models of power. Frederick II, the meticulous king of small machines, well-trained regiments and long exercises, was obsessed with them.[10]

Manuel De Landa, however, offers a set of surprisingly insightful and practical arguments for the emergence of this rigid clockwork-like type of military organization. He considers the primitive state of communication technology and the difficulties of relaying commands efficiently

across the battlefield as the primary incentive to adopt the clockwork model for the assembly of these armies. This model tends to suppress any form of individual initiative for the soldier, to enable the army to operate as a single and internally synchronized mechanism. Since relaying information in real-time was precluded by the primitive state of communication technology, the operations of the army had to be entirely pre-programmed, very much like the operations of a mechanical automaton. De Landa:

> A clockwork only transmits motion from an external source; it cannot produce any motion on its own. In the case of armies it is not so much their inability to produce motion that characterises them as 'clockwork armies', but their inability to produce new information, that is, to use data from an ongoing battle to take advantage of the fleeting tactical opportunities. In an era where rumour was the fastest method of communication, 250 miles per day compared to the 150 miles per day taken by courier relay systems, the tactical body favoured was the one with the least local initiative, that is, the one that demanded a minimum of internal information processing.[11]

This observation illustrates perfectly the military importance of sufficiently fast communication techniques and their profound influence on the organization of armies. As communication channels in the time of Frederick the Great were too inefficient and slow for real-time operations, a concerted display of force was needed for decisive victories, standardization, control and autonomous operation of the war machine on the macrolevel, independent of the will of the individual soldier, but as necessary components of the clockwork army.

The Rationalization of Slaughter

The complete functionalization of the human body as a machine, interfaced with actual machines and a mechanistic society, leads to a systemic division between the productive and unproductive, whereby the idle and deviant must be kept under constant and absolute control, secluded from productive life through incarceration, for instance, in prisons (criminals) or clinics (the insane). This is the most important lesson Foucault has taught us of the disciplined body.

The increasing mechanization of production necessitates the increasing rationalization of society. Society needs to be organized in a productive way, however, since war cannot be excluded from the fabric of even the most rational societies, it has to be argued that there has to be a productive rationale to war, that in some way the conduct of war should be understood as productive, rather than through a devastating or destructive principle. Indeed, Hobbes had already recognized that large-scale armed conflict was an inevitable side product of his Leviathan machine. This argument was by no means uncommon with nineteenth- and early-twentieth-century commentators of war. It also gave fuel to a political discourse that ultimately exploded in the disaster of the First World War.

Daniel Pick provides a clear example for this kind of reasoning by analysing a text of the American philosopher William James of 1910:

> One of the enduring themes across the 19th century war literature is that war constitutes in its essence a transcendence of all petty calculations and self-serving motives. Like art as understood in so much 19th century theory, war is not to be viewed as a means to an end, but as an end in itself. War it is suggested is capable of defining precisely what it is to be human, because it involves giving up the supreme 'self-interest', life itself. It is in that sense the prerogative of risking death which defines warring man as more than an animal. In this view, war is necessity not so much because the biological realm of 'nature' itself is red in tooth and claw, but because it captures the irreducible particularity of the human spirit. Set against such a philosophy which recognises the deep-defining function of war – its aesthetic, ethical and psychological purposes, its sheer human meaningfulness – James suggests that the conventional intellectual cupboard of the pacifist is bare. It cannot compete with the inspiring 'mystical' impulse manifest in militarist writing:
>
> James: 'War's "horrors" are a cheap price to pay for the rescue from the only alternative supposed, a world of clerks and teachers, of co-education and zoophily, of "consumers' leagues" and "associated charities", of industrialism unlimited, and feminism unabashed. No scorn, no hardness, no valour any more! Fie upon such a cattleyard of a planet!'[12]

To this one might want to add perhaps that *now is the winter of our discontent*, and James certainly did not wish *to caper nimbly in a lady's chamber, to the lascivious pleasing of a lute*. Is it not this predisposition that 'hates the idle pleasures' of the days of peace, and has no regard for such a 'weak piping time of peace'?

Clausewitz

One of the most important and influential nineteenth-century theorists of war was the Prussian officer and writer Carl von Clausewitz (1780-1831). His most famous essay 'On War' was published in 1832, one year after his death.

Clausewitz, an experienced military officer, hated abstractions since they served no purpose on the battlefield. He wanted to bring his direct experience to the theory of war on a general rational basis. For Clausewitz, war is predominantly born from the state: 'State Policy is the womb in which War is developed, in which its outlines lie hidden in a rudimentary state, like the qualities of living creatures in their germs.'[13] The Napoleonic wars had introduced a new standard of scale into the practice of warfare, that of a single unified and well-organized state, waging conflict against its neighbours, who for lack of such a grand scale integration of their forces, were more or less left defenceless. It followed for Clausewitz that war was subservient to a political motive, to a rational will that originates from the state.

The practice of war, then, should also be brought under the control of that rational will. But this prospect is far from unambiguous. The model of the machine, with the tight control of its actions and its pre-programmed, predictable behaviour, appealed to Clausewitz, but the significance of the model was double-edged and troubling. Pick comments:

> It is . . . around that same period that madness itself is powerfully conceived as an automatism, involving precisely the loss of reason. To be too much of an automaton is dangerous, but to give free rein to the imagination and the anarchy of feeling is also risky.

Once set in motion operating autonomously (not responsive to its changing environment), the army as organized machine could easily become not an instrument of control, but rather a nightmarish machine

out of control, especially due to the increased destructive power of weapon technology. Yet a reliance on the independent consciousness of the individual soldier leads to the increasing unreliability of the army as a whole, which in turn gives rise to conflicts, tensions and possibly the complete breakdown of the war machine. Clausewitz acknowledges that this problem cannot be uniformly resolved. Pick: 'Questions of friction, illness, madness, morals, fear and anarchy continuously need to be mastered by this war theorist, converted back into a manageable currency which enables decision-making.'

This rational organization of human life became paradigmatic with the rise of large-scale mechanization and industrialization during the nineteenth century. In the domestic sphere, it crystallized in the birth of 'scientific management' (Frederick Taylor), particularly in the USA during the early twentieth century. The complete standardization of these early forms of mechanized labour and production was famously embodied in the automated production lines of the Ford automobile factories, and immortalized by Henry Ford's infamous assertion: 'We have every conceivable colour as long as it's black.' Needless to say, the automated production line was quickly converted into the standard model of mass weapon and arms production. Both scientific management and advanced industrialism were soon carried to new heights under the pressures of ensuing warfare throughout the twentieth century.

The Pentheus Complex

The conflict of control over violence and the emergence of uncontrolled machineries of destruction culminated in the disaster of the First World War. Invariably, the fallacy of the megamachine's mode of military, social and political organization was not the frightening prospect of total control and subordination of the human subject inside the body of the machine. Instead, the essential weakness of the Leviathan and the war machine (two classic instances of Mumford's concept), was the inability to completely erase the libidinal nature of the constituent bodies. What the continuous breakdown of machinic operations illustrates is not a 'trial and error' feedback loop through which the megamachine continuously perfects its own operations. Quite the contrary, organizational instability is generated through the self-destructive libidinal forces that are called forth through its own formation. After all, the actions of

humans drive the machine and these behaviours are ultimately motivated by a desire to overcome an *essential lack* (in Lacanian terminology) – the persistent yet futile endeavour to resolve the rift between the emanations from the body and the illusory self-image that rules its experience. The strict regimentation of the body inside the megamachine amplifies these libidinal forces to violent excess, denying them immediate expression. When not being directed outward to an 'enemy' (in war), these forces can easily turn on the mechanisms of the oppressive machine itself.

While from the point of view of the sovereign controller of the Leviathan the destructive libidinal forces of the drilled war machine are beneficial when unbridled destruction is warranted (in times of war) and can be directed at an enemy – they become inherently threatening in the 'weak piping times of peace' and thus constitute a continuous challenge to authority and control. The sovereign who systematically denies the instinctual libidinal nature of his subjects stands to be torn apart by the destructive forces that are conjured up within himself through the megamachine.

Such futile attempts to subdue the libidinal forces through the authoritarian megamachine are what I would like to describe as the 'Pentheus Complex'. Pentheus, of course, is the protagonist of Euripides' tragedy *The Bacchae*, set in the imaginary kingdom of Thebes. Euripides (484 BC-406 BC) worked as a playwright in Athens, and during his later years in Macedonia in exile while Athens was in a continuous state of war with Sparta. Many of Euripides' plays, therefore, reflect on the nature of war and violent armed conflict. But where most of his earlier works are set against a historical background, *The Bacchae* is cast, deliberately, in an entirely imaginary one. This transfer allows Euripides to move away from the restrictions imposed by recording actual events and reflect on human instinct, hate, fear and violence.

In the introduction to his English edition of Euripides plays, the literary scholar and translator Philip Vellacott considers the experience of war and conflict that a contemporary reader may have, with those arising from the context in which Euripides produced his plays and an ancient audience would have viewed them. Vellacott:

> One experience which we have in common with that world is the suffering and the guilt of war . . . Another experience uniting us with

> Euripides' audience is the progressive loss of faith in any agency external to man himself which man might turn to, either for aid in confronting the dangers of life, or for guidance in solving moral problems . . . today's irrational search for credible sources of guidance suggests parallels with that addiction to imported religions which made *The Bacchae* a topical piece'.[14]

The main character of the play is Pentheus, King of Thebes, with the Dionysiac Cult being the principle theme. Dionysus, the god of wine and ecstasy, the instincts and the muses, enters Thebes to punish those unbelievers that defy him. Pentheus heads this group of sceptics, so he

Pentheus being slain by the Women of Thebe, engraving by Wilhelm Bauer (1600-1642), Nuremberg, 1670

shall receive the most severe punishment. Dionysus sends in a group of Oriental women, devotees of the god, who lead the women of Thebes on to the mountain Kitharion. There they worship the god by indulging in an unabashed enjoyment of sensual life. Pentheus, however, still refuses to accept the divine status of this new god, and orders him to be captured and put to death. When Dionysus is eventually captured, Pentheus throws chains around him, but at that very moment the earth appears to open beneath Dionysus and he is swallowed, only to reap-

pear a moment later, entirely free and unchained. Nothing is left for Pentheus but to acknowledge the might and power of this god. Pentheus is now forced to become a witness of the wild acts of the raging women on the mountain of Kitharion – the product of the very forces Pentheus wished to deny. The senseless women attack him, and in complete rage, they tear him to pieces. Even his own mother Agauë is involved in the 'crime' and she carries his head back to Thebes in a state of delusion. Only after having been brought back to reality by her father Cadmus does she realize the extent of Dionysus' revenge, and scorns Dionysus that such a deed is unworthy of a god.

Philip Vellacott characterizes the thematic significance of *The Bacchae* as follows:

> The play sets forth two opposite sides of man's nature. First there is the rational and civilized side, on which a large community like a city depends for its stability. Since Pentheus is a king, he is in Thebes the official representative of this side, which is concerned with law, the conventions of sex and property, the organizing of war. Then there is the instinctive side, which by its simplicity by-passes all the errors of rational man, enjoys the life of the senses without the ability or desire to analyze it, is vividly conscious of unity with the animal world, and contains within itself that potential of divinity and supernatural power which the Greeks always recognized in animals. Each side of man's nature tends to fear and despise the other; both may be manifested at different times in the same person or the same society. When the civilized grows arrogant and masterful, it is betrayed from within by the bestial, as Pentheus is betrayed by his own instinctive fear and violence.[15]

The origins of the Greek theatre are closely connected with the Dionysiac Cult, which entered ancient Greece from the East around the eighth century BC, originally stemming from Oriental religion. In Athens, the Dionysiac festival became extremely popular as a purely religious cult in which a ritualistic procession was held, full of Dionysian worshippers dressed in goatskins. The march led to the altar of Dionysus where ritualistic offerings took place. It is unclear if at first small children were offered during these rituals. Later mostly small

animals were sacrificed, actually torn apart in a rage similar to the one Euripides describes in *The Bacchae*. Following this ritual offering, the crowds indulged in an orgiastic celebration of the pleasures of the flesh. Thus, the Dionysiac cult stood in sharp contrast to the ordinary highly regimented and controlled social life in Greek society.

These processions and celebrations gradually became more and more popular and drew in many people, also from outside of Athens. The actions carried out became more stylized over time (and less violent) and were accompanied by extensive singing and codified dialogues between the priest and the chorus of worshippers. Only men took part in the ceremony. As the crowds began to increase, there was a need to build tribunes for the audience and raise the altar in order to make the ceremony visible. Out of this religious cult emerged the Dionysiac festival which in effect constituted the beginnings of Greek theatre, with stylized actions, music, singing, and eventually more and more complex dialogues, plays, tragedies as well as comedies written for and executed during these festivals to win grand jury prizes and social esteem for their writers. In the process, the priests where gradually replaced by actors and a chorus of singers.

Euripides wrote *The Bacchae* while in voluntary exile in Macedonia – Athens had been at war with Sparta for the entire period of his active life as a playwright, and this conflict would eventually lead to the complete defeat of the city-state only a few years after his death. In the play, Pentheus' revolt against Dionysus is foremost a revolt against his own animal instincts, against aggression, fear and the sexual drive. Man's inability to come to terms with these instincts leads to the construction of an ever more restrictive social order to regulate such impulses. But they cannot be easily suppressed; they build as a growing tension that leads to the violent transgression of the very social order constructed in order to contain them. Pentheus' revolt explodes in his face. He is literally torn to pieces by his own unwillingness to acknowledge the realities of his 'instinctual' nature. When organized in the form of tightly-controlled societies, the outlet for these tensions inevitably turns either to revolt or collective conflict. Where Euripides mainly reflected on the folly and consequences of war in his earlier pieces, *The Bacchae* – occasionally mocked as a 'mystic' play – actually explores the underlying mechanisms of this terrifying human tragedy. It could for that reason

be said to be his most relevant literary legacy for the investigation of contemporary conditions.

Elimination of the Body Machine

Modern and contemporary commanders of the war machine increasingly came to recognize the problems posed by the Pentheus Complex for the operation of their cherished machine, and discarded the rigid concept of clockwork armies. For them, the solution to these problems lies not in Mumford's dystopian vision of the complete and utter subjugation of the human body inside the megamachine. Quite the contrary, military strategic thinking and planning, and military research and development have all started to concentrate on the progressive removal of the human body from the battlefield. Automation, remote control and the construction of autonomous fighting machines are the principal deep-technological design scenarios that converge in the desired elimination of the unreliable human element from the loop of military planning, decision making, execution and (real-time) feedback. In a sense, the war machine needs to be purged from its libidinal contamination.

For the Leviathan machine, as with the war machine, the sovereign is confronted with a similar, but impossible choice: either to dissolve the machine before it devours him, which in effect means giving up his power, or conversely, to eliminate the libidinal body altogether from the machine. From this point of view, it has become clear that the construction of autonomous machines, operating independently and responsively to the environment yet under the strict remote control of the sovereign ruler, has become inevitable. Only complete automation of warfare will resolve the disparities of disciplined bodies and their libidinal drive for excess and transgression. While in the case of the Leviathan machine, broadly understood as the whole of society, this option does not exist (after all it would require replacing the entire population by obedient machines), the only alternative left to the contemporary sovereign is to rule the instincts themselves, and this approach is quite obviously evidenced in the birth of the 'Society of the Spectacle' – the rule by the fabrication of false desire. In the case of the war machine, the option of the complete elimination of the libidinal military body is, however, entirely feasible. Consequently, it has become

an important area of military research and development, as De Landa's study and many others have already shown.

There is, however, a second equally important reason why the classical form of the clockwork army as introduced by Frederick the Great has dissolved, one is determined by the development of military and weapons technology itself. The increasing sophistication of firearms in precision, range and impact, especially in the mid nineteenth century made the tight formations of the unitary clockwork army obsolete. Old style formations such as the Greek phalanx could easily be blasted to pieces by more powerful cannons that became progressively more precise over long distances. During the American Civil War, remote control by telegraph was for the first time introduced as the firing mechanism of these guns, thus freeing the weapon from line-of-sight command. New forms of distributed operation were required, and these were dependent on improved communication technologies on the battlefield.

Although the firepower and accuracy of gunnery continued to increase throughout the latter part of the nineteenth and early twentieth centuries, effective systems of real-time communication on the battlefield that made dispersed and distributed, but concerted operations of soldiers possible emerged only, as De Landa also notes, in the Second World War. This occurred after mobile radio transmission was introduced to the battlefield, which allowed army commanders to retain effective control over their fighting forces, adapt to local circumstances during the fight on their own initiative and report such changes back to central command instantly.

The disaster of the First World War showed how the old mechanicist models of pre-programmed warfare were hopelessly out of touch with the realities of precise and destructive projectiles. The result was unparalleled carnage, and ineffective trench warfare at unprecedented human cost. Besides provoking a sense of 'moral outrage', this feat introduced the strategic imperative of distributed operations coupled with real-time communication to the modern war machine.

These two movements, towards autonomous fighting machines under remote control, and towards distributed operations coupled with real-time communication, still dominate the military research and development agenda today. They are the basis of an unmatched expansion of the contemporary war machine.

Libidinal Machines/Imaginary Media

On Machines that Mediate Impossible Desires

Ambiguity can't be measured, like a change in temperature
Peter Blegvad

'*Marcel Duchamp – Artist of the Century!*' – for a moment, it is seductive to follow that bold claim. Of course, ultimately, I will not subscribe to it. After all, Duchamp, as much as anyone else, is a product of various social forces, the symbolic order and libidinal drives that he can neither escape nor control. He is, however, in many ways that pivotal figure around whom many of the important transformations in the arts of the twentieth century materialized. It would be proper then to consider Duchamp's works as reflections of larger patterns in a society in extreme flux, more specifically, in what Reyner Benham has called the 'first machine age'.[2] This is a period at the turn of the twentieth century when the grip of industrialization began to spread through virtually all domains of social life, where the scale of machines was incessantly reduced as they started to enter and permeate the domestic sphere (primarily in the form of household appliances and audiovisual reproduction technologies – gramophone, mass distributed photography, film). It was also a time when the tensions of a growing disparity between aristocratic rule in Europe and the expanse of a thoroughly mechanized society discharged in the destructive mechanical super spectacle of the 'Great War'.

In this first machine age, the permeation of society on both a macro and micro level by intensive mechanization made a particularly strong imprint on the experience of everyday life. A wide variety of artists and art movements of the early twentieth century reflected these dramatic changes in life and society in their artistic production. Duchamp's position was exceptional, however, in that he was able to transcend these immediate impressions, and award the culture of this first machine age the complex and often ambiguous reading it deserves. Such ambiguity derives itself, in part, from the specific mixture of fascination and fright that attaches itself to the machine as that 'big Other' that has suddenly materialized in front of us – most paradigmatically today in the form

of the language machine par excellence; the digital electronic computer. Duchamp's paradoxical readings of the machine are continuously bound up with psychological as well as sociopolitical entanglements that he is far too clever not to address, but he persistently refuses a definite or final position on any of the different stakes (psychological, political, aesthetic, iconographical, iconological) that can potentially be claimed. Irony is the perfect tactic of engagement for him, since it allows him to assume a multiplicity of contrary positions all at once without restricting himself to any one of them or to any singular 'final' reading. Duchamp is indeed a master at this game. The contradictions of possible positions float 'in the air', the tension they conjure up remains unresolved so as to heighten the sensitivity for the constituent elements that are part of the network of relations established through these works.

For the discussion at hand, it is useful to first briefly review some of the most crucial of these entanglements in Duchamp's body of works. They reveal the complex, yet by no means arbitrary, relational field that his works establish between the social, psychological and material conditions of that 'first machine age'. After this (far too short) consideration, I want to bring Duchamp's extraordinary significance to bear in the current discussion, our 'all too human' relationship with The Machine.

Before his abandonment of painting (his farewell to 'retinal art'), Duchamp picked up on the issue of *simultaneity*, the superimposition of multiple time exposures in one frame. The famous photographic pioneer Étienne-Jules Marey had experimented extensively with this method in the late nineteenth century, using multiple exposure photography to capture movement and flows over time in a single image. His technique had been picked up on by the painter Frantisek Kupka, and the technique also returns later in the Italian Futurist's technoaesthetics. Duchamp, however, created the iconic picture of this quasi-scientific yet highly aesthetic dismemberment of bodily movement, with his *Nude Descending a Staircase* (1912). The repetitive pattern of temporal fragments of a nude, hardly discernible were it not for the title, moving down a staircase and 'captured' looking from the side, radically disrupts the unity of time within the picture. Marey had done extensive motion studies with models in tight closed dark suits, where only joints and connecting lines were printed in white on the black suits. In multiple exposure photographic recordings completely abstract patterns of

movement emerged that fascinated Duchamp and many of his fellow travellers. This completely unsentimental objectified visual breakdown of the body in movement in time served perfectly to create a visual heresy against which Duchamp's circle of companions certainly saw as a hopelessly retarded bourgeois aesthetics. Taking up the ultra-bourgeois theme of the nude (art as the perfect excuse to look at undressed women's bodies – the playmates of the eighteenth and nineteenth centuries), and decomposing her into an abstract scientific visualization (with cubist overtones) in many ways foreshadowed Duchamp's mission to discover an entirely different language and set of concerns for artistic practice. This would become a quest both into a new conceptual terrain, as well as the final step towards the inescapable conclusion for Duchamp that he would have to abandon his artistic medium (painting) to give the apparatus in his art production centre stage. The technique of simultaneity as pioneered by Marey also figures distinctively as a pre-cinematic experience, a link between static imaging procedures and new visual technologies that enabled the capturing and reproduction of processes as they evolved over time. Duchamp's own experiments with mechanical art forms, such as his kinetic rotary disks and the abstract film created using similar disks fitted with spiral patterns and spiral sentences *Anemic Cinema* (1926), further exemplify the foregrounding of the apparatus over the 'content' of the work – an issue actually that still sets apart the domains of the so-called contemporary arts and the media arts.

Duchamp's famous notion of the 'readymade' – the absolutely standard, mass-produced, industrial-domestic object appropriated through an act of 'visual indifference' to an art context – questioned the border between the sanctified realm of 'high art' and the culture of mass produced objects. The latter, quite obviously, had a much more profound impact on the experience of everyday life for the mass of people in the industrialized societies. Duchamp's further experiments with the use of chance procedures, as exemplified in his famous *Stoppage* assemblages of 1913 and 1914, where he traced the shape of three standard-length sewing threads, dropped on a flat surface, fixed exactly as they fell, served to question the concept of the author in art production. In the 1914 picture, *Network of Stoppages*, he used the three standard stoppages three times to create a map-like image. The 'map' was then used to position the actors in the *Large Glass*, turning chance procedures into a

controlling element of art production, some 50 years before the famous criticisms of the 'author' by Roland Barthes and Michel Foucault.

Duchamp, furthermore, investigated ambiguities of gender at a very early date, for instance in the creation of his female alter ego Rrose Selavy, but more significantly in *Etant Donés* (1946-66), which prefigured feminist art practices and the critical scrutiny of gender issues in life and art. In *Etant Donés*, an installation piece, the remains of a highly dramatic yet disconcertingly unclear picture can only be witnessed through a peephole in a door that shuts the viewer out from the scene behind it. A body is stretched out in a landscape, largely disrobed – the body is, however, neither that of a man nor of a woman, one half appears male, the other female, but both remain quite indistinct. While the alter ego Rrose Selavy might still be understood as a simple transvestite or transgender play, *Etant Donés* addresses the far more complex issue of intersexuality. Here, Duchamp enters a highly contested area where definitions of gender and sexual identity are at stake in a very real sense. Intersexuality comes into play when an infant shortly after birth does not show definite marks of a particular sex, that is, when neither male nor female sexual organs have distinctively developed. The infant is then 'pushed' to one or the other gender, usually through hormonal injections. This medical treatment thus eradicates the gender ambiguity. Needless to say, the issue remains highly controversial even today. A regular problem that occurs in the later life of persons who underwent this treatment is that they begin to feel trapped in an entirely alien gender role or definition. Rather than transsexual, the identity of 'intersexual' quite often hovers ambiguously in-between the different gender definitions.

Etant Donés, like the *Large Glass*, is most of all a reflection of the subject's fundamental inability to come to terms with its own biology, the continuously fragmenting and alienating emanations of the apparatus within. However, in *Etant Donés*, the machine and the language of industry is gone, entirely erased from the visual surface, and we are left (as spectators) with the pure horror of some unspeakable trauma. In a brilliant final move, Duchamp manages to transcend the apparatus, which had served him so well before, both to mock the simplicities of the mechanicist conception of life, and to rid himself of an overly sentimental bourgeois aesthetic that denied the brutal realities of the

machine age (the mechanization of slaughter and destruction, the ecological devastation of large-scale industrialization, the congestion of over-expanded cities, and the subhuman conditions of the first wave of the industrial working class). *Etant Donés* opens up an entirely new field of psychological investigation that marks Duchamp's transition to an uncanny and deeply ambiguous subjectivity. Such a move beyond the machine (without ever forgetting its presence for a single moment) is something that our technologically saturated societies urgently require in order to develop a more sober and mature relation to its deep technological substructures.

Pealed Off, the Grand Ephemeral Skin, Underneath: The Machineries of Alienation Laid Bare

Most art critics interpret Duchamp's *Large Glass* primarily as an ironic commentary on the illusory constitution of unity between the subject and the Other through 'love' (exactly that which Lacan describes as the 'essential lack' that characterizes the impossibility of the subject's desire). A variety of other readings present themselves, however. For instance, Molly Nesbit points out that on the plane of visual language, the engineering models and drawing techniques deployed by Duchamp are by no means arbitrary. This 'language of industry' used to create an absurd machine of non-production constitutes a fundamental critique of the male-dominated practices of engineering (the infantile male desire to create 'daughters-without-mother'), and Nesbit's analysis opens this work (and with it many others) to a feminist reading that elucidates a particular discursive formation of engineering principles and their value systems (about human life and society) at the turn of the twentieth century, bringing it to a crisis.

I have already discussed the entirely astounding and deeply tragic pre-figuration of contemporary phone sex services in the *Large Glass's* enigmatic model of alienation. That such a transference from the pataphysic to the realm of electromechanical engineering (telecommunications) was at all possible would have been hard to predict or even imagine during the eight years that Duchamp was working on the piece, but it is exactly in this notion of an alienation machine that I think the most crucial reading of this complex model of human failure can be found.

It is time to expand our exploration of the libidinal mechanics addressed earlier by introducing a more strictly Lacanian reading of the *Large Glass*, identifying more closely the specific nature of this alienation machine. A surface-level reading is obvious: after the bride has been stripped off her skin and the bachelors have dropped their uniforms (the *Nine Malic Molds*), their biological machinery is laid bare. In the work, though impossible to understand for the bachelors and the bride themselves, the fundamental incommensurability of their respective apparatuses is revealed – this is the level of their irreducible otherness. The unveiling of the inner machineries is not so much a comment on the biological reproduction apparatus, which functions all too perfectly, but rather on that what remains as soon as the biological act has been completed. In the Lacanian conception, desire is the expression of an essential lack, a lack which results from the various unsuccessful attempts of the subject to construct an illusory unity of self out of the contradictory emanations of the body's internal apparatuses and drives. This continuous effort to construct unity is, in Lacan's understanding, based on an imaginary (and false) self-image derived from specular images received from an exteriority, in the infant's case, firstly through the reflection in the mirror and secondly the image of the mother. Throughout life, the subject attempts to create a coherent self-image on the basis of such exterior images. In their very exteriority, however, they necessarily become points of alienation as the subject tries to establish a false equivalence between this exteriority and its bodily emanations.

Conscious articulation of this alienation is possible only by means of a language or a symbolic system, which already exists anterior to the subject's birth or its primary self-conscious acts (Lacan's famous assertion that we are *born into language*). Thus, articulation becomes a site for an even more radical alienation, rather than a possibility to resolve the incongruity between self-image and the radically fragmented experience of the body itself. The desperate attempts of the subject to overcome this inherent divergence are constituted through an identification with the Other, a continuous search for confirmation in an exteriority that always threatens to become an even greater source of alienation (a multiplication of reciprocal disparity). Still, the subject is driven to seek this Other out of an instinctive biological need, and out of a desire for an impossible unity – a unity sanctified and codified by the 'big Other',

the order of language and the symbolic, baptized in the word 'love'. Love is here constituted in the subject's drive to find confirmation of its own desire in the (perceived) satisfaction of the desire of the Other, which is, of course, even more impregnable for the subject than its own desires and, therefore, illusory. The satisfaction of this desire can at best be partial.

One of the mechanisms that renders the subject capable of dealing with its impossible desires is fantasy; the fantasy of knowing and fulfilling the Other's desire. What remains for the subject is its own dissatisfaction, the feeling that there is a possibility to become more complete, to finally resolve the contradictory nature of its own sensations by integrating them into a new unity to which desire is directed. Fantasy then is the stage on which desire is enacted, the surface onto which desire is projected. Since desire is the surplus of the difference between the emanations of the body and prescriptions of the symbolic order (a social codex), desire is never entirely fulfilled. In a Lacanian understanding, desire exists only to desire and not to achieve its aim. This insatiable desire conjures up a tension that the subject tries to resolve by coupling basic instincts to an object of desire. The subject is in this sense 'driven' to resolve this tension, but since the equation of instinct and object of desire is false, also the drive never entirely achieves its aim and the subject continues to experience a lack, while tension again builds up. The purpose of the drive is not to be resolved, but to perpetuate the subject's motivation to desire and act. The trauma of the failed equation of drive and object of desire is covered up by fantasy, which enables the subject to deal with its own fundamental alienation (in essence, by displacement and denial).

When the subject falls out of its fantasy, and is essentially confronted with the real, which in itself is unknowable, an experiential void opens up, a pure negativity. The Drive, instead of acting as an animating force, now becomes a force of absolute alienation and self-destruction. Without any phantasmatic support, the subject's ability to deal with the real breaks down and the subject is driven towards self-elimination in a total fragmentation of the self ('madness') or suicide. Such an experience is most evident in the break-up of an established relationship with a (once) desired Other, onto which a illusory imaginary of unity had been projected. The moment of rupture in this imagined relationship opens

up an experiential void that most subjects fill with a new (imaginary) relationship before they plunge into madness and death, or with various forms of pathological dysfunctional behaviour.

However more indirect the relationship of the subject to the desired Other is constructed, as in the case of the bachelor machine where a mechanical equivalent has placed itself between the male and female principle, the greater the build up of this unresolved tension resulting from the frustration of insatiable desires will be, to the point where fantasy is no longer capable of accommodating and temporarily resolving (through displacement) these tensions. When this occurs, the 'machine' breaks down. This is also the danger of a progressive build up of the bachelor's alienation in the phone sex apparatus – it only offers a phantasmatic projection screen and false desire, but no (not even partial) displacement of the tensions the bachelor is driven to resolve. It can only lead to estrangement and death – a phone line into, rather than out of, the experiential void.

In Duchamp's paradigmatic model, all that remains hidden beneath social codices, and the illusory images of self and Other, is depicted as a hopeless machinery of frustration. The bachelors, driven to seek unity with the Other, desire the bride in the heavens. She is a phantasmatic construct of the bachelors' imagination onto which their impossible desire is projected. In a consummated relationship this projected desire would partly be satisfied in a temporary union, and be displaced by fantasy. The erotic tension then acts as a principle of animation, life, (illusory) unity, procreation, togetherness, bonding. In the case of the *Large Glass*, however we know that the bachelor and bride inhabit discontinuous and incommensurable domains – thus they constitute a radical otherness to each other, and yet they are both dependent on each other and on the production of the bachelor's desire in order to keep the machinery in motion. Hence the constant attempts of the bride to elicit her bachelors' desire. The bachelors displace their desire into fantasy and masturbation (the grinding of the chocolate in the central bachelor apparatus), similar to the user of the phone sex service, to the point where both cannot accommodate the tensions in the machine and the whole apparatus falls apart in an explosive breakdown. This is the point at which the machine has fulfilled its final prerequisite that Michel Carrouges identified, the harbinger of estrangement and death (in the case

of phone sex, the bachelor's suicide). This point of breakdown is also the moment at which the impossibility of fulfilling the subjects desire has to be acknowledged (what Lacan calls the impossibility of the total fulfilment of the *jouissance*), and the constructed nature of the subject's sexual identity is revealed. It can no longer cover up what is impossible to fulfil, and this has devastating consequences for the subject.

The second aspect that is absolutely crucial to Duchamp's paradigmatic model is that the relationship of the bachelors to the desired Other is entirely mediated, because of the dimensional shift between them. The mediation in the *Large Glass* is the transformation of the bachelor's ground chocolate into the love gasoline for the bride. This 'refinement' is achieved by filtering the bachelor's produce in a series of sieves that contain drainage slopes within them. The filtered produce is then transformed into a transdimensional substance through a series of alchemical and oculist procedures and mechanisms. Some of these imaginary media Duchamp never realized in the *Large Glass* itself, but he describes them at length in his notes. They also appear in various sketches and etchings of the work that Duchamp produced at various stages in his life, partly long after the 'completion' of the *Large Glass*. These imaginary, alchemical pataphysic apparatuses thus mediate an impossible relationship between the incommensurable bride and bachelors, they are compensation machines for a necessarily failed relationship. The point of these apparatuses is not to resolve, but to perpetuate this impossible relationship, whose ultimate destination, however, cannot be anything other than destruction and death.

Imaginary Media

Insofar as one can recognize in the *Large Glass* a compensatory apparatus for the displacement of frustration over the impossibility of establishing a communicative relationship with a radical Otherness, the work can also be seen as a crossing point into the domain of 'imaginary media'. The *Large Glass* introduces a 'magical', phantasmatic element that mediates an impossible relationship: the alchemical procedures that make the transdimensional shift of the love gasoline from the bachelors' to the bride's domain possible. Such a mediation of impossible relations and desires can be regarded as one of the most important defining characteristics of Imaginary Media.

Imaginary media were the topic of a previous extensive study, *The Archaeology of Imaginary Media*, resulting in a conference annex mini-festival, organized in De Balie – Centre for Culture and Politics in Amsterdam in 2004, and documented in an extensive website, and a Book/DVD of imaginary media, published in 2006.[3] I want to highlight some of the findings from this exploration that I think bear a particular significance for the discussions to follow in this book.

Our first objective in the project was to 'excavate' the imaginaries of mediation embedded within the structure of the apparatus or those exterior imaginations projected onto the actual apparatus that determined their formation. Secondly, to uncover the visions of imaginary communication devices that were never realized, sometimes because they are impossible machines.[4] It has been our observation in the project that the imaginary and the actual are continuously in dialogue, weaving in and out of each other through the development of media apparatuses. The concept of imaginary media foregrounds this fantastic dimension, the speculative media imaginings that are often discarded in the course of writing of media history, in order to better understand their performative role in technological culture.

Imaginary Media as Compensatory Apparatuses

The enormous success of the mobile phone is understandable from a contemporary point of view, a perspective coextensive in time with its introduction and wide-scale adoption in society. For example, the mobile phone enables people to keep in touch with loved ones, to be available to business clients while on the road, to receive and send basic text messages from any point on the globe in which a compatible network can be found, it can be used while travelling abroad, it is connected to a person rather than a place (home/office).

Yet from a different, slightly removed perspective, this success might seem strange or surprising. For instance, mobile phones do not offer companionship or any kind of genuine contact with other people. The 'bandwidth' of the signal is simply too limited – the sound is meagre (especially in busy environments) and connections are quite often unstable. Until recently, only voice connection was really reliable. Email interfaces are clumsy, even when taking Apple's recent touch interface into account. It might be possible from a distant perspective to still see

the practical value of this medium (it would be hard to deny this given the above), but its often excessive use (people talking endlessly, often discussing the intimate details of their private lives in public space) seems formidably strange, given the extremely limited communicative modalities of this medium.

It appears that the limitations of the medium in fact activate quite another dimension in the communicative process, a phantasmatic dimension that has more to do with what is imagined as being shared in the phone call, than what actually transfers. This phenomenon is already well known from early forms of online interaction in text-based single channel and multiuser environments. Here the exchange of thoughts, ideas, sensations and feelings through the extremely limited code of ASCII aroused great enthusiasm among early Internet users and generated intense social activity.[5] Emotional exchanges would easily become more intense than in most face to face encounters. Hate mail, flame wars and email love affairs are some of the common phenomena that characterized a great amount of social activity online in the text-only mode. Here again, the limitations of the medium stimulated the phantasmatic beyond proportion, and the relations between online imaginaries and real-life soon became a popular study object for psychologists and social scientists.

One aspect of this activity was relatively easy to distinguish. The limited modalities of social exchange in these technologically mediated environments stimulated the intensity of interaction because corrective feedback in the communication loop was almost entirely absent. In face-to-face conversation, body language, facial expression, subliminal perception of body odours and other forms of non-verbal communication indicate continuously how participants in a communicative process affect each other. As a social animal, most humans are predisposed to monitor these secondary signs intensively, and corrective feedback (disagreement, stress, anger, irritation, laughter) is immediate, redirecting the communication process as it unfolds. Since communication is never entirely real-time in most text-based environments (the chat-room being the closest approximation but still not entirely immediate), the screen starts to act less as a window upon the Other in a communicative exchange, and much more as a mirror of the subject itself. As Lacan has observed, the desire for the Other is motivated more by the desperation

over the subject's own failing attempt to articulate a coherent self, than the true understanding of that Other's needs. The phantasmatic support in the process of communication and interaction with the Other covers up the experiential void that results from the inherent failure of human communication. It is, therefore, the inherent limitations of the medium rather than its multimodality that empowers phantasmatic support in the communication with this desired Other. This explains why people who find it hard to interact in face-to-face encounters often feel more comfortable and confident in low-bandwidth communication environments. Furthermore, it explains why text-based newsgroups, mailing lists, discussion forums, SMS and voice-only communication remain so popular among a plethora of multimedia techniques.

Thus the low bandwidth medium as a compensatory apparatus can be regarded a direct product of this phantasmatic support that informs every modality of human communication. In the case of the mobile phone example, we can recognize this function most clearly in the incessant desire to verify physical position and current activities (which clearly have no bearing on the mediated conversation as such). The compensatory function is additionally revealed in the promotional strategies of countless advertisement campaigns for these wearable media that continuously allude to the establishment of contact over distance, multiplication of presence, or the initiation in desired social networks and lifestyles that are inaccessible for most consumers of the product. Mobile phone producer Samsung, for instance, launched a long-term worldwide marketing campaign entirely built on the empowering imaginative dimension of the medium, almost simultaneously with the publication of *The Book of Imaginary Media* (obviously unrelated events!). It struck me one morning when standing at a tram stop that I saw across the street a poster with nothing but a phone and the slogan 'Imagine the Power'. And this one word 'Imagine' has since become the central slogan of a massive worldwide campaign, still in operation.[6]

Imaginary Media as Transcendent Connection Machines

Imaginary media can become more than a mere compensation apparatus. They can function as machines of transcendence, operating in different directions: imaginary media can function as machines for the transcendence of the divide between the earthly and the divine.

They can function as communication media that transcend the divide between the living and the dead (the 'afterlife'). They can operate as machines to transcend the limitations of the human time frame. And finally, they can also be machines for the transcendence of collective alienation.

Heinrich Suso's *Horologium Sapientiae*, Wisdom's Watch upon the Hours, is in my view a classic model and one of the most beautifully elaborated imaginary media that aspires a transcendence between the earthly and the divine by means of a technological medium, the mechanical clock. As discussed earlier, the clock introduced what was at the time often perceived as a divine regularity to the erratic experience of daily life, in the late thirteenth and fourteenth centuries. For Suso, the mechanical clock communicated nothing less than divine wisdom to the erratic earthly dwellers, and this regular organization of the day, dissociated from the ever changing natural flow of life through a system of strict discipline and prayer, became the arrangement of biological, mechanical and spiritual parts that enabled mortals to establish divine communication, even before the afterlife.

Another example is inventor and industrialist Thomas Edison's well-documented obsession, in the later part of his career, with the construction of a 'scientific' apparatus that would enable the living to establish contact with the dead. Edison had become infatuated with the teachings of the psychic medium Madame Blavatsky, to whom he had been introduced by automobile manufacturer Henry Ford. These remarkable kinships illuminate the imaginary of transcendence into the afterlife by means of a technological apparatus firmly in the heart of modern industrialism. Edison's obsession with a radio receiving signals from the departed has by no means left the current technological imagination. Today, the highly active EVP movement (Electronic Voice Phenomena) testifies to the same belief system. Here, spiritualism and technological Research & Development enter into an unholy union.

American scientific and technological culture has, in the last twenty or so years, produced some truly remarkable projects of transcendence. At the annual gatherings of the American Transhumanists, a curious ritual occurs, ironically described as the 'coming out' of some of its members or attendees. This has nothing to do with one or the other sexually non-standard praxis. What the person actually testifies to publicly

is the fact that they have inscribed themselves for cryonic suspension – the freezing of the body upon the moment of its natural death. The most common motivation for this cryonic freeze is that the subscribers expect that in the future cures will be found, both for whatever illnesses they might have incurred during their life, as well as for reversing the effects of ageing. In effect, they await their future immortality. Insofar as this means that cryonic suspension is a medium for establishing contact and communication with future generations that could never be met within the span of a currently natural life, it can be regarded an imaginary medium that enables the transcendence of the rifts of time.

Along similar lines, the *Long Now Foundation* has set up a project and secured its funding, for a 10,000 year clock operated by natural energy (mostly differences in environmental temperature). The clock is being installed in a patch of desert land in Nevada, USA. Danny Hillis, the principal architect of the revolutionary parallel multiprocessor 'Connection Machine' supercomputer, created the foundation running this project. The *Long Now* is designed to create a different time consciousness and constitutes a sharp critique of the increasing orientation on real-time operation in the information society. The entirely physical machine is a communication device, which is to communicate 'existence' and temporal displacement to future generations in the coming 10,000 years. Hillis emphasizes that the *Long Now* clock is deliberately constructed as a contemporary mythological object; its aim is to enhance 'long-term thinking'.[7]

The most astonishing machine of transcendence identified so far comes from the domain of Afrofuturism and black science fiction. It is embodied in the Mothership narrative that exists simultaneously in black popular culture (famously in George Clinton's funk music collective the Mothership Connection), in black science fiction literature, but also in one of the most hermetic and militant black civil rights movements in the USA of the 1960s, the Black nation of Islam. In each of these cases, the Mothership (or *Motherwheel*) refers to a vibrant mythology of an invisible space ship circling the earth that will on the day of deluge rescue the black populations scattered around the globe and lead them out of Alien Nation to a prosperous new existence elsewhere in the universe, while unleashing Armageddon on those who are left behind. This grand mythological narrative obviously constitutes a deep

criticism of the displacement of black populations by colonialism and the impossibility of a return to the African 'motherland'. Flight into space is a recurrent motive in black popular culture and reflects the continued pains of colonial displacement. In the case of the Mothership, the narrative is built around the central figure of an all-powerful imaginary medium of collective transcendence, the maternal spaceship.[8]

Imaginary Media as Mythological Speech

Imaginary Media can also be deployed as mythological speech with a strategic objective. Roland Barthes has recognized this form of speech as a second order semiological system.[9] Mythological forms of speech tend to superimpose a second order signification on the mythological object that erases its initial first order signification – the meaning attached to the object before its strategic appropriation. The important point Barthes makes is that this second order signification denies its own constructed nature. Instead it presents itself as matter-of-fact, as a naturalized object, whose signification is neutral and as such unquestionable.

Myth, Barthes claims, is depoliticized speech. It depoliticizes its object through the naturalization of second order signification. This is not to say that the first order signification erased by the mythological superimposition is not a constructed sign in itself. The unmasking of the second order signification does not reveal the existence of a true or authentic meaning underneath. The mythological signification does, however, consciously deny its own constructedness in order to utilize a 'naturalized' status to convey a strategic message – *this is simply the way things are*. It often portrays its object as a product or force of 'nature', which can only be effectively constituted by erasing all other possible interpretations. Mythological speech is, in this sense, inherently authoritarian, and Barthes identifies its operations on both sides of the political spectrum. Myth is, moreover, violent speech: it closes off any form of critical discussion or deliberation.

Mythological speech pervades the discourses of technological culture. The mythological dimension can be felt most strongly in the adoption of biological metaphors to describe processes of technological change. Technological development is presented within this mythological image as a force of nature, an autonomous principle outside of control and unguided by any strategic objective. As Kevin Kelly, one of

the great masters of this form of mythological technospeak, exemplifies in the title of his book *Out of Control – The New Biology of Machines* (1994).[10] But we can also recognize this type of speech in the adoption of the *rhizome* metaphor in new media culture. Deleuze and Guattari originally proposed the notion of the rhizome as a reference to self-organizing processes (where agency is dispersed throughout the system). They present it as connective structure that permeates biological, social and technological systems, but primarily as an organizational principle in which the technological component is relatively less important than the biological and social dimensions of rhizomatic connection. In its adoption to new media culture, however, the rhizome metaphor came to represent the apparently self-organizing principles of the Internet, conveniently bypassing the complexity and versatility of the original Deleuzo-Guattarian conception. The biological metaphor can even be found in the radical political writings of Antonio Negri and Michael Hardt; for instance, in the use of the metaphor of 'Swarm Intelligence' in their recent book *Multitude* (2005) to discuss principles of social organization around dispersed systems of communication. This shortlist names but a few of the most prominent recent proponents of mythological technospeak that can be found on various ends of the technopolitical spectrum.

What these uses of biological metaphors share, despite their contrasting political ideologies and motivation, is the presentation of technological development as a 'natural fact'. This naturalization of the technological object places it outside of any strategic agenda, as if it appeared from out of nowhere, as if it needs no structural maintenance, as if there is no governance in the sphere of development itself. This suggestion serves a strategic objective: it positions technology as a dominant force of social change that considers its political dimension as a mere side product of its free and open appropriation by various social actors. To free market ideologists, this rhetorical move clears the road to completely deregulated markets, which can then be quickly transformed into tightly controlled oligarchic anti-markets (let's call this the Jeltsin/Berezovski model, but here on a global scale). To political activists, it offers an attractively transparent (albeit false) model of engagement that can simply bypass all the dreary and contradictory details of institutionalized politics.

Both perspectives cloud the considerable levels of public investment in the construction of the basic infrastructure, protocols, technological research and development that made the initial germination of the network of networks possible. They also conveniently bypass the immensely complex and highly sophisticated systems of international coordination, standardization and operational governance that guarantee the interoperability of communication networks in the first place, and without whom none of their generative effects in economy and society would be possible. Most dramatically, however, this depoliticized, naturalized and neutral view of technology, of new communication technologies in particular, disregards the exponential growth of surveillance systems and activities that the increased use of electronic communications has given rise to: the systems of profiling; of retroactive data analysis (store everything, check later); the meticulous construction by state and private entities of ever more refined and high-resolution scans of the 'DataBody' (the total collection of files that describe an individual's social existence). It is, therefore, not enough to call such mythological forms of speech naive. They appear to be driven by a strategic demand for simplicity that makes critical scrutiny extremely difficult.

In actuality, it is precisely this simplicity and matter-of-factness that makes such mythologies of technology so attractive. One of the more recent examples of such technomythology was the construction of 'the New Economy'. This narrative claimed that productivity in virtually all sectors of the economy could be kept on a steady rise by continuously narrowing the ratio between price and performance in information technology,[11] while simultaneously attaining near complete employment combined with low inflation. Such low inflation would be guaranteed by the fact that increased productivity would create an overall surplus in practically all sectors of the economy, allowing prices to stay low. This new principle, brought about through the continuous improvement of (information) technology would, in effect, neutralize the traditional cycle of economic growth and depression (brought about by the inevitable rise of labour costs). Technology, in the myth of the new economy, would create a contemporary 'horn of abundance'. It duped even the respectable authority of *The Economist* into declaring itself 'a sceptical believer' in the New Economy myth.

Unfortunately, the concept did not work out. It is easier, from our current point of view, to recognize the strategic interests of various state, corporate, NGO and militant left and rightwing political actors, behind the myths of new technology as a 'force of nature'. As some commentators have astutely observed, after the Nasdaq and telcom crashes of 2000 and 2001, the 'new' economy was quickly transformed into a 'war' economy. This correction was further amplified by the 'new Pearl Harbor' of the twenty-first century that the drafters of the *New American Century* pamphlet had long been preparing for. The liberal ideology of the 1990s network economy was quickly exchanged for a paranoid conception of a networked control society. The new grid of control is now hybridized and projected from the digital networks onto the physical domain, via wireless technology, ambient and pervasive computing, RFID and 'the Internet of Things', and distributed sensing technologies – it has made the question of agency in the 'network society' ever more ambiguous.

Notes

Archaeology

1 'On the Ways of Writing History', interview with Michel Foucault conducted by Robert Bellour, originally published in: *Les lettres françaises* 1187 (15-22 June 1967), 6-9. Taken here from: Michel Foucault, *Aesthetics, Method, and Epistemology*, (ed. James Faubion), *Essential works of Michel Foucault 1954 - 1984, Volume Two* (London: Penguin Books, 1998/2000), 279-295 (citation from page 290).
2 Ibid., 290.
3 Ibid.
4 Ibid. p.155-156.
5 World-Information City Bangalore, November 14 - 20, 2005.
See: http://world-information.org/wio/program/bangalore.
6 Michel Foucault, *The Archaeology of Knowledge*, London/New York: Routledge, 1989 - edition: 2003, p. 156.
7 This insistence of Foucault seems to suggest a reconstructed periodization that both spawned the emergence of 'new historicism' as a practice of literary criticism that extends the legacy of Foucault, but simultaneously branded him with the ambivalent label of being a historicist himself.
8 Foucault, 'On the Ways of Writing History', op. cit. (note 1), 290-291.
9 The debate on new historicism and new criticism (within literary theory) still seems controversial even today. A good introduction to this discussion is: H. Aram Veeser (ed.), *The New Historicism* (New York: Routledge, 1989).
10 Ibid., 293.
11 Foucault, *The Archaeology of Knowledge*, op. cit. (note 5), 192-193.
12 Ibid., 193.
13 Most notably in *Discipline and Punish* (Paris: Galimard, 1975).
14 Erkki Huhtamo, *From Kaleidoscomaniac to Cybernerd - Towards an Archeology of the Media, 1996*, See: www.debalie.nl/artikel.jsp?articleid=10104.
15 Siegfried Zielinski, *Media Archaeology*, cited from: www.ctheory.net/articles.aspx?id=42, 07-11-1996.
16 Ibid.
17 Ibid.
18 Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means* (Cambridge, MA: MIT Press, 2006), 5. Originally published as *Archäologie der Medien: Zur Tiefensicht des technischen Hörens und Sehen* (Hamburg: Rowohlt, 2002).
19 Ibid., 6.
20 Ibid., 7.
21 Foucault, 'On the Ways of Writing History', op. cit. (note 1), 289 - 290.
22 Zielinski, *Deep Time of the Media*, op. cit. (note 18), 27.
23 Ibid., 7.
24 Ibid., 33.
25 As Mumford's work is mostly out of print and rather hard to come by I have decided to cite his writing more extensively in this essay. It will also convey more of his unique 'voice'.
26 Lewis Mumford, *The Myth of the Machine – Technics and Human Development* (New York: Harcourt Brace Jovanovich, 1967). Cited here from: Robert C. Scharff and Val Dusek (eds.), *Philosophy of Technology – The Technological Condition: An Anthology* (Malden, MA: Blackwell Publishing, 2003), 345.
27 Ibid., 346.

28 Ibid., 348.
29 Ibid.
30 Ibid.
31 Ibid.
32 Ibid., 349.
33 Ibid., 349-350.
34 Lewis Mumford, *The Myth of the Machine, Volume 2: The Pentagon of Power* (London: Secker & Warburg, 1964), chapter 8: 'Progress as Science Fiction', 197-229, 'The Wheels of Progress', 197.
35 Ibid., 199-200.
36 Ibid., chapter. 8-2: 'Evolution and Retrogression', 207-208.
37 *The Economist*, 'A survey of the real-time economy: Always-on people', London, 2 February 2002, 9-10.
38 Lous Rosetto, Editorial for *Wired* Magazine 6.01, 'Change is Good', January 1998.
39 Mumford, *The Myth of the Machine*, op. cit. (note 34), chapter 8-2: 'Evolution and Retrogression', 209.
40 Ibid., chapter 8-7: 'Brave New World', 228-229.
41 See: Jean Baudrillard, *The Illusion of the End* (Palo Alto: Stanford University Press, 1994, orig. 1992).
42 For a reference to Lacan's most essential texts see: Jacques Lacan, *Écrits: A Selection* (London: Travistock/Routledge, 1977/1989), a selection from *Écrits* (Paris: Éditions du Seuil, 1966).
43 I must write this double name: machine body/body machine. It signals the crossprojection of the machinic and the corporeal onto each other. Only this double image can sufficiently explain the complexity of significations that accompanies its various cultural assimilations.
44 Peter Hammill, 'Evidently Goldfish' - opening track of the album *Out of Water*, Enigma Records, 1990.
45 Donna Haraway, 'A Cyborg Manifesto: Science, Technology and Socialist Feminism in the Late Twentieth Century', in: *Simians, Cyborgs and Women – The Reinvention of Nature* (London: Free Association Books,1991, orig. 1985).
46 Matthew Fuller's recent book; *Media Ecologies - Materialist Energies in Art and Technoculture* (Cambridge, MA: MIT Press, 2005) is a brave attempt to tackle this problem. Adopting an explicitly ecological view of technoculture that indicates 'the massive and dynamic interrelation of processes and objects, beings and things, patterns and matter', as Fuller puts it, he emphasizes the need to carry out and study the actual interactions of media systems (in practice) to acquire a proper understanding of them.
47 See his essay 'Media Archaeology', 1996.
48 Manuel De Landa, *War in the Age of Intelligent Machines* (New York: Zone Books/MIT Press, 1991).
49 One of the interesting transformations that De Landa employs is that he adopts the perspective of a non-human robot-historian, tracing the lineages of its own species.

Cosmic Machine

1 Jan Bialostocki, *Propyläen Kunstgeschichte, Band 7: Spätmittelalter und beginnende Neuzeit* (Berlin: Prophyläen Verlag, 1972), 69.
2 For an extensive discussion of these new social relations and their role in Italian Renaissance art see: Bram Kempers, *Painting, Power and Patronage: The Rise of the Professional Artist in Renaissance Italy* (London: Allen Lane the Penguin Press, 1992).
3 Ernst H. Gombrich, *The Image and the Eye: Further Studies in the Psychology of Pictorial Representation – Standards of Truth* (Oxford: Phaidon Press, 1982/1986), 256-257. Gombrich spends a major part of this essay on a final settlement of his dispute with Nelson Goodman and other critics of the conventionality of perspective by offering the principle of the negative standard of truth, which stipulates that anything that is not visible from a given point of view is left out of the corresponding image constructed according to the principles of linear perspective. Although the eye and the head of the observer in real life do always move relative to their object of perception, nonetheless, this negative standard of truth does offer a correct measure of what is visible from a given point of view at a given moment. Goodman, on the other hand, would claim that it is exactly these unnatural conditions of observation that have nothing in common with regular conditions of visual perception that turn linear perspec-

tive into a reductive cultural convention for organizing the visual field, and nothing more.
4 Hugh Honour and John Flemming, *A World History of Art* (London: Macmillan Publishers, 1982), 318.
5 Michael Levey, *Early Renaissance Art* (London: Penguin/Harmondsworth, 1977), 128.
6 Ibid., 121.
7 L.W. Cole, *The 17th Century in Europe - Science and Thought* (London, 1960), 79.
8 Anthony J. Turner, *The Clockwork of the Heavens Exhibition of Astronomical Clocks, Watches and Scientific Instruments* (London: Asprey, 1973), 10.
9 Ibid., 'Islam and the West', 11-12.
10 Ibid., 'Islam and the West', 15-16.
11 For a discussion of this idea see: Friederich Cramer, *Der Zeitbaum – Grundlegung einer allgemeinen Zeittheorie* (Frankfurt am Main: Insel Verlag, 1993).
12 Lewis Mumford, 'The De-Natured Environment', in: *The Myth of the Machine Volume II – The Pentagon of Power* (London: Secker and Warburg, 1964), 53.
13 Ibid., 53.
14 Galileo Galilei, *The Assayer* (Rome, October 1623), cited here from Ibid., 52.
15 Mumford, 'The De-Natured Environment', op. cit. (note 12), 55.
16 Ibid., 62. In fact we see here a classic example of the incommensurability of certain language games – the principle that two language games (*discursive formations*?) are untranslatable into each other because they lack a common standard of judgment or measurement. As in Foucault's nightmare, the true meaning of Galileo's words escapes us because they are literally spoken in another universe.
17 Turner, *The Clockwork of the Heavens*, op. cit. (note 8), 25-26.
18 Cited here from: René Descartes, *Discourse on Method* (Middlesex: Penguin Books, 1968), 78. (Original: *Discours de la metode*, 1637).
19 Cole, *The 17th Century in Europe*, op. cit. (note 7), 89.
20 Lewis Mumford, 'The Mechanized World Picture', in: *The Myth of the Machine Volume II – The Pentagon of Power* (London: Secker and Warburg, 1964), 51.

Time Machine

1 The term *modernity* has been the object of much discussion (Can it be defined as an epoch, where does it begin, where does it end?). For a general discussion see: Jürgen Habermas, *Modernity – An Incomplete Project*, in: Hal Foster, *The Anti-Aesthetic* (Seattle: Bay Press, 1983).
2 Lewis Mumford, *Technics and Civilization* (New York: Harcourt Brace Jovanovich, 1934/1963), 10.
3 Ibid., 12.
4 Ibid., 13.
5 Ibid., 13-14.
6 See: Douwe Draaisma, *Het verborgen raderwerk - Over tijd, machines en bewustzijn* (Baarn: Ambo, 1990).
7 Ibid., 23-24.
8 Ibid., 25.
9 Ibid., 30-31.
10 Ibid., 48.
11 Ibid., 36.
12 Ibid., 41-42.
13 Lewis Mumford, *The Myth of the Machine, Volume II – The Pentagon of Power* (London: Secker & Warburg, 1964), 99.
14 Ibid., 100.
15 Ibid. 100.
16 Draaisma, *Het verborgen raderwerk*, op. cit. (note 6), 59.
17 I have already referred in the introduction to this section to an insightful survey of this phenomenon published in *The Economist* in 2002. See: *The Economist*, 'A survey of the real-time economy: Always-on people, London, 2 February 2002.

18 A short introduction and a series of references to on-line resources and publications on precarity can be found at the following Wikipedia page: http://en.wikipedia.org/wiki/Precarity.
19 Ether: *An element once thought to fill all space beyond the sphere of the moon & to constitute the substances of the stars & planets.* From Peter Blegvad's *Leviathan: A visit to the science museum.* See: www.leviathan.co.uk/science/science01.html.
20 Alfred Jarry, *Gestes et opinions du docteur Faustroll pataphysicien*, comments from the Dutch translation (Amsterdam: Perdu, 1994), introduction by Pieter de Nijs, 9-19.
21 Standish D. Lawder, *The Cubist Cinema* (New York: N.Y. University Press, 1975), 165.
22 Ibid., 167, citation from Léger's notes on *Ballet Mécanique.*
23 Ibid., 67.

Body Machine/Machine Body

1 Descartes, *Discourse on the Method* (1637), 73.
2 J.O. de La Mettrie, *Man a Machine* (La Salle: Open Court Publishers, 1912), 128.
3 Ibid., 128.
4 Ibid., 135.
5 Ibid., 148.
6 For an elaborate discussion see: Ann Thomson, *Materialism and Society in the Mid Eighteenth Century – La Mettrie's discours preliminaire* (Geneva/Paris: Libraire Droz, 1981), chapter III & VIII.
7 Ibid.
8 Ibid.
9 For a discussion see: Donald Thomas, *The Marquis de Sade* (London: Allison & Busby, 1992).
10 Andreas Huyssen, 'The Vamp and the Machine: Fritz Lang's Metropolis', in: *After the Great Divide* (London: Macmillan Press, 1986), 65-81.
11 Ibid., 70.
12 Similar to Fernand Léger's paintings of roughly the same period, but notably, Léger's paintings were directly inspired by his war-time experiences at the front.
13 K.G. Pontus-Hulten, *The Machine as Seen at the End of the Mechanical Age* (New York: Museum of Modern Art, 1969).
14 Harald Szeemann and Jean Clair, *Junggesellenmaschinen/Les Machines Célibataires* (Venice: Alfieri Edizioni, 1975), 21.
15 Ibid., 22.
16 William A. Camfield, 'The Machinist Style of Francis Picabia', *Art Bulletin XLVIII*, New York, 1966, 309-322.
17 Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* (Princeton: Princeton University Press, 1983), 155.
18 M. Nesbit, 'The Language of Industry', in: T. De Duve (ed.), *The Definitively Unfinished Marcel Duchamp* (Cambridge, MA: MIT Press, 1991), 351-385.
19 I first encountered this essay on the nettime mailing list, but it can also be found on Mark Dery's Pyrotechnic Insanitarium website, at: www.levity.com/markdery/borg.html.
20 When Picard finally did enter into a romantic affair with a female in one of the last and worst film versions of the *Next Generation* saga (*Insurrection*), there was widespread dismay in gay and lesbian circles.
21 A good introduction to all these discussions can be found here: www.webpan.com/dsinclair/trek.html.
22 Leonard Nimoy, letter to the *Los Angeles Times*, 6 November 1991.

War Machine

1 Manuel De Landa, *War in the Age of Intelligent Machines* (New York: Swerve Editions/Zone Books, 1991).
2 Ibid., 64.

3 Ibid. - please note: De Landa claims that Maurice of Nassau started the drilling of the Dutch war machine in 1560, but this date should much rather be approximately 1590, as Maurice was born only in 1567.
4 Lewis Mumford, *The Myth of the Machine, Volume I – Technics and Human Development* (London: Secker & warburg, 1967), 192.
5 Ibid., 192.
6 Ibid.
7 Sigmund Freud, 'Thoughts for the Times on War and Death' (1915) in: James Strachey, with Anna Freud (eds.), *The Standard Edition of the Complete Psychological works of Sigmund Freud*, vol. XIV (New York: W.W. Norton & Company, 2000).
8 Daniel Pick, *War Machine – The Rationalisation of Slaughter in the Modern Age* (New Haven/London: Yale University Press, 1993), 2.
9 Michel Foucault, *Discipline and Punish – The Birth of the Prison* (London: Penguin Books, 1977, originally published in Paris: Éditions de Galimard, 1975), 135.
10 Ibid., 136.
11 De Landa, *War in the Age of Intelligent Machines*, op. cit. (note 1), 65-66.
12 Pick, *War Machine*, op. cit. (note 8), 15-16.
13 Carl von Clausewitz, 'On War' (1832), 203.
14 Philip Vellacott (translator), Euripides, *The Bacchae and Other Plays* (London: Penguin Books, 1964/1973), 10.
15 Ibid., 30.

Libidinal Machines/Imaginary Media

1 Peter Blegvad, John Greaves and Lisa Herman, *Pipeline*, part of: *Kew . Rhone .* (Virgin Music Publishers LTD, 1977), re-released by Voiceprint/Les Corsaires in 1997.
2 Reyner Banham, *Theory and Design in the First Machine Age* (London: The Architectural Press, 1960).
3 See: Eric Kluitenberg (ed.), *The Book of Imaginary Media* (Rotterdam: NAi Publishers/De Balie, 2006), includes a DVD. Extensive documentation, texts on media archaeology, afrofuturism, and imaginary media can also be found in the web dossier *Media Archaeology* at the website of De Balie, including video registrations of the lectures and audience discussions: www.debalie.nl/archaeology. Contributors: Siegfried Zielinski, Erkki Huhtamo, Bruce Sterling, Klaus Theweleit, Zoe Beloff, Timothy Druckrey, Peter Blegvad, John Akomfrah, Richard Barbrook, Edwin Carels, and others.
4 The time machine and spiritist media could be regarded as examples of such impossible machines.
5 ASCII: American Standard Code for Information Interchange. See for a discussion: http://en.wikipedia.org/wiki/ASCII.
6 Fall 2007.
7 For further reference see: www.longnow.org.
8 See also: 'Mother Ship Connections – An Imaginary Conversation with John Akomfrah', in: Kluitenberg, *The Book of Imaginary Media*, op. cit. (note 3), 281-295.
9 See: Roland Barthes, 'Myth Today', in: *Mythologies* (London: Vintage Classics, 2000, originally published in Paris in 1957), 109-159.
10 See also: www.kk.org/outofcontrol.
11 *Moore's Law*: Because new generations of computers are stronger they can be used to design and produce an even stronger next generation of computers, which in turn can repeat the same cycle.

Part II

Politics and Users

The Post-Governmental Condition

Politics beyond the Government

In the programme and conference workbook of the third 'Next 5 Minutes' festival of tactical media (1999), one of its central themes, *PGO - The Post Governmental Organization*, is described by the editors as follows:

> The notion of the 'Post-Governmental Organisation' is obviously an ironic variation on the now well-established concept of the NGO, the Non-Governmental Organisation. Over the past twenty or so years, NGO's have become important actors in the arena of national, international and global politics. The role of NGO's in the struggle for human rights, the ecology, debt relief, migrants' rights, humane working and living conditions, etc., is increasingly recognised by official political bodies. As a result, NGO's are now regularly represented at global eco-summits, they advise different UN institutions and are used as experts in court cases.[1]

Rather than engaging in a direct critique of the role of these NGOs around whom a lively debate had sprung up at the time, the editors decided to focus on a phenomenon that could increasingly be observed in the arena of international politics and civil advocacy – the substitution of governing public bodies, most notably those of the nation-state, by private, civil and corporate bodies. The editors comment on this:

> NGO's are taking over tasks that traditionally were the domain of nation-states, whether democratic or not. They become part of what Saskia Sassen has referred to as a 'crisis of governance', in which political decision-making and control is shifting away from national governments towards private and public NGO's of all sorts and types.

According to the editors of the PGO theme, NGOs that not only survey, criticize and complement such governmental structures, but take on an active role in replacing government functions, can be called PGOs (Post-

Governmental Organizations). In that sense, the PGO appears to be not an institutional or social form that is critical of governing structures and the nation-state in particular. It is neither complementary to it, or in partnership with the nation-state, but is in a very literal sense *beyond* the nation-state. The problem addressed by the notion of the PGO is a consequence of the problematic relationship of nation-states to emerging and increasingly influential transnational forms of governance. Being constituted through the legal claims to territory, the nation-state is increasingly pressured by an environment characterized by translocal and supranational networks of trade, communication and finance. While financial flows, in particular, are still grounded by national territories, jurisdictions and institutions, they are no longer based in a singular notion of state; they operate in multiple nation-states at the same time, loosely bound together through unstable transnational legal, economic and political agreements, resulting in a deeply volatile system of governance.

As I have discussed earlier in tracing some of the lineages of the world time standard in the essay 'Time Machine', the process of internationalization regarding trade and politics (including military conflict) is by no means a recent phenomenon, or simply the product of transcontinental real-time communication infrastructures and recent global tensions.[2] The intensification of these processes over the last half a century has been remarkable, but as shown before, global communications first emerged in the middle of the nineteenth century and quickly lead to the introduction of an infrastructure of legal and logistic control over global time and space (the world time standard). This new spatial and temporal arrangement of control primarily served the economic and political interests of the industrialized nations. But even this remarkable new social formation as it matured in the late nineteenth century was itself tied to centuries of conquest, robbery and genocide customarily referred to as *colonialism*.

So, what was observed at the very end of the twentieth century, and which was baptized in the notion of the PGO, was merely an amplification and intensification of a larger process that had been under constant development since the 'golden age' of colonial conquest. The crisis of governance that sociologist Saskia Sassen has identified, was primarily an effect of the increasing bandwidth and resolution of the global sys-

tem of real-time communication and mediation. It is this technological system that enables certain actors to blossom in the international arena: first of all, internationally operating financial institutions, whose primary product is entirely symbolic and informational to begin with. Secondly, of course, other 'global' corporations that now use these infrastructures to achieve an unprecedented ability for remote logistic control and coordination over great distances (in the megamachinic mode). And thirdly, a new breed of institutional players whose role is to act as liaisons between these emerging global actors and local or national institutional players, not least in terms of the legal and governance structures of nation-states. These liaison bodies work to facilitate the further deployment of the transnational system, and have varying degrees of attachment to the institutional actors bound to the nation-state.

Two important insights from Sassen's ground-breaking studies on the institutional substructures of this process of 'globalization' are important to remember here.[3] Firstly, that the very functionality of globalization is rooted in countless local and national governing structures; that the nation-state has been and still is instrumental in bringing about the processes referred to as 'globalization'. And secondly, that centralizing effects, rather than decentralizing effects, characterize these complex developments, especially with the maturation of the global communication systems. Global cities, according to Sassen's famous study *London, New York and Tokyo*, amass through an enhanced technological capacity to project their power over ever-greater (global) territories. And more importantly, they are able to increasingly differentiate by taking on specific local differences and singularities without losing control over the overall performance of their economic/political system. Thus, this process of internationalization is characterized by a fundamental asymmetry with regards to agency and power.

Still, a remarkable category of actors seemed to come into being in this same period, entities that are neither tied to the nation-based institutional structures (and their transnational extensions), nor belonged to the domain of international corporations and finance. These non-governmental and non-corporate actors are most immediately associated with the notion of the NGO, with civil and advocacy initiatives maintained through varying degrees of organizational integration. These NGOs typically pursue a single issue, a particular concern that

is not specific to a locality – something that could be experienced by people living in many countries, dispersed possibly around the globe. This attachment to an issue rather than a territory is the crucial factor in the operation of such NGOs. Because of their issue-based structure, these NGOs could operate more conveniently and flexibly in different local/national contexts. Obviously, these organizations needed to take account of the specific legal conditions in each case. Like any other internationally operating political actor, they were hampered by cultural differences, language barriers, restrictions on freedom of movement, speech and communication, by the violation of basic human rights in certain territories. But their principal independence of national territory offered enormous flexibility compared with the governing agencies of the nation-state that struggled to establish some form of international and transnational governance to act on their behalf.[4]

The NGO is, additionally, highly scale independent, in the sense that while scale does matter significantly as to what the impact can be of a particular NGO's actions, no fixed definition is required of how large or small, how institutionalized or informal an NGO should be. Advocacy can sometimes emerge quite spontaneously, creating a temporary alliance between different social groups or even individuals that disperse as soon as the issue is 'settled'. For the smaller NGOs, the structure of the Internet matches perfectly the requirement to establish transnational modes of coordination and cooperation, creating 'just-in-time' communities in the international environment with little or no permanency. Thriving on these exceptionally beneficial opportunities for the growth of these types of organizational forms, certain NGOs have become major institutional players in the international arena, wielding tremendous power, not least by being able to sway public opinion in politically vital regions, countries and locales. Here, I want to focus on these institutionalized NGOs, as their role highlights some of the problems and dilemmas attached to governance in the spheres of internationally networked politics. To a certain extent, the examples under consideration are obvious, Amnesty International, Green Peace, Human Rights Watch, OXFAM, World Wildlife Fund and a number of others that in effect became global brands. Their issue-based organizational core structure made them excellently suited to perform attention-grabbing roles within the international media system, especially when an issue could

be recognized by a 'global' audience as having some identifiable relation with their daily life.

That these important global opinion leaders would soon be co-opted into structures of international and global governance is hardly a surprise then – it is here that the boundary between advocacy and governance becomes extremely blurry. Global NGOs need the media spectacle to capture the attention of their global audience. No NGO has made this more obvious than Green Peace, whose spectacular actions, televised live or semi-live to a global audience over satellite, made a lasting imprint on the global public consciousness. Consequently, it is somewhat inevitable that criticism is raised as to whether this (necessary) co-optation with the global media spectacle machine does not compromise the trust that has been placed in these actors on the global stage. In other words, the legitimacy of the institution that Green Peace and other global NGOs have become is at stake.

Global NGOs additionally amass enormous amounts of intellectual capital. Highly-concerned, educated, skilled, devoted and knowledgeable minds are involved in the operation of these sometimes very large organizations. Why not capitalize on these skills and use them not just for analysis and critique, but to become part of the solution to the problems being addressed? Who would argue with this? If you are a concerned and brilliant individual, you should make a material contribution to resolve an issue in the field of global healthcare, environmental sustainability, alternative energy resources, or even combating human rights abuses. Why not, when you are already so deeply immersed in all these international governing networks and structures, seize the opportunity and act directly to achieve results, become 'real' in a sense? Who would condemn someone who seizes such an opportunity as long as it is not for money, fame, power and its attendant emoluments?

But it is exactly this dilemma that philosopher Michel Feher sees at the heart of the legitimacy question for NGOs involved in countless issues, situations, localities, struggles and strife, whose guiding principle is *not* to become involved in governance. Feher makes his observations in the recently published volume *Non Governmental Politics* (Zone Books, 2007), a collection that brings together an extraordinary array of considerations of the work of NGOs in the international, global, local,

national and translocal arenas. For Feher, the NGO as a political entity is characterized as follows: 'To be involved in politics without aspiring to govern, be governed by the best leaders, or abolishing the institutions of government: such are the constraints that delineate the condition common to practitioners of non-governmental politics.' While the ideological leanings of non-governmental activists are, according to Feher, hardly less widespread than their areas of involvement – this principle of non-involvement in actual governance is what unites all these different actors in their operation. Feher comments:

> . . . heterogeneous concerns and conflicting sensibilities notwithstanding, what non-governmental activists of every stripe recognize is that both the legitimacy and efficacy of their initiatives demand that they refrain from occupying the realm of governing agencies – whether with then purpose of taking them over, filling them with worthy stewards, or doing away with them.[5]

Feher acknowledges that an individual confronted with the dilemma I just outlined might decide to 'switch', cross over to the other side and become involved in (institutional) governance. That happens quite often, but also the reverse can be regularly observed – people involved in some form of institutional, governmental, governance deciding to cross over to the world of NGOs of civil initiatives, of advocacy. To become a concerned citizen again, perhaps to relieve a burdened moral consciousness, we can only speculate.

The crucial issue for Feher here, it seems, is legitimacy of the actions of the NGO. They can only continue their primary purpose of advocacy as an external observer and critical scrutinizer to the extent that they are not themselves part of the process they analyse. But this is exactly what is so often problematic when looking at how NGO agencies function 'in the field', especially the larger and more institutionalized NGOs. Their ties to the global communication and media environment (largely corporate controlled by an ever smaller number of global media players) on the one hand, and their intensive contact with governing agencies on all relevant levels turns them, unwittingly perhaps, into the co-architects of the policies under scrutiny. If the legitimacy and the efficacy of these NGOs' actions depend on refraining from occupying the

realm of governing agencies, as Feher suggests, then how then can they prevent themselves from doing this?

Even if the NGO remains attached to nothing other than advocacy, then what is advocated can have a formative influence on the policy actually being designed. Perhaps the NGO has no direct involvement in the actual writing, passing, and adoption of the legislation, but it can still exert tremendous influence over the content of that policy or legislation. And is this not exactly what the NGO intends to achieve, to push the governing agencies into what it considers the 'right' direction? My own experience of being involved in an NGO-type of activity in the relatively harmless area of Dutch cultural policy has certainly taught me that the line between advocacy and policymaking is highly ambiguous and blurry indeed – I certainly would not be able to draw it!

Beyond this we can witness a shifting attitude in which the concerns over legitimacy and efficacy are deliberately left behind by the non/post-governmental organization – simply because they want to achieve tangible results. That this move is deeply problematic is clear, but this does not imply that a shift does not occur, that such organizations do not exist, or that they instantly lose all credibility, legitimacy and efficacy when they make the move to become 'real', as it were.

Next to the highly visible, transnational or global NGOs – the big players in the global media spectacle – the NGOs that sometimes have a constituency of millions, a myriad of other, most often small- or micro-scale initiatives and organizations exist that operate in the area of influencing policymaking and advocacy around the same kinds of issues and concerns the globally visible mega-NGOs address. These small organizations, often located in governing centres, near the seats of national and transnational political power, are sometimes hard to distinguish from professional lobby agencies ('*we lobby for cash!*') or consultancy offices. It would be wrong to question a priori the intentions, the veracity, or integrity of these initiatives, or even their possible effectiveness in bringing about better policies with regards to the environment, human rights, poverty reduction and all the other worthy causes that are being pursued by the most genuine and admirable of these political actors. But here, even more than in the realm of publicly visible advocacy, criticism and protest, the line between non-governmental activity and policymaking is hard to draw. How can we ascertain what

the influence of these groups, initiatives, individuals and organizations might actually be on policy and political decision making? Especially if the negotiations take place behind metaphorical, sometimes literally, closed doors?

Given these ambiguities and a growing lack in belief in the efficacy of representational mechanisms, governmental and non-governmental, it is easy to see why those citizens, individuals and groups who have access to the necessary tools and ideas decide to start governing for themselves. It is these actors, formal and informal, organized and hopelessly disorganized, that move into the post-governmental stage. What was witnessed in 1999 by the editors of the PGO theme at 'Next 5 Minutes 3' was an exceptional rise in such self-governing initiatives with the expansion of public uses of the Internet in particular. The network form, usually organized around a shared interest, issue, or concern, created a recurrent typology, and communication tools such as newsgroups, websites and shared web environments, mailing lists and email in general, all contributed enormously to the blossoming of this field of post-governmental organization. While many initiatives remained fairly small scale and often in a parallel realm to the mainstream political and economic system (the early years of the free software movement for example), the rise of some large institutional and decidedly post-governmental actors could also be witnessed.

This leads to a different series of questions regarding these new forms of agency and governance in the international domain. No longer the questions of legitimacy and efficacy that Feher is asking of the NGO, but a new sense of ethics and responsibility that was, and remains, thoroughly unclear and unresolved. The editors of the PGO theme list the key questions and dilemmas as follows:

> The PGO cannot be seen as generally good or bad. Rather, the hypothesis of the PGO suggests that for many independent initiatives and organizations, the question of responsibility and power is changing in a fundamental way. Whereas they used to be able to define themselves as the 'other' of given power structures, the erosion of hierarchical political structures have created a more heterogeneous political arena in which public agency is 'up for grabs'. Much of the political vacuum is created and filled by unholy alliances between

political and private actors, who make sure that they benefit from the retreat of the nation-state. But many well-meaning, morally sound, independent PGOs are also finding themselves in a position where they have to switch from strategies of protest and campaigning to strategies of political agency and the building of organisational structures.[6]

The Problem of a 'Governing NGO'

Three problem areas can be identified with regards to the activities of a PGO, or a governing NGO: constituency, accountability and legitimacy. It is useful to differentiate the questions that can be raised.

Constituency – The key questions here would be: Who do you represent? On behalf of whom do you speak or act? How is the constituency able to influence the way in which it is represented? Is there an 'internal democracy'?

The relationship of a PGO with its constituency is ambivalent. One might ask, in a representational democracy, how can the vote of the electorate be understood in terms of a particular party? We know that party membership across democratic societies is marginal at best. Is a vote for a particular party really a vote *for* that party, or the choice for the least repulsive of the alternatives on offer? Some of the bigger NGOs have a membership of a million or more concerned individuals. Numbers that political parties (except in authoritarian political systems) can only dream of. These NGOs, therefore, would clearly seem to represent a 'constituency'. Furthermore, they may have extensive internal democratic decision-making procedures, clear mechanisms for transparency and internal accountability. But the problem remains that they are often 'single issue' movements. The social formation they call into being is often little more than a temporary alliance where its constituent members retain their heterogeneity. As soon as the issue is settled, the formation falls apart. Less than a group, they are certainly not a community, and outside the issue at stake the NGO is not 'representing' its constituency at all. Politically, this all seems far too ephemeral to take on the kind of strategic interests that determine global governance at large.

Accountability – Here we can ask the PGO: To whom are you accountable? How does public accountability come about, or rather, does it at

all? Are you accountable to your constituency? If so, how? Is that a formal mechanism? How does it work?

Again, especially with the larger transnational NGOs, who holds these organizations accountable? They might have a democratic voting mechanism to decide on leadership and overall policy issues, but then again they might not. There is no fixed prescription and rules can quite easily be changed by the NGO's directorship or board – who is there to stop them? What legal safeguards exist? Where will a betrayed constituency be looking to be righted? To the nation-state, to parliament? Certainly the perspective of (defunct) nation-bound politics holding these governing NGOs accountable hardly seems to be an attractive proposition. Even worse, the model recently introduced in the Russian Federation, where the national government now demands access to all financial and internal data of any NGO, requiring that an NGO have a government license to be allowed to operate at all, might be considered a 'worst practice' example. It is certainly a new triumph for antidemocratic governance.

Legitimacy – Here, finally, we can ask some of the questions that Feher understands as disqualifying the viability of the PGO model altogether: By virtue of which mechanism are actions legitimized? From what source do your actions derive their legitimacy?

The ambiguity of who and what constitutes the PGO's constituency, and the question of how it can be held accountable and to whom, inevitably invites the question of how the actions of this PGO are legitimized? After all, they result in actual decision-making, in the adoption of legal or political instruments and their implementation in society. For instance, to take a deliberately crude example: Would a PGO focused on human rights be legitimized to invade a country with a private army if the conditions in that country are determined by gross abuses of human rights and widespread disapproval of its government by everyone living there except people directly involved in that government? In such a hypothetical country, could the situation only take a turn for the worse if an intervention is not undertaken? In a less dramatic scenario, would Green Peace be allowed to install a tax on heavily polluting cars (SUVs for instance)? Even if the proceedings from these taxes are invested entirely into sustainable energy and mobility resources?

Where does the PGO derive its legitimacy from if it starts to intervene directly in other people's lives? We do not have or abide by a universal declaration of human values! A post-modern politics would even consider such an elimination of 'the different' as a strategy of terror which can only lead to deep repression and social disaster. What is it that makes the actions of PGOs ethically justifiable? Humanist benevolence? Teleological righteousness? Communicative transparency?

These questions are not theoretical, not a merely academic matter, far from it. More than anything else, one particular example demonstrated the ambivalence but also the actual substance of these problems. This was, clearly, the operation of the Soros Foundation throughout the former socialist countries of Central, Eastern and South-Eastern Europe. The most important aspect of how the Soros Foundation operated, in the domains of education, media, culture and the arts, and related social fields, was its fundamental ambivalence. The foundation was based on the private fortune of one investor, the inventor of the speculative hedge funds strategy, George Soros, who became uncommonly engaged in the social and political transformations of the former 'East' of Europe.[7] This was a structure that definitely lacked any constituency (the basic constituency here consisted essentially of one person!) and its accountability, despite extensive procedures of transparency about spending and funding, were practically absent. (Soros was spending his private fortune in a fully legal manner, so to whom could he be held accountable?)

However, the Soros Foundation was at the same time one of the most effective agencies active in Eastern Europe after the fall of communism. Its contribution to the changes in those societies, the possibilities it offered to create real alternatives for people who wanted to find new approaches to education, media and information provision, progressive culture and arts, were simply invaluable. Having worked quite closely with organizations deeply immersed in or coming out of the Soros 'empire', it was easy for me to understand how effective and important this local activity was. If, for instance, in the field of new media arts and cultural networks so much activity spawned from the Eastern part of Europe during the second half of the 1990s, then it must be acknowledged that most of that activity would have been unthinkable without the Soros Foundation.

But what turned the Soros Foundation so clearly into a PGO, rather than a classic NGO, was the fact that it simply took over, in a void, key functions of national governments and public institutions: education, media, culture. The political significance of this form of direct agency, including funding structures, the development of institutional frameworks, setting up both controlling and executive agencies, developing translocal and international networks, all this turned Soros into a formidable political force in that region during a crucial period of massive social reconstruction. While the foundation was guided by the principles of an open society, loosely modelled after the anti-historicist critiques developed by science and political philosopher Karl Popper,[8] its founding structure inherently lacked any form of democratic legitimacy. In fact, the Soros Foundation can be considered closer to a contemporary form of 'enlightened despotism'. The remarkable feat is that it was such an effective and successful initiative, which might throw quite a few standard assumptions about 'good governance' into doubt.

An interview conducted by Geert Lovink, posted on the nettime mailing list, with Jonathan Peizer, Programme Director of the Network Internet Program for the Open Society Institute New York (OSI-NY), and Chief Information Officer of the Soros network, is extremely illuminating with regards to the ambivalent aspects of the Soros 'intervention' into Central- and Eastern Europe, especially in terms of the 'time horizon' for such an intervention (the financial means of a private foundation cannot last forever, certainly not on the scale deployed by the foundation). After discussing general parameters of the Soros Internet Program, Lovink shifts attention towards the underlying premises of that programme and the foundation in general:

> GL: Here I would rather speak about the premises with which these media have been set up. You do not mention the public sphere . . . you speak about constituencies, communities, specific groups, not the public in large. Of course the channels serve the general population, when we think of all the radio stations, publications, translations, meetings, education, libraries . . . and Internet. Still, the open society seems to be realized in steps, via specific groups and channels. Is this related to the still strong anti-democratic forces? Strictly 'open' would mean to also give voice to anti-Semitism, racism and nationalism.

> JP: The constituencies I mentioned do represent the public sphere. Making infrastructure available to the public at large without any focus or understanding of demand would have been a tremendous waste of resources. To create open societies when there were none before, you must concentrate on those sectors most involved in fostering civil society and give them the necessary tools to achieve that end. We focused on meeting demand, provided only what people were ready to use. On the subject of public access however, many of our foundations do employ a 'free mail' service as a component of their program strategy. They provide this service to literally ten's of thousands of people.[9]

The Soros Foundation was 'never there to stay' (Jonathan Peizer), but responsibility is not automatically taken over by government agencies in the countries where the foundation has been active for many years, either. How does the Soros Foundation relate to that? What are the ethics of this particular stance that the Soros Foundation took?

Jonathan Peizer addresses this specific issue later in the interview:

> On the subject of funding, Soros grants are not designed to last in perpetuity But rather to foster pilot projects. Our objective is to plant the seeds, but we expect others to nurture what grows from them. The really unique thing about the network is that we provide resources to people with vision and implementation skills who do not have them because the resources are so limited. Local institutions are loathe to provide funding for projects with no track record (e.g. new ideas) that could fail. Once a project is a proven success though, we expect others to continue its funding if it is truly a priority issue. When projects have proven successful, cost effective, and/or more efficient to accomplish a given task, resources are usually found to continue it. We have experienced this reality many times with projects we initially supported. On the other hand, some projects that should continue to survive do fail for lack of funding, even though they are important priorities. In a forest, not every tree flourishes. Sometimes other priorities supersede even a good idea. Our focus is to give people the opportunity to demonstrate ideas are good and workable in the first.[10]

It is this lack of willingness or ability of the local governing structures in many of the cities, regions and countries where the Soros Foundation has been active that leads to another thematic debate, this time at the fourth edition of the 'Next 5 Minutes' festival of tactical media in 2003. This condition of failing local support, especially for progressive forms of culture and critical civil initiatives was termed *Enduring Post-Communism*. As Peizer indicates, it was simply impossible for the Soros Foundation to keep up its extreme funding levels for much longer than it did. But with the inability or unwillingness of local governments to take over these responsibilities, the established initiatives either perished or had to seek out new sources of funding and support. Since this money was not to be found locally or nationally, it had to come from abroad, and as such, only Western sources of money were truly accessible. However, within the Western frame, the impetus to provide funding to such civil and cultural initiatives was clearly dependent on an identifiable need (such as a hostile environment) and a political objective – instigation of Western democratic political values. As a result, there was a strong interest from both sides to keep the narrative of Post-Communism in place; for the NGOs to maintain support, for Western agencies to continue being able to wield political influence in the region. Accordingly, the political and cultural landscape became 'Enduring Post-Communism', right up until the final EU inclusion of most of these PC countries.

What the Soros example shows is the great potential, along with the inherent limitations, of such a large scale PGO-type intervention into a volatile sociopolitical landscape. The PGO is indeed a long way from the traditional notion of the public sphere, dependent as it is on the 'public' as its foundational principle. Instead, self-governance seems to lead to the elimination of the public sphere.

A New Public Culture?

The rise of the Post-Governmental Organization and self-governance seems to underscore the death of public culture and space voiced by urban sociologist Richard Sennett in his famous study *The Fall of Public Man* (1974). In this classic study, Sennett examines the both conscious and unconscious withdrawal of the modern citizen from public life and the retreat of individuals into the private domain or into more intimate

spheres of life and experience. Sennett observes a tendency across various domains of twentieth-century life that is characterized by a simultaneous increase of visibility and transparency of public life, combined with an increasing detachment from actual civic engagement, a trend he characterizes as the paradox of isolation in visibility.

Electronic mediation exacerbates the severity of this particularly modern disorder of social life. Sennett:

> Electronic media is one means by which the very idea of public life has been put to an end. The media have vastly increased the store of knowledge social groups have about each other, but have rendered actual contact unnecessary. The radio, and more especially the TV, are also intimate devices; mostly you watch them at home. TVs in bars, to be sure, are backgrounds, and people watching them together in bars are likely to talk over what they see, but the more normal experience of watching TV, and especially of paying attention to it, is that you do it by yourself or with your family.
> Experience of diversity and experience in a region of society at a distance from the intimate circle; the 'media' contravene both these principles of publicness.

He continues by asking in what ways the electronic media embody the paradox of an empty public domain, the paradox of isolation and visibility?

> The mass media infinitely heighten the knowledge people have of what transpires in society, and they infinitely inhibit the capacity of people to convert that knowledge into political action. You cannot talk back to your TV set, you can only turn it off. Unless you are something of a crank and immediately telephone your friends to inform them that you have turned out an obnoxious politician and urge them to turn off their TV sets, any gesture or response you make is an invisible act.[11]

Thus, Sennett indicates how the pervasiveness of electronic media is actually continuous with the trend of isolation and visibility, locking people in their private homes, connected to the outside only by an elec-

tronic screen, allowing no feedback, no communication, no exchange, and certainly no encounter with the 'other'.

Sennett's criticism is closely tied to the post-Second World War pre-eminence of electronic broadcasting media (radio and, from the 1950s onwards, television) and the lack of alternative channels offering more elaborate feedback possibilities. To some extent, the rise of the Internet as a public medium during the 1990s addressed and reversed some of the more disastrous social effects identified by Sennett's critique. There is an active and highly vibrant culture of discussion and self-publication on the Internet. In the era of blogs, this would hardly require any supportive argument. Still, networked media also promote the seclusion into private, marginal or 'tribal' communication spaces that deny the essence of public culture: the encounter with alterity. So even if the contemporary situation appears less desperate than Sennett's dystopian vision, it still remains highly ambiguous.

Mobile electronic media transfer this trend of electronic isolation to public space itself. They create a dramatically increased isolation through heightened visibility. The progression of wearable technologies is chiefly responsible: portable media players, mobile phones, 3G and 4G wireless media, and so on. Mobile media entrench many people in a form of electronic autism, locked in singular concentration to their portable devices while they move through public space, visible and plugged-in, but entirely disconnected from the environment.

This trend towards a semiconscious withdrawal from public life and increasing retreat into the personal sphere is most evident by the curious tendency of a considerable amount of people to make their personal lives loudly manifest in public space by discussing at length the excruciating details of their life on mobile phones. Such acts of unwarranted intimacy represent a blatant disregard for the social and the necessarily rule-based conduct of public life. They demarcate a radical expansion of personal life at the cost of the public and, at the same time, a conversion of public space into private space. Thus they contribute significantly to a further hollowing out of the public sphere.

What to do? Smash mobile phones?

One of the most violent reactions to the invasion of public space by obtrusive personal devices is probably the Phone Bashing action, carried out in London at the end of the 1990s. Two young men dressed up

as walking mobile phones, wearing prop suits with their legs and arms sticking out, and ripped mobiles from callers, 'bashing' them into oblivion. Although a welcome and warmly supported gesture, this hardly seems like a viable strategy to rescue public life.

Disconnect?

It might be a good moment to reconsider the current social and economic pressures towards constant and fully transparent connectivity, as embodied, for instance, in the 'real-time' economy that attempts to eliminate lag from production processes through continuous networked feedback loops tracking people, materials, logistics, and machines. It requires an always-on society or employee, which can best be guaranteed by removing the possibility to disconnect. Secondly, the infatuation with 'total security' paradigms, and the deployment of radically distributed sensor technologies (such as RFID tags – radio frequency identifier devices) creates a social space in which products and people are continuously traceable, where private lives become curiously transparent, but only to those in control of information channels. The idea of 'privacy' simply evaporates in this context.

A counterstrategy, therefore, would require a conscious engagement, both in political and practical terms. This is a concern I have been pursuing for some time now, together with artists, theorists and activists. One of the serious objectives of this effort is to firmly enshrine the right to disconnect in the universal declaration of human rights. For the immediate future, the art of selective dis-connectivity should be fostered with practical and poetic interventions, in the face of an increasingly grim and hostile panoptic environment. An essay written together with technology thinker Howard Rheingold, co-authored for a theme issue on 'Hybrid Space' by the Netherlands-based journal *OPEN*,[12] is included to sketch the outlines of a political art of selective and mindful dis/connection. At the end of this essay, I will re-engage with the strategic objectives outlined in that theme issue to restore some form of public agency – in what we might call, slightly ironically, the 'society of the sensor'.

Public Space is a Hybrid Monster

Today we can no longer think of a uni-dimensional public space. Meetings that happen in physical (embodied) public space are already constructed and defined in advance in media terms. When politicians

address a crowd they usually look over their heads at the cameras, knowing that the true space where they message will be heard is mediated. It does not make the media 'unreal' since reality itself is constructed, at least on the social plane, in the terms defined by the media game. It is there that a collective consciousness and collective memory is formed and continuously reformulated. Media are the stuff social reality is made of, they continuously transform the physical environment. Yet, the physical environment remains the substrate of the media sphere.

If we want to transform the public sphere in the era of hybridization we need to operate strategically with multidimensional tactics. The media in and of itself is not enough, that painful lesson has been learned. Without connections to the rest of the world, to the embodied places where people actually live (and where even the virtual class is forced to reside, if only out of biological necessity), the media space, the Internet, the networked communities, can easily become a post-modern-day ghetto. If we wish to break the isolation of the media sphere there is no choice but to move out into physical space.

What other locus to choose than the site of contemporary urbanity. It is in the density of the urban space that one encounters the ultimate degree of tenacity of the so-called 'real' world. The post-modern city is a site of power interest. It speaks to the imagination, and thus, through its mediated multiplication, to the masses. The triangle of city – media – imagination is what defines its *vectorial power*, to paraphrase McKenzie Wark. It is within this potent locus of media power that struggles will necessarily end up, the sites of collective identification that are both symbol and embodied site at the same time: The image that can be symbolically consumed and physically visited simultaneously. It is here that the sign of the real inscribes itself most vigorously.

Connected Unplugged

Locative media as an artistic and cultural practice can be seen as a more sophisticated way of addressing this complexity of how the geography and the (wireless) electronic networks interweave.[13] At the very least it heightens the experience of a new hybrid spatial sensibility. But these practices do not contribute self-evidently to countering the paradox of isolation in visibility in public space – I can be very isolated in

the singular concentration on my geolocative contraptions. The question remains how to design more radically public interfaces for these media in order to engage people actively in a social, and therefore, by necessity, political process.

In hybrid space the challenge would be to feel, and actually be, deeply connected to both the physical environment and to others in that space, as well as to the disembodied confines of electronic space. To paraphrase the words here of Richard Sennett, to be able to engage in a form of 'civilized existence, in which people are comfortable with a diversity of experience, and indeed find nourishment in it', where people can actively pursue their interests in society. A space that can serve as 'a focus for active social life, for the conflict and play of interests, for the experience of human possibility'.[14]

Sennett speaks in these words about the city as 'the forum in which it becomes meaningful to join with other persons without knowing them', in short the encounter with the 'unknown other'. He could in 1974 hardly have imagined how his analysis would be brought to the point of absolute crisis by the advance of mobile electronic communication media and the takeover of public space by personal life; in which everything is there for us to see and hear, while everyone remains essentially isolated from each other.

One way to look critically and I would suggest productively at art projects in the realm of locative media would be to question to what extent they facilitate or deny public interaction and communication, and indeed make possible this encounter with the unknown other.

A 'Political' Strategy

On the basis of the analysis presented so far it seems useful to propose some possible modes of engagement with the problems outlined above, if only as a preliminary sketch. These possible models of intervention are aimed at restoring some basic measure of public agency under conditions of post-governmental governance and increasing hybridization of technology and space.

The Problem of Invisibility

In the present phase, the most important change in computer technology and its applications is that they are steadily beginning to with-

draw themselves from sight. The European Union has for some years now been subsidizing a wide-ranging programme of multidisciplinary research and discussion with the remarkable title *The Disappearing Computer*. This title alludes less to the disappearance of computer technology than to its ongoing miniaturization and the way that it is beginning to turn up everywhere. The programme is investigating the migration of electronic network technology into every kind of object, to built environments and even to living beings. The thesis is that miniaturization and steadily declining production costs are making it simpler to provide all kinds of objects with simple electronic functions (chips containing information, tags that can send or receive signals, identification chips and specialized functions in everyday objects). This is more efficient than building increasingly complex pieces of multifunctional apparatus and mean the abandonment of the old idea of the computer as a universal machine capable of performing every conceivable function.[15] In fact, this is how technology becomes invisible. A decisive step, with dramatic consequences for the way people think about and deal with spatial processes.

This assimilation of computer technology in the environment introduces a new issue: the problem of invisibility. When technology becomes invisible, it disappears from people's awareness. The environment is no longer perceived as a technological construct, making it difficult to discuss the effects of technology.

Lev Manovich speaks of 'augmented space', a space enriched with technology, which only becomes activated when a specific function is required.[16] Wireless transmitters and receivers play a crucial role in such enriched spaces. Objects are directly linked with portable media. Chips are incorporated into identity cards and clothing. Even one's shopping is automatically registered by sensors. Screens and information systems are switched on remotely, by a simple wave of the hand. Miniaturization, remote control and particularly the mass production of radio frequency identification (RFID) tags is bringing the age-old technological fantasy of a quasi-intelligent, responsive environment within reach of digital engineers.

Of course these applications are not exclusively neutral. Combinations of technologies of the sort described above make it amazingly simple to introduce new and infinitely differentiated regimes

for the control of public and private space. The application to public transport of RFID smart cards, which automatically determine the distance travelled, the fare and the credit balance, still sounds relatively harmless. Fitting household pets with an identity chip the size of a grain of rice, inserted under the skin, has become widespread practice. Indeed, most health-insurance schemes for household pets prescribe the insertion of such chips as an entry condition. Recently, however, first reports have turned up of security firms in the USA which provide their employees with subcutaneous chips allowing them to move through secure buildings without the use of keys or smart cards. Such systems also allow companies to compile a specific profile for each individual employee specifying those parts of the building or object to which the employer has (or is denied) access, and at what times.

It is possible to extrapolate these practices somewhat to discuss them on the level of society as a whole. The principal question at stake is where the agency lies under such conditions? If agency lies exclusively with the constructors, the producers of these augmented spaces, and their clients, then the space we are living in is liable to total authoritarian control, even if there is no immediately observable way in which that space displays the historic characteristics of authoritarianism. The more widely the initiative is distributed between producers and consumers and the more decision-making is transferred to the 'nodes' (the extremities of the network, occupied by the users) instead of at the 'hubs' (junctions in the network), the more chance there is of a space in which the sovereign subject is able to shape his or her own relative autonomy. The articulation of subjectivity in the 'network of waves' is an opportunity for the last remnants of autonomy to manifest themselves.

The Strategic Issue: 'Agency' in Hybrid Spaces

The concept of 'agency' is difficult to interpret, but literally combines action, mediation and power. It is not surprising therefore, to find it applied as a strategic instrument for dealing with questions about the ongoing hybridization of public and private space. Unlike Michel de Certeau's tactical acts of spatial resistance to the dominant utilitarian logic of urban space in particular, the action of this instrument in new ('augmented') hybrid spaces has mainly strategic significance. A tacti-

cal act of spatial resistance, which is after all no more than temporary, is hardly comforting to anyone faced by such an infinitely diversified and adaptive system of spatial control. New hybrid spaces must be deliberately 'designed' to *create* free spaces within which the subject can withdraw himself, temporarily, from spatial determination. Given the power politics and the enormous strategic and economic interests involved, and the associated demands for security and control, it is clear that these free spaces will not come about by themselves or as a matter of course. I would therefore like to suggest a number of strategies to give some chance of success to the creation of such spaces.

Public Visibility: 'Maps and Counter-Maps', Tactical Cartography
The problem of the invisibility of the countless networks penetrating public and private space is ultimately insoluble. What can be done, however, is to remake them in a local and visible form, in such a way that they remain in the public eye and in the public consciousness. This strategy can be expressed in 'tactical cartography', using the tools of the network of waves (GPS, Wi-Fi, 3G, etcetera) to lay bare its authoritarian structure. An aesthetic interpretation of these structures increases the sensitivity of the observer to the 'invisible' presence of these networks.

Disconnectivity
Emphasis is always placed on the right and desire to be connected. However, in future it may be more important to have the right and power to be shut out, to have the option, for a longer or shorter time, to be disconnected from the network of waves.

Sabotage
Deliberately undermining the system, damaging the infrastructure, disruption and sabotage are always available as ways of giving resistance concrete form. Such measures will, however, always provoke countermeasures, so that ultimately the authoritarian structure of a dystopian hybrid space is more likely to be strengthened and perpetuated than to be thrown open to any form of autonomy.
Legal Provisions, Prohibitions
In the post-ideological stage of Western society it seems that the laws and rights used to legalize matters provide the only credible source of

social justification. But because a system of legal rules runs counter to the sovereignty of the subject it can never be the embodiment of a desire for autonomy. It can, however, play a part in creating more favourable conditions.

Reduction in Economic Scale
New hybrid systems of spatial planning and control depend on a radical increase in economic scale in the production of its instruments of control. Thus the political choice to deliberately reduce economic scale would be an outstanding instrument to thwart this 'scaling-up' strategy.[17]

Accountability and Public Transparency
In the words of surveillance specialist David Lyon: 'Forget privacy, focus on accountability.' It would be naive to assume that the tendencies described above can easily be reversed, even with political will and support from public opinion. A strategy of insisting on the accountability of constructors and clients of these new systems of spatial and social control could lead to usable results in the shorter term.

Deliberate Violation of an Imposed Spatial Programme
Civil disobedience is another effective strategy, especially if it can be orchestrated on a massive scale. Unlike sabotage, the aim here is not to disorganize or damage systems of control, but simply to make them ineffective by massively ignoring them. After all, the public interest is the interest of everyone, and no other interest weighs more heavily.[18]

The Formation of New Social and Political Actors – Public Action
'Agency', the power to act, means taking action in some concrete form. The complexity of the new hybrid spatial and technological regimes makes it appear that the idea of action is in fact an absurdity. However, new social and political players manifest themselves in public space by the special way they act, by clustering, by displaying recognizable visuality, by marking their 'presence' vis-à-vis (the) other(s).

The manifestation of concrete action by new social and political actors in public space is 'gesture'. The action, in this case, is the way the space is used, though there is still a difference between the use of a

space and more or less public actions in that space. The use of space becomes agency when that use takes on a strategic form. It becomes then, also, inherently political.

The Intensification of Time

Speed, Ubiquity and the Vision Machine

> We went up to the three snorting beasts, to lay amorous hands on their torrid breasts. I stretched out on my car like a corpse on its bier, but revived at once under the steering wheel, a guillotine blade that threatened my stomach.
>
> The raging broom of madness swept us out of ourselves and drove us through the streets as rough and deep as the beds of torrents. Here and there, sick lamplight through window glass taught us to distrust the deceitful mathematics of our perishing eyes.
>
> I cried 'The scent, the scent alone is enough for our beasts.'
>
> And like young lions we ran after Death, its dark pelt blotched with pale crosses as it escaped down the vast violet living and throbbing sky.
>
> But we had no ideal Mistress raising her divine form to the clouds, nor any cruel Queen to whom to offer our bodies, twisted like Byzantine rings! There was nothing to make us wish for death, unless the wish to be free at last from the weight of our courage!
>
> And on we raced, hurling watchdogs against doorsteps, curling them under our burning tires like collars under a flat-iron. Death, domesticated, met me at every turn, gracefully holding out a paw, or once in a while hunkering down, making velvety caressing eyes at me from every puddle.
>
> Let's break out of the horrible shell of wisdom and throw ourselves like pride-ripened fruit into the wide, contorted mouth of the wind! Let's give ourselves utterly to the Unknown, not in desperation but only to replenish the deep wells of the Absurd!

The intense sensations of near-death experiences that the poet Filippo Tommaso Marinetti describes in the preface to his founding manifesto of Futurism (published in Le Figaro on 20 February 1909) relate above all to two things.

Firstly, his love of the automobile. The preface describes a nightly drive at maximum speed through the city (Milan) by Marinetti and his

friends, which he emphatically describes as an almost orgiastic experience that culminates in a furious accident. But on picking himself up from the maternal ditch, there is nothing that might stop him from resuming his original course.

The second important aspect is a more general glorification of speed. Indeed, the impressions described above do not relate to the inner workings of the machinery of the automobile, nor the sound of its engine. Rather, Marinetti seeks a metaphor to express his excitement about the subjective experience of speed. The automobile introduces a new dimension of speed to the system of transportation, and importantly, this new vehicle is not so much a collective as it is an individual form of transportation. This might account for the subjective intensification that Marinetti experiences, something that would not occur as easily in a social form of transportation such as the train.

The speed of the technologized world generated a new sensibility that the Futurists claimed for their generation. Indeed, a new aesthetic of speed was born, as Marinetti declares:

> We affirm the world's magnificence has been enriched by a new beauty: the beauty of speed. A racing car whose hood is adorned with great pipes, like serpents of explosive breath - a roaring car that seems to ride on grapeshot is more beautiful than the Victory of Samothrace.

The mood is violent and aggressive, and the Futurist's adoration of speed and technology is inherently anti-historical. 'We stand on the last promontory of the centuries!' Marinetti declares. 'Why should we look back, when what we want is to break down the mysterious doors of the impossible? Time and Space died yesterday. We already live in the absolute, because we have created the eternal, omnipresent speed.'

And this glorification of speed and technology is connected to an almost divine concept of omnipresence. The last component that almost inescapably links these elements with the contemporary global system of electronic media is war, and Marinetti appears to have sensed the in-evitability of the connection, when he maintained: 'We will glorify war – the world's only hygiene – militarism, patriotism, the destructive gesture of freedom-bringers, beautiful ideas worth dying for, and scorn woman.'[11]

War for Marinetti was not the destruction of this new machine society, but instead its necessary completion; as Marinetti was later to defend in his manifesto on the Ethiopian Colonial War (1934):

> For twenty-seven years we Futurists have rebelled against the branding of war as anti-aesthetic . . . Accordingly we state . . . War is beautiful because it establishes man's dominion over the subjugated machinery by means of gas masks, terrifying megaphones, flame throwers and small tanks. War is beautiful because it initiates the dreamt-of metallization of the human body. War is beautiful because it enriches a flowering meadow with the fiery orchids of machine guns. War is beautiful because it combines the gunfire, the cannonades, the cease fire, the scents, and the stench of putrefaction into a symphony. War is beautiful because it creates new architecture, like that of the big tank, the geometrical formation flights, the smoke spirals from burning villages, and many others . . . Poets and artists of Futurism! . . . remember these principles of an aesthetic of war so that your struggle for a new literature and a new graphic art . . . may be illuminated by them![2]

Aesthetics of Speed

The Futurists sensitivity for a new aesthetic of speed delivered some of the most visually spectacular artworks of the early twentieth century. Umberto Boccioni, for instance, started to explore new visual languages that fit closely with this aesthetic sensibility. His painting cycle, 'States of Mind', is a clear case in point. Here, Boccioni reflects on the psychological effects of travelling, on those who leave, those who stay behind, those who are in transit (with the effects of mechanized travel being an important theme).

Interestingly, Boccioni painted the whole cycle twice. The first time in 1911, using a post-symbolist painting style with flowing curved lines of movement, tending towards abstraction, but still rooted in an organic aesthetic, reminiscent of a symbolist or Art Nouveau aesthetic prevalence. Unsatisfied with the result, and deeply inspired by the new visual language of cubist painting, Boccioni decided to paint the cycle again in 1913 – this time, he used a distinctively cubist repertoire of shapes and multiplication of perspectives (the principal Cubist pain-

Umberto Boccioni, Unique Forms of Continuity in Space, 1913, bronze

terly invention). In Boccioni's new cycle, the visual grammar is much more energetic, colourful and dynamic than in most cubist paintings, but there is another significant change. Where the original series seems to reflect mostly on 'internal' mental or psychological processes, the new series focused explicitly on technological change, with the contours of a steam locomotive and its identification number (6943) featuring prominently in the centre of the second painting, The Farewell, at the very heart of the cycle. Indeed, the new aesthetic of speed is directly linked to the appearance of modern machineries and a 'mechanized' lifestyle.

The most enigmatic image of speed created by Boccioni in this period is certainly his bronze sculpture, Unique Forms of Continuity in Space, also dated 1913: a cubo-futuristic figure is posed as if running at inhuman speeds. The contours of the body seem to be dissolving into a flexible space-time continuum, which appears to liquefy its materiality. Such an aesthetic game with concepts is derived loosely from relativity theory, the study of relationships between time, spatiality and speed. These theories had been developing in the realm of physics since the late nineteenth century, and they were highly popular among avant-garde artists of that time (think for instance also of Duchamp calling his bride machine 4-dimensional), and of course, many of these individual artists and groups were in close contact with each other at the time. Speculation about the new configurations of space and time within these artistic circles were clearly not confined to the technological changes the artists could see materializing around them, but included an active exploration of new conceptual spaces in physics and the natural sciences, emphasizing again a highly desired break with bourgeois sentimentality.

Simultaneity

In my consideration of some of the groundbreaking work of Marcel Duchamp in the previous chapter, I already briefly discussed the new painting technique of simultaneity: the superimposition of several, frequently consecutive moments in time (with minimal time lapse) in a single picture. A painting technique that not only appears highly photographic to our contemporary appreciation, but actually derives in part from late-nineteenth-century photographic experiments to capture

movement over time in a single image. Duchamp's Nude Descending a Staircase of 1912 is the iconic image of this technique and appears to be derived primarily from the motion studies of the French photographer Étienne Jules Marey. In the same year, Giacomo Balla, another Italian Futurist painter, created one of the most charming representatives of this technique, Dynamism of a dog on the leash, where the movements of the tail, paws and leash of a small dog melt into a visual blur.

Étienne-Jules Marey

The French scientist and chronophotographer Étienne-Jules Marey (1830-1904) is one of the most influential pioneers of experimental and scientific photography, as well as a seminal figure in the transition from photography to cinema. Marey is interesting in this context for a number of reasons. The first is his scientific interest in photography. Marey saw photography primarily as a supportive tool in the study of human and animal locomotion. In this sense, his work seems close to the concerns of Edward Muybridge. Muybridge, however, did not transform the photographic medium as such. He merely used it to register movement in consequent images and invested most time, energy and resources into the staging of the photographs against his famous black-and-white striped backgrounds. Marey, on the contrary, significantly reinvented the apparatuses of visual recording themselves.

Marey started to experiment with multiple exposure techniques that would allow him to expose a negative several times and capture whatever light source was available for the image. Through careful arrangement, but also through the construction of mechanical photographic machines, he produced a fascinating collection of images, documenting his extensive motion studies. With the multiple-exposure technique, still a rather 'experimental' process in contemporary photography (and not a built-in standard feature as with most digital photo cameras!), Marey invented the visual principle of simultaneity – a disruption of the unity of time in the image, a convention strongly associated with a naturalist approach to painting, which had become especially popular in the nineteenth century, when artists starting to paint and sketch outdoors rather than within the confines of the studio.

Also striking is the highly aesthetic character of these 'scientific support' materials. Compositions of images are carefully balanced and

Etienne Jules Marey, Chronophotograph of a fencer, late-nineteenth century

visual effects are stunning even for the numbed perception of today's viewer, which indicates that they must have been particularly impressive to Marey's contemporaries.

Marey also ventured into the realm of registering abstract temporal physical processes, most notably the patterns of flowing water and smoke. For his purpose, he built special observation and registration machines, including smoke engine and mechanical photo devices that would produce elaborate images of series of smoke trajectories and complex turbulence patterns.

The Photographic Gun

Marey became obsessed with the idea of discovering ways to study and register in photographic form the movement of birds. With the clunky and slow photographic apparatuses of his time, this was virtually impossible. Under free conditions, in open air, the movement of birds was so erratic and swift that it was hard to even take a single picture of a bird in full flight – let alone capture a series of movements, or a pattern (like a hunting bird attacking prey, for instance). Marey kept thinking about possibilities of how to capture such fleeting phenomena in this new 'objective' medium. His first experiments conducted in this direction were curiously executed inside his photography studio. He actually tied birds to a string, so as to confine their movement to a particular space or radius, which would make it easier to take serial or multiple

exposure pictures of their movements. But it was obvious from these experiments that they did not lead to an acceptable approximation of the conditions of a normal bird's flight in open air.

Marey started to work on a new photographic machine that would allow him to take multiple pictures in rapid succession outdoors. His amazing invention was the chronophotographic gun (fusil), which enabled him to freely capture movement outside of the controlled conditions of the laboratory. The shape of the new photographic machine was

Engraving showing Etienne Jules Marey's photographic gun in action

literally that of a gun. The operator would point it at its object of study as if wanting to shoot it out of the air (in this case, a bird in free flight). Pulling the trigger of Marey's fusil would set off a round canister that contained 12 negatives. By keeping the barrel of the gun fixed on the object, the bird in flight, the movements could be registered without the limitations of the studio, in the natural habitat of the bird, or object of study.

Marey realized in this remarkable machine a premonition that Paul Virilio would only much later write down explicitly in his famous book Cinema and War – that the camera had become a gun more powerful than ballistics and the image had become a weapon. For during Marey's quest, the camera had itself become a gun, and the gun, a camera; a

reversal that was by no means accidental, and one that remains firmly attached to contemporary modes of scientific visualization.

Desert Screen

The Futurist sensitivity for the dynamism of a machine-driven society, with all its implicit connections between technology, speed, violence and war, only recently filtered down to public consciousness. More than any other event, the first Gulf War has been crucial in bringing this 'Futurist' sensitivity to a wider audience. The Gulf War was the first conflict broadcast live on global television; it was the first true information-war. More important even than the physical engagement was the control over information gathered in the battlefield (to maximize the effectiveness of operations) and the control over the information released to the public via the global media system.

It is frightening to see how clearly Marinetti forecast all the elements that contemporary commentators of our media-dominated society attach so much importance to. Marinetti's idea that space and time have died, to be replaced by the dominance of the omnipresent speed, has been worked out most convincingly by the great French theorist Paul Virilio. What Marinetti, however, could not predict was that this replacement has primarily been the result of our technological extensions of perception; the invention of ever increasingly sophisticated devices for recording, storing and transmitting images. Virilio has examined this process in great detail and has, for me, been the most worthwhile commentator of the current media ecology.

Indirect Exposure

According to Virilio, a new light has emerged that shines into the living rooms, a light that is no longer reflected from an object, not the direct illumination of electrical light, but an oblique light flowing from the television and computer screens. This light was once captured from an actual object, an event, and perceived by an artificial eye, transported and relayed again as a new image that has become a more dominant exposure of reality than the light the natural eye has caught on the street.

This indirect exposure integrates world events in a new artificial scenography that has achieved truly absurd dimensions. The landing of American troops on the beach of Mogadishu in Somalia was the perfect

illustration. News teams from various international TV networks settled in on the coast the day before the actual landing of troops, which was to take place 'in secrecy' in the middle of the night. Once the first soldiers set foot on the shore, the TV crews switched on their generators for the high-tech mobile equipment that lit the shore in bright electrical light. This light was captured by electronic cameras, relayed by satellite uplinks and broadcast live across the world by global media players like CNN and BBC World, in the indirect light emitted by cathode ray screens in countless homes and offices, and not least in Mogadishu itself.

The systems of image transmission that emerged from the electronic audiovisual media have led to the current worldwide television and information networks. This system of visual technologies (video, television, computers and transmission technologies) has created the image in 'real-time' through 'live transmission'. For Virilio, this means that we have become subjectively tele-present all over the world, while the events taking place elsewhere have achieved a paradoxical presence-from-a-distance in real-time. Virilio:

> The logical paradox ultimately is the logic of the image in real-time, that dominates the thing represented, in that time, that from now on has priority over the actual space. The virtuality that dominates the actuality, even breaks down the concept of reality. This explains the crisis in the traditional (graphic, photographic, cinematographic . . .) forms of public representation. From it benefits a presence, a paradox presence, a tele-presence of the object or essence from a distance, that replaces its own existence, here and now.[3]

Aside from their use for information and amusement, image-transmission technologies are most often utilized as systems for observation and control. Virilio maintains that the intensification of security points to a tendency within public representation, a change that relates not only to the civil and police domain, but also to military and strategic aspects of defence. In taking countermeasures to the threat of an enemy, the aim is not to make them obvious and visible as a defence line. Rather, it is the aim to 'hide the information strategically through a process of dis-information'. In a grand orchestration of contradictory strategic manoeuvres, it becomes unclear which are the essential moves of the enemy. Thus,

gathering reliable information becomes essential to predict the behaviour of an opponent.

In the strategy of deterrence, this process of gathering information has become electronically mediated. Images and data are gathered and transmitted in real-time to enhance an immediate process of action and reaction. The three time forms of the decided action – past, present and future – were secretly replaced by the dominance of real-time telecommunications. The future has disappeared partly in computer programs (that predict and simulate things to come) and through this notion of real time that collapses temporal distinctions; when one identifies on the radar or the video screen a threatening weapon in real-time, then this mediated present already contains the immanent impact of the projectile (the future).

Virilio: 'The meaning of the concept of deterrence can be recognized as such: The abolishment of the truth of a real war in favour of the frightening deterrence by weapons for mass-destruction.'[4]

The strategy of deterrence has become a choice for an 'atomic non-war'. The object of this strategy is not to engage in conflict at all, but rather to achieve a maximum capacity for preventing it. This capacity relies on the ability to monitor and predict the actions of the enemy. For this purpose, a huge apparatus of observation and surveillance has been developed.

Virilio insists that there is a clear succession of image-transmission technologies whose origin is largely military. During the First World War, reconnaissance planes for the first time made extensive photographs of enemy positions from the air. The techniques for air-reconnaissance have since been perfected up to the standard of current advanced satellite observation systems. The evaluation of these images formed a kind of pre-action for the military that increasingly determined their future strategic moves. The analysis of the situation on the battlefield progressively removed itself from the actual scene of the fight as these techniques became more sophisticated (this offers a possible explanation for the commander of the American forces, Schwarzkopf, referring to the battlefield as an action-theatre during the Gulf War).

The strategy of deterrence thus entails a continuous process of gathering information and creating disinformation. The concept of deterrence and the 'atomic non-war', therefore, signals a transition from

actual conflict to virtual war. This preventive balancing act ultimately relies on a mutual insecurity concerning the intentions and strength of the East and West, of which the whole SDI program (Strategic Defence Initiative) and its inherent uncertainties (even about its existence) is the most obvious example. The desire to counter this insecurity has driven industrialized countries into a technological race and enhanced the militarization of industry and science at enormous economic costs.

In this technological race, the image has become an instrument of power whose effectiveness is based on the ability to interpret visual information correctly. The speed of interpretation is, of course, essential: the time involved in the transmission and interpretation of visual data delays the appraisal of correct countermeasures to the enemy's actions.

La Machine de Vision/The Vision Machine

With satellite transmission, the circulation of images and other forms of information has become instantaneous on a global scale. On the human side, however, there is a limit to this process of acceleration (or rather intensification) that relates to the perceptual system. Perception is not merely the act of light passing through the lens of the eye. There is a certain amount of time involved to fix the image on the retina and store it in visual memory. This process is still not properly understood in terms of the constitution and ascription of meaning. The retinal image lives on as a mental construct that extends the physical image in time. Virilio compares it to the momentary frame of a cinematic film that lives on in the memory of the viewer. Although not readily perceptible, the reality of this mental image cannot be denied.

The human factor thus places a time constraint on the interpretation of strategically important images. This has prompted the need to develop a machine that could analyse visual information at greater speeds than the human perceptual apparatus in order to create a strategic advantage, or at least prevent any disadvantage (although it always remains uncertain how far 'the other side' has developed its technology).

The project of the intensification of (strategic) perception, therefore, involved the automatization of perception, the invention of an artificial form of seeing. The vision-machine (as Virilio calls it) is created out of the fusion of electronic cameras with digital image processing and analysis. Once a device alone reads these real-time visual transmissions,

the human factor disappears, and subjectivity is effectively removed from the process of seeing. This is an act of substitution, rather than simulation.

The process of transmission, therefore, transcends the human timeframe; transmission, interpretation and reaction are automated and take place at a speed that cannot be monitored or understood by humans. Every image recording, Virilio stresses, is also a time recording, because the footage relates to the time exposure required for the recorded image. The objective character of the image, as a consequence, does not relate as much to a material carrier as it does to the time, the exposed time that makes something visible or that makes it impossible to see anything (because its duration is too short to be perceived). The vision-machine operates in a timeframe below this border of visibility, and Virilio maintains that our ability to understand what happens in the system is provided only by our ability to conceptualize the (undetectable) existence of the virtual mental image, since the images being interpreted by the vision-machine have the same status as virtual. Within this system, intensive time, which makes the future disappear in the ultra-short duration of the real-time transmission in telecommunications, replaces extensive time, in which the future was still available in the form of weeks, months and years to come. Virilio:

> The unimaginably distant single combat between the weapon and its armour, between aggressor and defender, loses its relevance, both melt into a new 'technological double', that paradox object, in which deceptive manoeuvres and counter-measures are developed ever further and soon take on a predominantly defensive character, in the course of which the image becomes a more effective weapon as the one it was supposed to show![5]

Fatality

A sense of fatality is carried along by the acceleration of crucial processes through (information) technology. This effect can be found in various areas of society, and they all relate to the inability to react to the acceleration of events beyond the border of human perception. Virilio presents the Wall Street Crash of 1987 as a favourite example, where the trade computers responded to each other in a timeframe that was no

longer accessible for the stock traders themselves and ultimately lead to the collapse of the market.

The Gulf War has shown a military fatality, where Patriot missile systems were an interesting example of this automatization of perception. A distant radar system would constantly survey a certain part of the sky in order to detect incoming enemy missiles (in this case, Iraqi Scud missiles fired at Israel). A person could monitor the system and intervene in the action, but this was only possible if there was enough time to respond. For the Patriot system to function effectively, it required the correct instructions to be given beforehand, so that a computer could control its own actions below the level of a humanly perceptible timeframe. As missiles eventually become more sophisticated, there will be an increasing reliance on these automated defence systems operating in an intensified timeframe, outside of human control, but whose operations only become apparent in the extensive time of human perception when there is an accident, when the missile is fired.

However, the most dramatic fatality of the real-time transmission systems may well be political. I want to conclude by quoting the concerns Virilio expressed in relation to the CNN coverage of the Gulf War:

> The immediacy, the omnipresence and the complete visibility are the elements of the politics of tomorrow. Momentarily nobody controls the 'real-time'. Nobody is asking the questions of the induced effects. All distances have been reduced to zero. This worldwide reduction will have fatal consequences for the individual, for our customs. It is time to develop a media-ecology.

Who is really threatened? Virilio:

> The threat is the fusion and confusion. Politics in real-time is impossible. Politics is time and reflection. Today one no longer has time to think. The things you see have already taken place. And there has to be an immediate reaction. Is politics in real-time possible? An authoritative yes. But real democracy is based on the division of powers [shared powers]. When there no longer is time to share, what is shared then?[6]

The Politics of Cultural Memory

Identity, Belonging and Necessity[1]

Upon her spoon this motto
wonderfully designed:
'Violence completes
the partial mind.'[2]

A visit I made to Tirana (Albania) in April 1998 marked the start of a personal investigation, an investigation into a complicated field, somewhere between cultural memory and politics. I wanted to sketch out and map a territory of identity, memory, politics and media. The need for this was primarily of a personal nature. There was no expectation that I would be able to get any kind of complete understanding of what the relationship of politics and cultural memory entails. Certainly not beyond the excellent writings that have been produced already in this area, most of whom I am quite ignorant of. Yet, feeling the need to do this, if only for myself, seemed enough of an incentive. Since everyone's experience is always different and specific, my findings might even be useful for others grappling with the same questions I wanted to consider for myself.

The need for this investigation originated from an unresolved dilemma. Writing this in July 1999, the dilemma, obviously, remains unresolved, though it still strikes me as something dramatic. One of those crucial experiences you would have gladly dispensed with.

This particular story starts in Tallinn in 1995. I was invited to help put together a conference on the social and cultural impact of digital media and networking technologies on the Baltic States, called 'Interstanding – Understanding Interactivity'. The aim of the event was to go beyond the economic and technological perspectives, and develop something of a critical cultural and social point of view.

We were at the end of the second day of the three-day conference. The topic was 'Community and Identity in the Global Infosphere', and a host of speakers was dealing with ways of reconstructing identity and the social sphere in the realm of digital media. At some point, the sys-op

of the ZAMIR peace network from the former Yugoslavia (who happened to be present in the audience) grabbed the microphone and made a short, clear, and rather devastating comment: 'We've been talking all day about identity issues now, and their value. Our recent experiences, however, have taught us that nothing sets people more apart than identity!'

I had, as I still have, no answer to this objection. It couldn't have pinpointed the dilemma more clearly. The idea we had started from was to question what two simultaneous extraordinary transformations meant for a country like Estonia. On the one hand, Estonia was contained in a process of reinventing its national identity, a few years after breaking free from the former Soviet Empire and Russian rule. At the same time, Estonia had entered the information era overnight, depending for its economic survival on a networked international economy that undermined the very notions of national sovereignty it had just retained. The notion of a national Estonian identity is deeply problematic, if only because of the large Russian minority within its borders, which comprises one third of the overall population of the country.

The reconstitution of national identity is a fundamental dilemma that crops up again and again in the aftermath of the revolutionary changes that have taken places in the former 'East'. Identity is belonging, and a basic sense of belonging to me seems indispensable for any kind of social structure to be able to function, for any kind of social cohesion to emerge. The refusal of the identity question in name of a universal ideology (*modernism*) or materialist system (*neoliberalism*), inevitably leads to a reactionary response. Identity forges connection, but it is simultaneously a principle of separation. This principle of separation is at the heart of the dilemma we suddenly saw ourselves faced with that afternoon in Tallinn.

Deep Europe

Europe is a container of identities. A sedimental layering of cultures past and present, in permanent flux between moments of crisis and tragic sublimity. In this shifting landscape, the dilemmas of identity can turn into drama, especially in those regions where Europe is at its 'deepest', that is, where most identities overlap (and collide). This sedimentary image of the cultural map of Europe derives from the concept of

Deep Europe, as put forward by the Bulgarian artist Luchezar Boyadijev. Boyadijev provides a highly original reading of post-wall Europe.

In Boyadijev's explanation of 'Deep Europe':

> The notion is a metaphor which could be problematic. In the logic of this metaphor, deepness or depth is where there are a lot of overlapping identities of various people. Overlapping in terms of claims over a certain historical past, or certain events or certain historical figures or even territories in some cases. It could also be claims over language or alphabet, it could be anything. Europe is deepest, where there are a lot of overlapping identities.

The formation of identity is a fundamentally dynamic process. It is also subject to manipulation. The construction of identity refers to a reading of the past that can be subjective, incomplete. Sometimes it is linked to clear interests of a group. It is often difficult to fully substantiate the claims made in this formation process. Identity, therefore, is not just belonging, it is also clearly politics.

Identity and memory are connected. Identity, at the very least, means to remember one's origins. If memory belongs to a group, a time, a region, a nation or any other larger structure, it immediately becomes deeply political. Cultural memory is crucial in the formation of an identity that transcends the merely personal. Cultural memory is not just museums, books and monuments. Cultural Memory rather is politics *pur sang*!

Cultural Memory and Collective Identity

The Estonian philosopher Hasso Krull once remarked in one of his lectures that 'history is a machine going nowhere'. Though he might be right, the idea does not seem very useful to the formation of any particular kind of social order (such as a nation-state). Krull's contention will, therefore, not be likely to gain much approval among politicians, whatever their persuasion may be. It is more interesting for any kind of politics to create a meaningful context, both for the present as well as the past.

This meaningful context can best be understood as a narrative, a way in which material objects, events, documents and descriptions are linked together into a coherent narration of past and present. This nar-

ration conveys to its audience how the present derives from the past, and how the signs that structure and signify the world around them bear witness to this inextricable connection between past and present. What the objects of the past tell their audience is the necessary state of things in the present. A society doesn't just exist; it is an emergent property of a multitude of events that have shaped its current state. Its members are never alone or alienated, rather, they are interwoven in the very historical fabric of that society, which shapes their perceptions and values as much as their immediate physical and social environment.

The objects belonging to the cultural heritage of a given society are never isolated bodies in a decontextualized hyperspace, nor are they self-contained objects in a post-historical era. Their symbolic significance is not contained so much in their artistic or aesthetic qualities as such, but in the degree to which they are part of a convincing narrative that binds the object and the viewer together in a shared system of beliefs. What the object and the audience tell each other is that their inalienable connection testifies to a continuity which transcends the limitations of the individual, in time (history) and space (a people).

That is, if you believe in it.

There are various ways to describe this function. The Egyptologist Jan Assmann speaks of cultural memory as a connective structure founding group identity through ritual and textual coherence.[3] He explains that the past is never remembered for its own sake. Its main functions are to create a sense of continuity and to act as a motor for development. The present is situated at the end of a collective path as meaningful, necessary and unalterable. Assmann defines such cultural narratives as 'mytho-motorics'. They motivate development and change by presenting the present as a deficient reflection of a heroic mythological past. A past which should be restored for the future.

This view implies that cultural memory acts beyond the founding of group identity and continuity of present and past, into the future. It presents a particular view of the future as necessary, and provides direction for collective action in the present to move towards it. The goal is to recapture and restore the ideals which have been lost in the deficient imperfections of present-day life. Ideals that can be retained through collective action, whether this be in the form of ritual or rather through revolutionary change.

Cultural memory in a living culture is never fixed. It involves a constant reinterpretation of the present in terms of the past to decide on possible actions for the future. Meaning can shift and rituals can take on different forms. Rather than being fixed in an anthropological textbook, the cultural memory of living cultures is suspect to manipulation. Since the definition of cultural memory depends on a continuous exchange between the memory objects of a given culture and their interpretation by its members, it is, however, difficult to reveal the outcome as fraud. Cultural memory simply *is* the outcome of this interplay. It is the process that counts, and not its arbitrary fixation.

The definition of identity that results from this memory construction, therefore, is deeply imaginary. As Benedict Anderson has convincingly argued, 'all communities larger than primordial villages of face-to-face contact are imagined'. Imagined because they deal with how people imagine themselves and one another.[4] Today, almost all communities people belong to are too large to allow for direct face-to-face contact between all its members. Therefore, the modes of imagination employed to *imagine* one's community must somehow be organized via an in-between mechanism or apparatus (*media* in the broadest sense of the word).

The set of values and ideas that binds people together in a community necessarily have to become *mediated* values and ideas. There is nothing new in this, nor is it something pertaining specifically to the formation of the nation-state. Someone once said to me after a lecture about this topic that if you would have asked a random inhabitant of Western Europe in late medieval times to define her or his identity, the most likely response would have been 'Christian', clearly illustrating a grand transnational identity structure. Moreover, the measure of control over the media that dominated identity discourse then and now is probably quite comparable. The era of electronic media does, however, introduce a new dimension of speed to this process: a fatal acceleration towards the immediate.

Location of Memory

Where is the memory of a culture, of a society located? Principally, in the memory objects that hold the traces of the past. As noted before, in a living culture this location is fluid and dynamic. Memory is stored in both material and immaterial forms.

A seemingly stable container of cultural memory is the built environment. The streets of cities and villages, the architecture of the buildings, the artefacts that inhabit the living space, they all testify to the persistence of a culture's and a society's memory. It was hardly a surprise, in retrospect, that such an ahistorical, or maybe better anti-historical, artistic movement as the Italian Futurists hailed the virtues of war to destroy the stifling remains of a mouldy, bankrupt and corrupt cultural history. The explosive beauty of the modern war machine was ecstatically embraced as a relentlessly powerful tool to break the chains of a suffocating cultural past.

The monument as a physical embodiment of community memory has, of course, always been a focal point for the struggles over cultural memory.

Cultural memory is also contained in immaterial form. First of all in language, both in spoken language as well as in its written forms. Orality and speech seem to be imbued with a much more subtle connection to history. Speech, through accent and choice of words, is usually connected to a regional origin. Accent and dialect are the regional containers of cultural memory par excellence. They are as much part of the narration of past and present as the stories they convey. It would be interesting to further pursue the question of whether the concept of a nation-state is conceivable at all without a writing system.

Like the monument, language is an embodiment of communal memory, albeit an immaterial one. Language has often been the battleground for cultural and political conflicts. In part, these conflicts revolve around the suppression of a local language or dialect to facilitate the superimposition of a new dominant cultural system. There are also other more hidden forms of assimilation and resistance that can become the object of such clashes.

In Estonia, for instance, the suppression of the Estonian language was quite overt during the Soviet occupation of the country. The Estonian language was stripped of its official value and relegated to the personal realm. Russian took its place as the new state language (the language of bureaucracy). But exactly through this shift from public life to the personal sphere, the threatened national identity and the personal identification of the Estonians became deeply associated with the use of the Estonian language. For them, it was particularly shocking that Estonian

officials of the Soviet system started to 'Russify' the language by importing alien language structures. One such example was the phrase most Russians would use, saying 'I am X, son of Y', which was then also used by these officials when they introduced themselves in Estonian. For most Estonians, these subtle modifications of their native language felt like a particularly direct assault on the sovereignty of this last personal sphere.

Music is another strong container of culturally specific memory structures. Like rhyme, its formal characteristics ensure pertinence from one generation to the next beyond and outside of a writing system. In a larger sense, aesthetic and formal design principles are the immaterial principles that structure the awareness of the viewer about the cultural significance of individual objects, even if no explicit story is connected to them. Obviously there are countless art objects and objects of use that physically embody these principles, but it seems that their 'narration' determines their meaning in a living culture. Cultural memory in these instances is located principally in our heads, rather than in the memory objects themselves.

Today, this memory function is increasingly organized via the media system of print, electric, electronic and digital media. This media system has become increasingly integrated, both through technological developments (such as digitalization and convergence), and because of economic integration (mergers and concentration in the media industries). This integrated system internalizes the main functions of cultural memory, it becomes its principal 'location'. It acts as a documentation system, of current as well as past events – the latter by making use of continuous references to that past with historical media documents. The integrated media space also acts as a system of symbolic representation, of individuals that represent power (political leadership) or spiritual values (religious leaders), or simply by setting an artistic or interpretative agenda.

What the media system is particularly good at is the creation of collective narratives. Television so far champions this function as Marshall McLuhan already observed in the mid-1960s, reflecting on the coverage of the Kennedy funeral. He writes:

> Kennedy was an excellent TV image. With TV, Kennedy found it natural to involve the nation in the office of the Presidency, both as

> an operation and as an image. TV reaches out for the corporate attributes of office. Potentially, it can transform the Presidency into a monarchistic dynasty. A merely elective Presidency scarcely affords the depth of dedication and commitment demanded by the TV form . . . Perhaps it was the Kennedy funeral that most strongly impressed the audience with the power of TV to invest an occasion with the character of corporate participation. No national event except in sports has ever had such coverage or such an audience. It revealed the unrivalled power of TV to achieve involvement in a complex process. The funeral as a corporate process caused even the image of sport to pale and dwindle into puny proportions. The Kennedy funeral, in short, manifested the power of TV to involve an entire population in a ritual process.[5]

Quite recently, this enormous power of television to integrate a public of billions into a collective act of cognitive processing in depth was again strikingly illustrated. First by the televised wedding of Princess Diana, but most of all by the almost global live coverage of her funeral, following her tragic death. In the process of the televised rendition of a royal fairy tale-turned-nightmare, Princess Di became a purely symbolical embodiment of community values and aspirations, making her no more real than Delacroix's *Liberty*, leading the people.

Commodification of Cultural Memory in the Information Age

The European Union has identified Europe's cultural heritage as its greatest 'info-asset' for the information economy of the future. It has engaged in a scheme for offering multimedia access to Europe's cultural heritage as a business opportunity. Given that the core of the future economy is informational and that there is a particular interest in rich 'content' for the communication structures of the 'emerging information society', the EU has declared the commercial exploitation of multimedia access to the cultural heritage of Europe the highest aim of its funding programmes in this field.

Through a 'Memorandum of Understanding' and the establishment of 'cooperation frameworks' such as MEDICI (Multimedia Access to Europe's Cultural Heritage), this new market sector (cultural content industries) is actively encouraged. The notion of culture as public domain

does not seem to have been a consideration when these policies were developed. Even less so does this policy framework open up any spaces for critical debate.

This failed opportunity may be partially understood as reluctance on the part of the European Union to give itself a cultural definition, given the great diversity of cultural identities within its (expanding) territory. It is, however, problematic that in a period of European integration, the EU is not willing or able to create a space for critical debate about the urgent questions of the new cultural formations in Europe. Together with its lack of democratic substance, the European Union has become an abstract and alienated technocratic and bureaucratic structure that affords little opportunity for identification to its 'citizens'.

*Un*critical Regionalism

Boris Groys has pointed out a more subtle form of commodification of cultural memory. It starts with a strong anti-modern resentment, which is particularly notable in the countries of the 'former East' of Europe. Groys notes that modern art does indeed negate the old cultural identities and their perceived historical originality and authenticity. The defenders of national identity do not appreciate that, but also the 'international visitor of the virtual museum of identities', who has no wish to be confused by ambiguous signs, has no appreciation for it.

This post-modern cultural tourist, lost in the decontextualized societies of spectacles and ubiquitous consumerism, is looking for a lost cultural authenticity which she/he hopes to find in the revival of pre-modern identity and sentiment, particularly in 'the former East'. Groys:

> The global, postmodern flâneur, lacking a clear definition of identity, is certainly sceptical about any claim to a universal truth. But it is exactly this fundamental scepticism that allows the acceptance of any other point of view, as long as it understands itself as regional and does not claim universal validity.

This attitude results in an unpleasant complicity of a reactionary regionalism and the international cultural tourist industry, where even certain cultural fundamentalisms are uncritically accepted, as long as they manifest their claims to an absolute truth on a regional plane.[6]

Although Groys acknowledges the museum as a typically modern institution, isolating objects from the specific historical and sociopolitical context in which they operate, the *museified gaze* of the repressive politics of identity and the international cultural tourist are for him bound together with the museum into a single system. Certain specified memory objects are charged with meaning by these actors, much in the same way as the museum carefully enacts their display into a coherent narration to create the deeply desired illusion of a stable identity. The regional fundamentalist dictator is thus seen as a somewhat hyperactive, but nonetheless sympathetic kind of curator.[7] A last defence outpost of difference in an ocean of negated signs.

Perversion of Memory

Nobody, either now or in the future, has the right to beat you!

In the Balkans, where Europe is at its deepest, the battles over identity and memory are the most severe. The clashes over history, territory, belonging, language and religious identity have a traditionally violent character and are linked with some of the most tragic chapters of European history. In the wake of European integration and the emergence of globalization, the regional fundamentalist wars seem to have reached an unprecedented level of intensity and destructiveness.

In March 1989, the Slovenian art collective NSK (Neue Slovenische Kunst)/Laibach staged a chilling performance in Belgrade, called 'Lecture', which was to prefigure the terrible events to follow. The performance also revealed the dangerous character of one of the saddest perversions of cultural memory of recent history. In the NSK 'lecture', parts of appropriated speeches by the nationalist Serb leader Slobodan Milosevic, Nazi propaganda minister Joseph Goebbles, and the architect of British pre-Second World War appeasement politics Richard Chamberlain, provided the elements of an explosive mixture.

Two years before, Slobodan Milosevic spoke in almost the exact same words on Kosovo Polje, the Field of Black Birds. At this occasion Milosevic used his famous words 'nobody has the right to beat you', referring to the growing animosities between the Serb and Albanian population of Kosovo. Three months after NSK's performance, he spoke

again in the same place commemorating the 600th anniversary of the Serbs' defeat at the hands of the Ottoman Turk Empire in 1389 on that very 'field of black birds'.[8] This time to prepare the ground for armed fights, by linking Serbia's present to this historical battle.

Both ethnic groups disputed their contesting historical claims over the territory of Kosovo. The Serbs stressed their long-lived cultural roots in the Kosovar soil, exemplified by the many cultural heritage sites consisting of medieval churches, monasteries and Serbian dominated cities and villages. The Albanians on their part stressed their descent from the ancient Illyrians, a people who are believed to have occupied the Balkans some time before the ancient Greeks – and 1,000 years before the Slavs.

In the nationalist rhetoric of the Milosevic regime, the cultural heritage sites of Kosovo, such as the famous monasteries of Zica, Decani, and Vansjka, were functionalized to serve a sinister political programme. Kosovo was declared the cradle of Serbian culture and the Serbian nation, a theory that had been very popular since the days of the Serbian nationalist movement of the late nineteenth century. It had been this nationalist movement that managed to finally shake off Ottoman rule in 1878, after 500 years of occupation. By portraying the cradle of the proud Serbian nation as being under threat, the right and the need for its territorial defence and ethnic purification was created by the Milosevic regime.

In the ten years this regime has ruled the remains of the former Yugoslavia, it never failed to recognize the importance of the media and television in particular. Perhaps Milosevic had read McLuhan with more than an absent-minded interest. He and his advisors knew very well how television could be employed to create the collective narratives needed to justify his nationalist and ethnically hyper-violent politics, and how to motivate the Serbian people to engage in action.

According to McLuhan, television is a cold medium; it involves in deep cognitive processing, but does not excite the viewer. If this is true, then the motivation of the viewer towards action required more than the simple exposure to a blatant political message. Goebbles already noted that propaganda requires the creation of an 'optimum anxiety level'; a feeling of threat and unrest that should, however, not transgress the boundaries of panic.

In Serbia, the feeling of constant threat was created by the Milosevic regime in various ways. On state television a relentless campaign, using the horrific images of forced baptism of orthodox Serbs in Croatian Second-World-War death camps, hammered home the message of the luring dangers next door. The reports of international criticism reinforced the feelings of being under siege of practically the rest of the world, while mythic stories of the partisan achievements helped to boost moral. In this gruesome media mix, the evening news became the focal point of a national mania, a nationwide brainwashing that eventually prepared the grounds for war.

When considering the various contested claims about history, territory, language and religion within the terrain of former Yugoslavia, the two-dimensional maps of the international 'peace'-brokering agencies in the late 1990s seemed hopelessly beside the point. When these claims, Croatian, Serbian, Muslim (or possibly even Austro Hungarian) are projected individually onto this terrain, virtually identical maps emerge. Each of these maps would more or less cover the entire terrain of former Yugoslavia. This layering of contesting claims and identities over the disputed territory is what constitutes the depth of the Balkans and marks its tragedy. Only a three-dimensional map of the terrain of former Yugoslavia can properly explain the complexity of its cultural history. It is also clear, therefore, that within the two-dimensional logic of the international peace-brokering agencies, the conflicts on the Balkans cannot be resolved.

Access to Cultural Memory and Participatory Identity Construction

In his book *The Rise of the Network Society*, Manuel Castells analyses the rise of two diverging spatial logics. One of these spatial logics is close to what we customarily think of when considering the concept of physical space. Castells calls it the 'space of place'. In this spatial logic, experience is located in an embodied existence, here and now. But this experience is heightened, and to some extent estranged, by the emergence of a second spatial logic, which, although connected to the first, seems to evolve outside of the control of the vast majority of the planets' inhabitants; the 'space of flows'. The space of flows consists of the countless disembodied informational and economic interactions within the world's information and communication networks, and it is quickly

becoming the prime locus of economic and political power and material wealth.

Given the profound and increasing impact these new configurations of the space of flows will have on most people's lives, Castells is deeply concerned about the divergence of these two spatial logics. During the preparatory discussions for the programme of the third 'Next 5 Minutes' conference on tactical media in Amsterdam (March 1999), David Garcia, one of the co-editors on our team felt the need to respond to Castells' call for action. Garcia wrote at the time:

> I believe we must create a more consciously dialectical relationship between these two realms, (which Manuel Castells describes as the Space of Flows and the Space of Place) because (with Castells) if they are allowed to diverge too widely, if cultural and physical bridges are not built between these two spatial logic's we may be heading (we may already be there) towards life in two parallel universes 'whose times cannot meet because they are warped into different dimensions of hyper space' . . . I believe that one such bridge or entry point may lie in notions of reclaiming memory through re-imagining the public monument. I still believe that any broad discussion about the public domain cannot be separated from the physical embodiments of community memory in the form of public monuments. The model here is that of the city (the polis) in classical antiquity, and the stress is the memorable action of the citizen, as it publicly endures in narrative.

Public narrative is an activating principle. Memory is never constructed solely for its own sake: it structures the relationship between past and present to formulate a plan for future action. Disputes about public narratives in the *space of place* are traditionally negotiated non-violently through democratic participation, both in the act of creating memory and the formulation of plans for future action, as well as their continuous revision. The new networked space of flows requires a similar democratic participation, or public access.

More importantly, the new space of networked communications still holds a promise and a more profound potential for public participation than the accustomed modes of participatory decision making.

It transcends the limitations of the regional focus of the embodied space of place, but it also de-centres the media control over the completely centralized structures of broadcast media (radio and television). Paradoxically, the new *space of flows* simultaneously holds the potential of absolute transparency, making every single operation within the informational environment perfectly traceable. As a result, it is also potentially a space of absolute control and observation – the ultimate instrument of authoritarianism.

The distributed media and communications model that the Internet introduced in the beginning of the 1990s is dissipating quickly under the pressures of commercialization, and (even worse) government control over 'harmful content'. Still, the best chance for avoiding the dangerous manipulation of memory by an increasingly sophisticated medialized propaganda machine is the radical opening of the media landscape to a multiplicity of uses. This consciously opened mediascape can constitute an integrated electronic space of flows, where countless people are potentially able to engage in the participatory construction of memories and identities, simply by creating their own heterogeneous messages.[9]

Momentarily, three competing models for the future media landscape circulate; a model of complete centralized control, countered by the model of complete privatization and market regulation, and thirdly, the model of a networked public sphere. None of these are self-evident or inevitable outcomes of the current phase of transformation the networked communication system is going through. Their instigation is a matter of choice, of clear real-world interests, and of policy. These choices are part of a fundamental political struggle, whose outcome will determine whether the new space of flows will be as experientially empty as the technocratic structures of the EU, or whether it can offer the spaces of identification and multiplicity that Europe, as a whole at least, so blatantly lacks at the moment.

‘freedom’

Cyberspace Independence and Contemporary Gnosticism (1997)[I]

I start this short text from a very simple premise: the concept of ‘freedom’ denotes a quality that is by nature unrestricted. If we confine ‘freedom’, we immediately destroy that feature which we intuitively understand to be one of the most essential traits of the concept, exactly this: the unrestricted. ‘freedom’, therefore, can never exist within a closed system. Furthermore, ‘freedom’ can never exist in a computer, as the operation of this machine relies on the scheme of digital encoding which is finite and exact. ‘freedom’ can, for the same reason, never exist within digital networks as they equally rely on the scheme of digital encoding (of information stemming from whatever source).

It would appear that this premise is banal, a platitude. Yet it touches on the very essence of the virtuality that is the defining imperative of networked cultures. The implication of the idea that the finiteness of the digital excludes the very possibility of ‘freedom’ implies a radical political programme. If we somewhat refine this idea, it can provide a useful theoretical framework from which to interrogate and critique some of the recent discussions that have emerged around the politics of embodiment in relation to the Internet, and the political claims to free speech and freedom of expression for which the Net is considered to be a medium of great potential.

It is in no way coincidental that I would propose to discuss the concept of ‘freedom’ in the context of this gathering of practitioners of new media culture in Central and Eastern Europe. The social and cultural transformations in the post-Socialist societies that are the implicit underlying theme of this meeting have been heavily implicated by the rhetoric of freedom. More importantly, the Net has been regarded with high expectations (both in the former ‘East’ and ‘West’) as a new communications channel which would provide unprecedented possibilities for a free expression of views and ideas, and direct unfiltered access to a vast array of information sources.

While it is important to acknowledge this potential (it should at least not be denied), the inherent conflict in the notion of the Net as an independent cultural sphere with the politics of embodiment has recently become apparent.

The event that revealed this conflict most clearly, and triggered an intense discussion, was the publication of the *Cyberspace Independence Declaration* (February 1996) by John Perry Barlow, one of the front men of the Net civil rights group, the Electronic Frontier Foundation (EFF). In this manifesto, Barlow declares cyberspace to be 'the new home of the mind' and claims its independence from state-based law and politics. The declaration itself was a reaction to the US Telecom 'Reform' Act, a law which threatened to impose serious restrictions on freedom of expression via the Net.

Barlow legitimizes his claims by stressing the boundless global dimension of the Internet as a communications system, and more importantly, by seeking recourse in the disembodied nature of the social interactions which take place via the Net. Though the traditional politics of the nation-state may still exert control over the physical bodies of their citizens, they can no longer control the free deployment of the mind in cyberspace 'in a world soon blanketed in bit bearing media', he maintains. The state-based politics of repression are thus equated with their material base and located in the physical realm of the body, whereas the grass-roots politics of freedom in cyberspace are equated with the immaterial realm of the mind.

This reduction is not only simplistic, it is also inherently reactionary. Peter Lamborn Wilson has pointed out how the ideology of the Net as a disembodied social sphere relies on a Cartesian mind/body split. These kinds of post-human theories often conclude, he muses, in a kind of contemporary Gnosticism, in the sense of a hatred of the body.

In his pirate utopia of the *Temporary Autonomous Zone*, Lamborn-Wilson has stressed the demand of the sensuous. Only through a free enjoyment of sensual pleasures and physical experiences can any real sense of freedom exist. True freedom can never be achieved when the body is condemned.

The next problematic aspect of the ideology of 'freedom' is the relation of the liberated individual to her or his social environment. The demand for a total liberalization of both body and mind from political

and social repression implies an inherently antisocial stance. No social system can exist, functionally, without an infringement on the freedom of the individual to follow his or her most individual impulses, without restriction. Conversely, the uninhibited pursuit of individual impulses and desires implies the destruction of the social sphere, which becomes a battleground for conflicting personal interests. The liberalization of the individual, it would seem, can only actualize itself at the expense of the social sphere.

The modern ideal of the emancipation of the individual and the simultaneous demand for social justice reveals itself as nothing less than a paradox, and one that remains with us in the present.

How then to consider the Net in relation to (the desire for) 'freedom'?

Virtuality should be considered as the inescapable result of the application of a finite digital scheme of encoding inside a machine operating with electronic speed. Digital information is data without an analogy to its origin. All messages travelling through the networks of interconnected digital machines become virtual, whether textual, visual or tactile, when they are translated into this universal code of atomized information, which is the prerequisite for the systems' operation.

The Net can, therefore, never be the open space in which experience can be liberated beyond the restrictions of any social, political, cultural or operational code. The Internet can act, however, as a strategic device for creating open spaces within the turmoil of conflicting social, political and cultural signifiers.

There is yet another dimension which adds to the illusive nature of 'freedom'. Though 'freedom' can be experienced, it can never be understood, as comprehension would reduce the concept to the limits of individual consciousness. This reduction again would imply a constraint of that which should by nature be considered unrestricted. 'freedom' is *sacred* to any open society and in this way appears similar to the divine. The sacred can never be defined or be represented in a unique form in space and time. Rather, it discloses itself as secret. While it cannot be represented, it can be alluded to, it can be named. But mostly, it is made known secretly, by its absence.

The Net, then, as a strategic vehicle, can be one important way to create the open, undefined spaces (in society and the physical world)

where 'freedom' may perhaps be experienced, if only in a brief moment – it is not that space of 'freedom' in itself.

Postscript: Notes on Hybridization

Looking back at the short speech 'freedom', originally written for a gathering of the Syndicate network, a pan-European network of artists, writers, curators and theorists devoted to media art and media culture, in Liverpool during the 1997 'Video Positive' festival, what strikes me most about the text now is the use of the term 'virtuality'. It is introduced in the text as nothing less than 'the defining imperative of the networked cultures'. I would be quite hesitant to use this terminology today, because the concept 'virtuality' as it is used here invites a whole series of misconceptions. These need to be addressed critically, in order to reach a better understanding of the relationship between the media technologies under consideration in the text, and the larger social context in which these technologies function. Instead of simply deleting the term 'virtuality' from the 'freedom' text, or simply rewriting it, I decided to leave the text as much as possible in its 'original' state, and reflect on some discrepancies that can be analysed more clearly with some distance to it – things that were still (necessarily) speculative at the time.

Three possible misconceptions that could emerge as a result of treating *virtuality* as a *defining imperative of networked cultures* are of particular importance: (1) the separation of the virtual and the physical; (2) the introduction of a rather counterproductive dichotomy between face-to-face encounters and online interactions in analysing how social relationships are established in the 'network society'; and (3) a preoccupation with an utterly anaemic aesthetic of virtualization in techno-culture, the poverty of which is unable to accommodate the complexity of the experience of everyday life, and therefore tends to fall into pure formalism.

A critical look at these conditions can also help to define more clearly the limits of the networked experience in its 'pure' form – the user bound to the network terminal – and to help understand the current transition away from this type of interface. This contemporary shift gives rise to an entirely different set of paradigms of how to interact with electronic networks and digital information. This issue is part of a fundamental reconsideration of digital software design, moving be-

yond the idea of the interface and into physical space, but also away from the screen, in a more 'haptic' direction.

Let me first take a closer look at the separation of the physical and the virtual domain. The classical argument goes that once sufficient bandwidth (speed of connection) is established through an electronic digital network, physical location becomes less important, to some extent even irrelevant. Data can travel at the speed the bandwidth allows for – it is no longer distance, but network capacity and the local connection that determine the speed of information exchange. This highlights the manner in which electronic data-space operates according to a different logic than the physical one.

Now, it is clear that online communication systems (networks) operate quite differently from direct physical encounters and face-to-face communication. Nobody will deny that distinction, however, it is important to exactly ascertain the nature of those differences, and how they affect social, political and communicative processes. Significantly, none of these issues present any reason for considering online interaction as being apart from, let alone independent of, physically embodied experiences, interactions, communication and exchange. First of all, electronic networks operate through a massive physical engineering infrastructure, without which they immediately cease to function. The machines that maintain them (terminals, routers, modems, switches, and so forth) consume large amounts of electrical energy. This energy needs to be produced and thus requires further material investments of various kinds. Secondly, the information circulating in the networks ultimately acquires significant meaning only through the person interpreting such data, in one form or another. As this interpreter is necessarily bound to their physical body, no social interaction exists without some form of interaction between the mediated data and the embodied experience of the user. Arguments to the contrary indeed end up in the kind of contemporary Gnosticism noted in the 'freedom' text – a denial or outright hatred of the body.

The role of this interpreting body at the terminal, or at the interface of the electronic network, already points to the second aspect – that of social reality. In other words, this embodied interpreter is necessarily part of, and subject to, all manner of social interactions and contexts. Even though that immediate context might be transformed by the

emergence and use of networked technologies – often it becomes altered in significant ways – this does not do away with the embodied social context as such; it remains a prescient presence, regardless of the nature of the online activities this interpreter might engage in (for instance, even if she or he earns all their money or has all their friendships online, and none 'in the neighbourhood').

The last point to make here is almost too obvious, but still important to keep in mind. In 2007, a very large part of the global population has no access to basic electronic communication facilities. In fact, a majority have no access to them at all. Even if these figures are rapidly changing, in particular with the spread of wireless communication technology, the majority of people in the world remain by and large offline. The visualization of network connections, Usenet and web traffic, and other networked data flows of the late 1990s are particularly startling in this regard. They show an enormous density of connections and interaction between the major economic centres of the Western world, and the near complete absence of them in the largest parts of Africa, central and south Asia, and abysmal levels of activity in Latin America. Rather than illustrating the difference between the physical and the so-called 'virtual' domain, these visualizations closely map the 'real-life' distribution of economic and political power in the world. Similarly, the subsequent changes in connectivity also closely mirror the economic and political shifts in the embodied domain.

What is the Carbon-Footprint of an Avatar in Second Life?

The absurdity of the claim to 'immateriality' in the sense of a transcendence of the corporeal and the limitations of physical existence in the virtual are beautifully illustrated by a short discussion that emerged on some mailing lists and blogs in December 2006. The discussion centred on the question of how much (electrical) energy is required to sustain an avatar in Second Life, and consequently, how the ecological sustainability of such an avatar actually can be evaluated?

In a posting on his blog, Rough Type, Nicholas Carr discussed this issue and made some basic and highly revealing calculations. He writes:

> If there are on average between 10,000 and 15,000 avatars 'living' in Second Life at any point, that means the world has a population of

about 12,500. Supporting those 12,500 avatars requires 4,000 servers as well as the 12,500 PCs the avatars' physical alter egos are using. Conservatively, a PC consumes 120 watts and a server consumes 200 watts. Throw in another 50 watts per server for data-center air conditioning. So, on a daily basis, overall Second Life power consumption equals:

(4,000 x 250 x 24) + (12,500 x 120 x 24) = 60,000,000 watt-hours, or 60,000 kilowatt-hours

Per capita, that's:
60,000 / 12,500 = 4.8 kWh

Which, annualized, gives us 1,752 kWh. So an avatar consumes 1,752 kWh per year. By comparison, the average human, on a worldwide basis, consumes 2,436 kWh per year. So there you have it: an avatar consumes a bit less energy than a real person, though they're in the same ballpark.

UPDATE: In a comment on this post, Sun's Dave Douglas takes the calculations another step, translating electricity consumption into CO2 emissions. (Carbon dioxide, he notes, 'is the most prevalent greenhouse gas from the production of electricity.') He writes: 'looking at CO2 production, 1,752 kWH/year per avatar is about 1.17 tons of CO2. That's the equivalent of driving an SUV around 2,300 miles (or a Prius around 4,000).[2]

Carr summarizes the point in the catchphrase that an average avatar in Second Life consumes as much electricity as an average Brazilian. Generating that kind of energy requires a substantial material investment, countless logistic movements, it creates jobs, pollution (that needs to be cleaned up by people and physical machines) and all kinds of other material reverberations from the interaction of these avatars in their virtual domains (not least the biological requirements for the *wetware* in front of the screen to bring the avatar to life). To consider these domains, the physical and virtual, as distinct is, for all the reasons already given, simply absurd, and it does not assist with understanding

what the emergence of these technologies actually signifies for the individual or for society.

What these examples and comments highlight is the interconnection of the physical and the 'virtual'. This suggests that, rather than thinking about these relationships as something established between two distinct and self-contained domains, it is much more straightforward to see the embodied and electronically mediated as two aspects of the same experiential, social and political reality. In other words, to assume one 'hybrid' reality that consists of both physically embodied and electronically mediated elements. Such an approach foregrounds the hybridization of most common spheres of everyday life, where the contradictory logics of physical existence and electronic mediation continuously affect and confront each other.

Separation and Reconnection

It is understandable, of course, that within social sciences and social critique, network theory, net criticism and related analytic endeavours, the focus shifted first towards the new modalities of networked communication; new or at least newly consolidated transnational formations of economic and political power; online social interaction; community building in networked environments; and other typical phenomena that dominated critical discussions of Internet culture and politics in these formative years.

Probably the most famous, and most widely read and accepted analysis of the dynamics of the 'network society' is the synthetic analysis developed by urban sociologist Manuel Castells in his three-part consideration of the 'Information Age' (Economy, Society, and Culture).[3] One important building block of Castells theory is his diagnosis of an increasing divergence between two spatial logics, which in his view threaten the very fabric of society; the *space of place* versus the *space of flows*. What concerns Castells is that more and more economic and political power is shifting towards the disembodied (placeless) space of flows, constituted by the networked integration of electronic communication channels. In essence, he points out that those who control the operation, use and content of these channels wield ever greater power over expanding territories, also over those territories that do not posses any access to these channels themselves. He writes:

> People still live in places. But because function and power in our society are organized in the space of flows, the structural domination of its logic essentially alters the meaning and dynamic of places. Experience, by being related to places, becomes abstracted from power, and meaning is increasingly separated from knowledge. It follows a structural schizophrenia between two spatial logics that threatens to break down communication channels in society. The dominant tendency is toward a horizon of a networked, ahistorical space of flows, aiming at imposing its logic over scattered, segmented places, increasingly unrelated to each other, less and less able to share cultural codes. Unless cultural and physical bridges are deliberately built between those two forms of space, we may be heading toward life in parallel universes whose times cannot meet because they are warped into different dimensions of a social hyperspace.[4]

What Castells is attempting to address with his spatial dichotomy is the enormous asymmetry between the economic, political and cultural elites that procure access to these communication channels and data networks, and the global majorities who remain excluded from these vital resources. This is a politically valid and important point, and one that was picked up soon after through the NGO-speak of the 'digital divide' and similar discourses. Probably for the sake of clarity, Castells highlighted this inequality by creating an almost absolute juxtaposition between the embodied realm of everyday life and the mediated realm of disembodied economic and political power projected globally through electronic networks. This inflexible separation did not reflect the actual course of development, nor did it do justice to the myriad of initiatives that approached the issue of information and communication access in a deeply pragmatic manner, often in a locally specific setting.

Castells' analysis disregards, for instance, the enormous importance of free software movements that sprang up across the globe, from around the late 1980s onwards; initiatives that provide access to tools and ideas for everybody with sufficient skill and necessity to learn how to use these tools. Castells also bypasses the fact that the Internet was precisely opened to a wider constituency by hacker groups and civil initiatives that had very little in common with the top-level operators

of the space of flows. Contrary to this macroscopic analysis, the model of an *electronic pirate modernity*, as introduced by Ravi Sundaram of the Sarai new media initiative in Delhi, suggests a far more productive model of understanding how the 'disconnected' forge their entry into the space of flows by creating non-legal networks and employing parasitic strategies that simply take what is needed from mainstream developments to procure those who cannot afford mainstream luxuries (their overpriced subscription rates, the intellectual property Mafia, and all the other excesses of wild-west networked capitalism). Sundaram's concept of pirate modernity emphasizes the deep local ties that constitute emerging forms of radically distributed media technology and 'democratized' communication structures. Moreover, in the affluent enclaves of the 'First' and 'Second' World, many under-funded (or non-funded) communities have developed their own tactics and strategies of engagement with the mainstream development of the space of flows, carving out little niches, temporary autonomous zones, insular networks, gift economies, and other self-sustained infrastructures (practices tied again to local or translocal specificities). Such micro-political terrain is discarded in Castells' model, which seems directed only at the macro level of institutional power and politics in its metadiscourse of absolute spatial dichotomies.

Media and the Modern Theatre of the Street

As discussed earlier, primarily at stake in all of these multifarious do-it-yourself networking initiatives was an attempt to revitalize and reinvent public culture in an era of transnational communication (networks), business and politics. This public culture first needed to be freed from the alienating machinations of professional broadcast media and their impotent pseudo-sociality (Sennett), and reconstituted in a more genuinely open, reciprocal communication environment, as it was potentially provided by the distributed communication structure of the Internet. The second move was less straightforward: the move back to the street. The street, public space itself, the streets of cities, are not just the primary stage of the modern theatre (Léger), but also the setting in which 'the public' could come into existence in the first place. This urban space is, therefore, the very prerequisite for the emergence of the public sphere and its attendant political understandings.

The move back from the screens to the streets was not just a political gesture. Actual technological developments have for some time now been making a similar shift with the introduction of wireless electronic and digital networks. The GSM, the mobile phone, is the most common representative of this development, now firmly entrenched in the daily consciousness and practice of everyday life of an ever-growing number of ordinary citizens. Importantly, GSM use is growing exponentially in areas where 'landlines' are much less commonly available. These wireless networks, the miniaturization and increasing portability of the media and communication devices, the growing data capacity of both networks and devices, the recent growth of WiFi-networks, all intensify this trend, but also suggest a new experience and aesthetic of public space and everyday street life, for better or worse.

In my personal experience, the execution of the Dutch/Russian media, art and urban intervention project 'Debates & Credits' (2002), in Moscow, Amsterdam and Ekaterinburg,[5] created the most obvious shift in my own thinking about the relationships between physical and media space. In this project we – artists, activists and theorists working together – literally took our media to the streets in the form of mobile large-scale projections on buildings and monuments; through portable sound boxes, sticker campaigns, wall paintings, street performances, hybrid online/offline discussions, site-specific installations, and more. The project deliberately did not choose any single medium or form. Instead, it explored a variety of different modes of engagement. Most of the interventions, all staged in urban public spaces, some 40 events in total, declined to provide any direct political message in terms of content, insisting instead on personal, poetic or absurdist narratives and gestures. The politics of these actions were embodied more by their unannounced presence, and the reclamation of urban space for public culture. These actions also squared off quite closely with the neo-Situationist practices that had become fashionable at the turn of the millennium, and more importantly, the Reclaim the Streets and Critical Mass interventions, reclaiming 'the streets for people' with raves and mass bike rides/protests. In Moscow, the project received an added layer of meaning, in that it revisited the extinguished culture of street protests and ludic actions of the 1990s, which was snubbed out with the rise of Putin's political clan to power in Russia.

Through an extended discussion with artists, activists and theorists, it had become clear to us that the fusion of media, arts, performance, embodied action, architecture (in the concrete sense of built architecture – the design of embodied space), networked interaction and urban life, were a prerequisite for understanding the experience of the new complexities of social reality in a so-called 'network society'. The hybridization of these forms and their occasional contradictory logics brought us closer to such an understanding. In the book compiled around 'Debates & Credits', we characterized this insight as follows:

> What we have come to understand the hard way is that the space of flows is deeply entrenched in our everyday social realities. We cannot make the neat separation between the wired world and the embodied one, just as we cannot make the separation between the virtual and the real. Media is the stuff our social reality is made of, and the real is composed of and composes the symbolic codes that circulate in the media networks that define the social.
>
> What in fact needs to be done is to introduce the strategies of the nineties autonomous media cultures in the embodied spaces we inhabit, and it paradoxically requires the use of the very technologies that have created the mess we have now been flooded in. One step in that direction is to articulate a new sensitivity, a sensitivity for the hybrid, for the necessarily impure, for the nestedness of our living environments, a desire for contamination... The disembodied media worlds need to be infused with the virus of the real, as much as the living spaces of everyday social reality need to be infected with viral media. We are looking for models that break the illusion of perfect control.[6]

Two macropolitical 'events' marked the landscape in which the 'Debates & Credits' project was to be staged. The first was there from the beginning of the project's preparation, the election of Vladimir Putin to the presidential office in the Russian Federation, that marked a shift in the power constellation characterized by the reconstitution and consolidation of the central state apparatus of government, combined with a much tighter grip on public urban space, as well as media space. From the beginning, Putin's governing faction proved to be a much more me-

dia-conscious entity than any government before it. It not only utilized the media effectively, but also controlled the use of that same apparatus by other sociopolitical actors more consistently. This new consolidation of political power in the centre of Russian society completely changed the political, social and cultural climate. The claims in this media and political space became much more clearly articulated, but simultaneously, the measure of free movement within it was dramatically decreased.

The second macropolitical event, of course, was the terrorist spectacle of 11 September 2001 and its aftermath, which occurred in the middle of preparations. This series of events completely transformed the arena of public communication. The narrative constructions of the 'War on Terror' and terrorist threats, emanating from a space of near-complete disinformation (thinking, for instance, of the persistent 9/11 conspiracy theories that make any sensible public judgment impossible), still resonate in our ears, even as this text is written. In 2002, a year into this collective psychosis, it was too early to really reflect on the full extent of this rift in the public sphere, the effects of this unchained anxiety machine – except to reflect on it metaphorically, aesthetically, as the artists Galina Myznikova and Serguei Provorov, for instance, did in their five channel window projection *Falls & Rises*, for the façade of De Balie, the centre for culture and politics in Amsterdam, as part of 'Debates & Credits'.

For us, however, the hybridity of the 9/11 experience was clear from the beginning. Within minutes, the 'rupture of the screen' by the attacks had been stitched; within hours, the events had been absorbed and 'neutralized' in media codes; within a week, the images sequenced to global rock-music (on 16 September, CNN played images of the NYC/WTC attacks accompanied by the soundtrack of 'New York' by U2);[7] the domination of mainstream media space re-imposed. The inevitable violent aftermath is known. The hybridity of the event was constituted by its double reality: the media extension of the attacks certainly spawned their greatest impact – through their immediate and continuous remediation they created an absolute spectacle ('cosmic art' to some). However, if you still had a question as to whether these events had actually taken place, you could visit ground zero and see for yourself. The twin towers had vanished, the destruction was undeniable – this was

quite different from the eternal debate about the (un)reality of the televised moon-landings.

If hybridity was such a defining characteristic of our experience during that time, if we could not imagine public space and culture without its electronic mediation, how then do you engage these hybrid conditions? The question was stated in our project as follows:

> How does one enter the public imagination in the era of hybridity?
>
> By going to places that are both symbol and embodied presence at the same time: in our case ideally embodied in the public monument in city space. When we put our digitized messages on Mukhina's Worker and Farmer, the infamous cultural icon of the Soviet era, we layered shifting personal narratives on top of a multi layered history embodied in steal, stone and symbolic form. In retrospect it was the ultimate locus for exploring the models for a multidimensional urban visuality we had aimed at from the beginning. Finally we had arrived in hybrid space.[8]

This act of re-appropriating the monument by means of mediation was certainly a potent strategy because it spoke directly to the double life of the public imagination, to the hybrid fusion of embodied and mediated public symbols. However, the project also visited the suburban regions of the metropolis, the unspectacular sites of everyday life. These 'informal' sites were as important to us as anything else – it reinforced the rootedness of hybrid media practices in a specifically local context.

Aesthetics of Hybrid Space

The move away from the screen back to embodied space highlights a new aesthetic sensibility. This sensibility is radically different from the sterile perfection of early cyber-utopian imaginations, most significantly embodied in the famous love scene from the VR-fantasy movie *The Lawnmower Man* (directed by Brett Leonard, 1992). In this iconic scene, two lovers, suspended in complete immersion in the virtual environment, literally flow together as two liquid bodies in what is supposed to be a hypersensuous kiss and embrace. The film carries forth ideas of transcendence of bodily limitations within 'cyberspace', and a preoccupation with digital (mathematical) perfection in synthetic images.

The narrative of the film rehearses the same separation of physical and network space that Castells adopts for his model of a new sociospatial morphology of the network society. This dichotomous model ('virtual' versus 'real'/flow versus place) was to be repeated endlessly in countless cyberpunk and sci-fi movies, and television series of still more dubious quality. It also defined the founding narrative structure of the *Matrix* trilogy through a complete misreading of Baudrillard's simulacrum concept, which intends to collapse the embodied and the mediated/represented/simulated into one hyperreality, instead of separating and juxtaposing them – Matrix (virtual) versus Zion (real).

It is also this insistence on the synthetic, perfectly calculable image that makes the aesthetic of these 'virtual realities' so profoundly anaemic. Seen as a provocation, as a radical departure from the pseudo-subjective signature of the artist (of course, itself an entirely constructed sign, defined by the 'big Other') the early emanations of this type of VR-based imagery seemed quite productive, but they ultimately proved too impoverished to remain aesthetically engaging to a demanding audience.

At the other end of the digital scale, we find the use of extremely pixellated imagery and (largely abstract) visual structures, the use of glitch (calculated error) as an aesthetic element, or the use of seemingly disintegrating visual structures. They also seem too impoverished to accommodate the complexity of contemporary aesthetic experience – the lack of tactility, the sterile distancing, the simulation of decay, yet captured in a medium of perfect and absolute articulation (the digital matrix), ultimately seems unable to capture the spectator's attention or deep involvement in the long term. Instead, they produce a highly periodized aesthetic, deeply reminiscent of a particular technological transformation that is reflected in these works (in basic terms the era of low-resolution digital imaging).

Many artists have recognized this trap and have focused instead on processual works, utilizing the same media, creating spatial installations, exploring issues of interactivity and interface, and moving progressively away from the screen into a more open physical and spatial experience. As noted this move is reflected in the development of the technology itself, and it also reflects that shifting technological paradigm. What some of the most relevant explorations of this other spatial dynamic,

beyond the screen, have started to lay bare is a subtle transformation of the experience of physical space by new wireless and communication technologies, which is not evidently visible at the surface of things.

A classic example of this type of artistic exploration is the exquisitely simple *Urban Chess* project, which was executed at the 'PsyGeoConFlux' festival in 2003 in New York City. For this little project a chessboard was laid out on the street pattern of lower Manhattan and people in possession of inline skates and a mobile phone were invited to assume the role

Urban Chess 'piece' during PsGeoConFlux, New York, 2003

of the various chess pieces. The project took advantage of the typical grid-like street plan of major North American cities (an inherently anti-historical urban constellation), to be able to project the chessboard onto the city streets. With all chess-pieces assigned to participants, a role they would play in the streets, a chess game was started at the festival location, broadcast live on local radio. Moves of the chess pieces on the board were transferred as instructions to move the participating chess pieces on the streets to the corresponding position. Upon the encounter of two 'pieces' on a street corner, a short fight would ensue, with a clearly prescripted ending. Given the zero-budget homemade costumes worn by the pieces, these fights and the bored chess pieces on inline skates waiting to finally be moved made for a hilarious spectacle – even for NYC city streets.

The project brilliantly reflects two things at once: although the technological substructure is not visible or straightforwardly apparent from the project's appearance on the streets, the Urban Chess project would simply be unthinkable without the GSM phone network in place. The project is, therefore, a most immediate reflection of a relatively new (media-)technological phenomenon. Secondly, the project also reflects critically on the abstract, functionalist, but also inherently anti-historical street layout of North American cities, the grid structure. This urban planning system stands in marked contradistinction to the historical city space of European cities for instance, where the embodiments of earthly and spiritual power, the church, the town hall, the parliament, the schools and universities, and the market square occupy the most prominent spots in the urban plan and organize urban life around them. These social functions have been erased or marginalized in the anti-hierarchical urban plan of the modernist North American city.

It is this multilayered sensibility that characterizes the aesthetic experience of hybrid space, and that affords it a sensorial and experiential richness that is much more adequate to the social complexities that 'we' are forced to live in, being part of the first generation of global citizens that is in majority living in an urban context. It is under these pressing conditions of cultural, social, technological, economic, political and aesthetic hybridization that the new forms of public culture need to be constituted.

Constructing the Digital Commons

A Venture into Hybridization

Democracy can be understood in two notably distinct ways. In the institutional view, democracy is understood as the interplay of institutional actors that represent 'the people' and are held accountable through the plebiscite: public votes, polls and occasionally referenda. The second view on democracy is radically different in that it gauges the extent to which people can freely assemble, discuss and share ideas about vital social issues, organize themselves around these issues, and voice their opinions in public as the most precise measure of a democratic society.

In the second view, the state is not necessarily ruled out as the suspect embodiment of institutional democracy. It is, however, clearly delimited in its role as the political structure. The state would be seen here as the necessary institutional actor that guarantees the space where democracy can unfold.

It is possible to classify these views respectively as representational and participatory conceptions of democracy. There is also a secondary shift implied, away from the state and towards the (by far no less problematic) notion of community, as an organizing principle for democratic social ordering.

However, it is not my purpose here to write an essay on general political theory. Rather, my aim is to prepare the grounds for a discussion of a concept that is closely aligned with these macropolitical trends and has surfaced recently in a range of diverse discussions regarding the social dimension of communication and networking technology, and the development of an emerging network society. That is, the concept of 'the commons'. What all these discussions and projects share is a concern that the potential for digital networking to create an open and democratic space is being squandered in favour of narrow short-term economic and political interests. Contrary to the often grassroots nature of such initiatives, these strategic interests are promoted by some of the most powerful economic and political players on the globe today. Simple tactical interventions will not suffice to address this asymmetry.

That the figure of the commons appears in this context may hardly come as a surprise. In societies saturated with media and communication technologies, social processes cannot be understood in isolation, but only in terms of the interconnectedness of all social domains through the various systems of real-time mediation: television, radio, satellite communications, Internet and digital networks, cell phones and third generation wireless media. Conversely, the space of electronic communications cannot be separated from the real-life contexts through which it is interwoven. The remnants of musings about a disembodied 'cyberspace' now lie dormant on dead websites as prehistorical remains; the vestiges of the virtual, much like the paleontological study objects of the various extinct dinosaur species.

Around the turn of the millennium, the 'real-existing' powers of vested interests came to play quite a dramatic role in the online world. After the dot.com invasion and the general push for the commodification of informational space, the powers of policing, surveillance and control moved prominently onto digital networks. The great experiment of an unfettered communication space that the Internet as a public medium seemed to provide, already a few years down the road of the 'digital highway', seems more like a historical visage, a temporary window of opportunity. If we still care today about a common space of knowledge, ideas and information, we can no longer accept the principle of open networks as a given; that is, as 'naturally' embodied in the Internet. Instead, the space of interconnected digital networks should be understood as a new site for controversy and struggle, where open zones, online gathering places and shared resources should be safeguarded from the powerful forces that threaten them. There is still a huge potential for the digital commons, but it requires the formulation of a strategic political agenda to be actively pursued.

In order to formulate such a strategic political agenda, it is necessary to develop a new set of conceptual tools to assist with understanding the conditions in which these new social dynamics unfold. One dynamic that should be properly considered is the hybridization of communication and media modes, of physical and media space, and also of disciplines and discourses.

Hybridization, and the notion of a hybrid space, is predominantly a critique of the new media discourses on the virtual that dominated

'cyberculture studies' throughout the 1990s. Problematic aspects of this discourse, such as the separation of mind and body, have already been addressed in the previous short essay on 'freedom'. These were described as leading to a contemporary form of Gnosticism, a position that completely denies the material infrastructures of digital electronic networks. Recent calculations of the energy expenditure for maintaining an avatar in Second Life, for instance, reveal that the energy required was comparable to that for sustaining a biological body – hence, the carbon footprint of the avatar should also be similar to that of its creator.

Secondly, the discourse of virtualization invites the misconception that offline (social) interactions are 'real', while online interactions are 'virtual' in the sense that they may seem real but are not. This dichotomy overlooks two things simultaneously: firstly, that every social interaction requires a phantasmatic support for it to have any sense of human reality. It is, therefore, always implicated by the real and the virtual at the same time. Secondly, online (social) interactions are entirely realistic in their potential social, economic, emotional or political impact, even if they are structured differently than offline interactions. Low bandwidth communication environments can even intensify the perceived impact of communicative exchanges – in that sense they are anything but 'virtual' in this colloquial understanding.

Hybridity is a defining condition when the figure of the commons comes into play. No clean cuts here, no hygienized or independent cyberspace, no virtualization, but also no stable 'real' that puts our feet on the ground. No escape from the dirt: the domain of hybridity is a messy place.

Defining 'the Commons'

Commons:
plural noun
Origin: Middle English
1 a dining hall in a residential school or college.
2 [treated as singular] land or resources belonging to or affecting the whole of the community.
  • a public park in a town or city.
3 The Commons short for House of Commons

- historical: the common people regarded as part of a political system, especially of Britain.

4 archaic: provisions shared in common; rations.[1]

The origin of the concept of 'the commons' dates back to the fourteenth century, referring to the notion of 'common land' as it emerged in England at that time. The idea was introduced together with protective measures to tackle the problem that walking paths, required to connect disparate villages and regions with each other, were continuously transformed into farming land, that is privatized, thus disrupting vital connections between various communities. It turned out that for these paths to remain open they needed some form of public protection, and this protection had to be enforced for the greater good of the 'commons'.

In a conversation on the digital commons for the London-based *Mute Magazine* conducted by the members of the Raqs video collective, cofounders of the Sarai new media initiative in Delhi, Monica Narula recounts that particular history:

> I was told by a friend of the ramblers in England – who go on long walks for the wonderful pleasure of taking in 'mountain, moor, heath and down' – that when they walk, they do so partly to keep public paths public. Many of these walking routes have emerged from being trod by countless people over countless years. By law, if they are not used by the public to walk on them, they will revert to private ownership.[2]

There is an almost Wittgensteinian formula here. For the paths to remain common land they have to be used, so the common space is defined and constructed through use. It is not a given, it is a product of a living social praxis (indeed like language being defined by use), and it evolves over time. It is not permanent but can be maintained over many generations, just as long as the next generation actually cares enough about the commons to actually use them.

Importantly, the commons is treated here not as a passive principle, some kind of available resource that can be used or ignored according to will. If no one takes responsibility for the commons (here for the

common land of walking paths, the space of connection) then they will disappear. It is organically interwoven with the very fabric of the communities who share this common space.

Commons versus Public Domain

On first impression, the commons seems close to the wider notion of public domain. In our FAQ (Frequently Asked Questions) about the public domain, we (a group of writers from Amsterdam) defined the issue as follows in 1999:

> The public domain is traditionally understood as a commonly shared space of ideas and memories, and the physical manifestations that embody them. The monument as a physical embodiment of community memory and history exemplifies this principle most clearly. Access, signification, disgust, and appropriation of the public monument are the traditional forms in which the political struggles over collective memory and history are carried out.[3]

The American writer and policy strategist David Bollier, however, points out that the wider concept of the public domain should be differentiated from that of the commons.[4] The public domain in his view implies a passive open space that can be shared by anyone and everyone, and thus belongs to everyone and no one at the same time. The public domain invites the problem of responsibility. More precisely, it invites the problem of a lack of responsibility. As there is no boundary implied by the concept of 'public domain', nor any kind of ownership, neither private nor collective, nobody feels responsible for the resources that reside in that public domain.[5]

The concept of the commons, on the contrary, implies boundaries. The commons refers to a resource, to common land, to common means of production, knowledge or information, shared among the constituents of a more or less well-defined community. There is ownership here, but the ownership is collective, rather than individual. Furthermore, the rules of *how* these common resources are shared, and among whom, are not necessarily fixed in intransmutable rules. In the case of a digital commons, the notion of the commons no longer refers only to a territory, that is to a geographically situated community. It can

additionally refer to a group of people who share a common interest or set of ideas, who may yet be internationally distributed, potentially even worldwide. Here we see where the hybridity comes in: the commons is extended from a set of shared physical resources (common land) to an immaterial domain (ideas, knowledge, information), and secondly, the commons is extended from something that is necessarily geographically situated (walking paths) to something that is shared across geographical divides, because it is electronically mediated via digital networks. But in all of these cases, the commons are not entirely 'free'. There are rules and mechanisms of access, and limitations on use that are defined by the shared values of the community sharing these resources.

I do not wish to sketch a parochial image, nor proclaim a nostalgia for the traditional (village type) community. The commons can take a host of different forms: informal, permeable, professional, situated, dispersed, formal, or anarchic. But they share a set of common characteristics that move them away from the free-for-all notion so often attached to the early developmental stages of the Internet as a public medium. Most importantly, the survival of common resources relies on the willingness of people to take responsibility for them. Often the commons take their vitality from their connectedness to embodied needs and issues, not from their separation and disconnectedness – a further sharp distinction from the cyber-utopian discourses of the late 1990s. It re-emphasizes the need to explore the locally rooted and physically embodied conditions of hybridization that inform the digital commons and that require specific strategies to make them viable.

Hybrid Media

One immediate strategy that can be used to engage this new terrain of hybridity is to no longer consider digital networks as separate from the rest of the media landscape. On the one hand, there has been a much discussed technical convergence of media technology, where the means of production of traditional media become increasingly digitalized and thus promote cross-connections between formerly separate forms, disciplines and fields of application. But more important is the paradox that while a plethora of new media forms emerged because of digitalization and the lower cost of media production, this trend of democratization at

the level of its technical realization has in no way threatened the dominant position of mainstream media in determining public discourse. So where is that dreamt-of democratic media space?

In fact, enormous concentrations of media production facilities, companies and distribution lies in the hands of a select number of corporate media giants, and this fact has haunted the digitalization and convergence of media as much as its supposed democratization (the so-called *Cross-Media Strategies* of corporate power brokers). This move towards integration (horizontal and vertical, thus not only the production but also the distribution of media products) has seriously diminished the cultural, political, social and content diversity of the mainstream media landscape. Standardization of formats and one-sided programming choices are exported worldwide in a move towards unification rather than diversification. The alternative media have been left behind in a marginalized position, not able to communicate to a wider audience beyond their own constituency, often relegated to the ghetto of the Internet or local cable outlets on disregarded frequencies.

The counterstrategy is that of hybridization of the media themselves. Where the corporate mainstream embraces hybridity as a method of extending its market share, the 'other' media seek it out to broaden their communicative space. It is here that the lessons can be learned from the sovereign experiments that have been conducted throughout the late 1990s by the artistic and subversive media producers: the successful mediator needs to be platform independent, must be able to switch between media forms, cross-connect and rewire all platforms to find new communication spaces. In this context, we see where the experiments with webcasting and cross connections to radio, television, cable and even satellite become extremely valuable – they become tools to break out of the marginalized ghetto of rarely visited web sites and unnoticeable live streams. These counter-powerers of the cross-media universe should learn to leave the irrelevant criteria of broadcast quality behind – the pleasure of a divinely hybrid and technologically perverted subjectivity is what can conjure up the excess of consumption (instead of production) in this hybridized mediaverse.

All these cross connections can create a sovereign media space that is not defined by functional interests (power, money, market share), but orient themselves primarily on establishing a new kind of public com-

munication space, no longer the exclusive domain of the professional media elite.

Hybrid Space

The second strategy is that of hybridizing different spatial logics. The commons today exist primarily in the sphere of mediation, which by virtue of satellite and network connections have become potentially global. While places do still matter very much, if only because more than 80 per cent of the world's population is disconnected from the sphere of electronic and in particular digital mediation, social discourse and communication and thus ultimately the language of power itself is shaped in this sphere of electronic mediation. It has become a commonplace observation that in war the centres of electronic mediation and communication, the relay points, have become the prime target of any attacking force.

But this electronic mediation only makes sense if in the end it reconnects to embodied material reality. If we want to make the new sphere of power democratically accountable, and carve out the open spaces for unfettered public communication, we need to think about models that can address the hybridity of these spaces; the connections and disjunctures between the places in which people live and the sphere of electronic mediation that increasingly determines the conditions under which they live in those places.

There are no simple formulas to describe how these different spheres actually relate to each other. The connections are manifold and often site specific, yet the complexity is too great to go by them on a case-by-case basis. Therefore, we should approach them with necessarily incomplete models and descriptions. What we can do is explore the spatial logic and social dynamics of the physical public space and the mediated public communication spaces. Rather than theorizing them it seems more productive to 'dramatize' them, to approach them by creating specific conditions of experiencing the differences and connections between these two spatial logics. This move from discourse to experience invariably brings us to the domain of the arts.

reBoot

In 1999 we – De Balie centre for culture and politics in Amsterdam and the Academy of Media Arts Cologne – organized an interesting ex-

periment that very consciously explored the relationship of the physical public space, in a transitory setting and where possible connected in real-time to the 'place-less' electronic media space. The project called 're-Boot' – a floating media art experiment, put about 50 artists (German and Dutch) together on a big party boat for a week, which was transformed into a floating media laboratory and presentation and performance space. The boat moved between Cologne and Rotterdam and Amsterdam, and docked in the cities Düsseldorf, Duisburg, Emmerich, Arnhem and Rotterdam (all on the Rhine River), and finally ended up in Amsterdam.[6]

The interesting experience was first of all the fixity of the media location of the project, a website with a fixed URL, some live streams with sound and video material, and TV broadcasts, mainly on Amsterdam cable television. During the week as much material as possible was released through these fixed media channels. The permanently changing position of the boat and the artistic experiments that were conducted on board in reference to the changing scenery and context of the boat were in sharp contrast with the fixed media location. Suddenly, the media location seemed to be much more of a stable point, a 'place', a reference point, more so than the physical space.

It confronts us with a reversal of perception that will become increasingly strong over the coming years as we stand on the threshold of the wide adoption of a new generation of wireless media. Increasingly, our physical location will become transient and fluid, whereas our media location will become increasingly fixed. There seems to be a compelling need to always be connected, to have a fixed and continuously accessible media location, while at the same time there is a growing anxiety and desire for control over the new fluidity of the physical location. As wireless and mobile media become more sophisticated as they increase the potential for physical mobility (because you can now be reached anywhere and you can work everywhere), but this mechanism only increases the anxiety about the loss of grip on the 'other's' whereabouts. Today this is already exemplified in the recurring question of mobile phone users 'Where are you?' to the person at the other end of the line.

Urban Intervention

Where before social space was the town square, the parks, the halls of assembly, the sites of demonstrations and mass gatherings: the sites

where social discourse was shaped, now electronic media introduce a new scale to human affairs and social relationships. This is nothing new. It is an ongoing process that started with the invention of telecommunications, radio and television, and continues with the many new communication technologies that have followed them and are yet to follow. We can't shake the feeling, however, that whoever controls the city space holds the true power. The continued ritual of public street demonstrations is a clear sign of this belief. The sway of control over public urban space projects a strong sense of power that also works in the media environment, perhaps as a sign of the lost 'real', who knows?

The desire to have a stake in shaping public discourse implies the need to create not only a hybridized presence in the media environment, beyond the ghetto of the Internet, but also that this presence should manifest itself on the streets (the 'modern theatre'). It is in the interplay between these two spaces in particular, urban and mediated, that social discourse and communication takes shape today. If these spaces are to be opened up for alternative arguments, ideas and participants, hybridized forms of intervention are required.

Together with Moscow-based curator Tatiana Goryucheva, we developed the Russian/Dutch art and media project 'Debates & Credits – Media Art in the Public Domain'. For this project four artists and artist collectives from Russia and four from the Netherlands were invited to design interventionist media projects for the public urban space. These projects were finally executed in the Fall of 2002 in Amsterdam, Ekaterinburg and Moscow respectively.[7]

The project was triggered by the visual crisis of urban public space in Moscow. The city is completely overgrown with commercial advertising, a new form of propaganda. Driving around the city one is struck by the pervasiveness and aggressiveness of this new urban visuality. The advertisements have escalated into a completely over-dimensional scale. Billboards transform into giant kinetic sculptures, the original structure of the city layout at times disappears completely in a sea of billboard messages, competing for attention. At other times entire buildings are transformed into a corporate message, while elsewhere historical buildings and sites are re-branded as a monument for a mainstream brand of beer or a luxury car producer.

The city space seems out of control, fallen into anarchy . . . But when we started to investigate how to place our artistic projects inside this public space we found out that this seemingly anarchic, out-of-control space was in fact tightly regulated. So much so that some of the projects planned for the Moscow edition of the project had to be executed without any permission (and with significant risk), or either be cancelled or reframed.

The project consciously looked at public space as a combination of physical and media spaces. The artists also developed a wide range of different interventions that somehow played on this double character of social space, from small-scale street performances (filmed and broadcast on television) to spectacular mobile projection actions in characteristic spaces in Amsterdam and Moscow, art works prepared especially for TV and, in Ekaterinburg, also for outdoor electronic screens in the city centre, projects for public transport sites, wall paintings, but also an Internet forum on legality and illegality initially connected with street interventions

These interventions, often poetic, at times confrontational, sometimes intimate, personal, sometimes spectacular, can be seen as attempts to develop models for opening up urban and media spaces for other forms of social communication that deviate from the mainstream norm. The estrangement of these spaces by the intrusion of alien elements in the mainstream public environment breaks the norm of these spaces and can (temporarily) open them up for a variety of alternative discourses, cultural forms and ideas.

Hybrid Discourses

Finally, it is important to note that the figure of the commons has emerged across a wide variety of disciplinary contexts. This implies that the adoption of this concept by all these different disciplines also gives rise to hybridization of different disciplinary discourses. Besides the concept of the digital commons as put forward by the Raqs collective and Sarai from Delhi, other important initiatives have emerged that embrace the notion of the commons in the struggle for a more open and democratic knowledge and information space.

OntheCommons.org
http://onthecommons.org

> [OntheCommons.org] is a web portal and blog that explores activism on behalf of the commons in all its variety. The commons is a powerful organizing principle for understanding countless aspects of nature, creativity and knowledge, local community and everyday experience. One of the great problems of our time, however, is the enclosure of the commons by market forces, often with the support of government. The majesty of the commons is being neglected.
>
> The purpose of this site is to explore the value of diverse commons, probe their distinctive dynamics and re-invent mechanisms for strengthening them. The commons provides a powerful critique of markets, property and Neoclassical economics. But equally important, it is a force for innovation in social governance, political action, public policy and cultural change. OntheCommons.org investigates these issues through blogging, essays, book reviews, profiles of commons leaders, online archives, discussions and other resources.

The website is a project of the Tomales Bay Institute based in Point Reyes Station, California, and edited primarily by David Bollier.

The Creative Commons
http://creativecommons.org

'The Creative Commons' is probably the most well known project that reacts to the stringent limitations imposed by new legal systems such as the DMCA on the digital world. But here the project is coming from the side of Information Law. Driven primarily by information-law specialists Lawrence Lessig and James Boyle, the creative commons offers a set of licensing systems that enable people to release their intellectual products with various degrees of freedom. Lessig, Boyle, and many others are afraid that the ever-stricter IPL frameworks stifle cultural and intellectual development, and in the end will impede the creative and innovative potential of digital networking. Cultural development has always relied intrinsically on the exchange of new ideas and innovations, and should be considered an incremental process. New forms and cultural concepts don't just drop out of the sky like some *deus ex*

machina, they are created by dialogue, contention and disagreement. The question of 'ownership' here is in any case questionable, and in many cultures actually nonexistent when it comes to cultural concepts, forms and ideas.

Beyond the rhetoric of innovation it is important to recognize that a democratic society and a democratic mode of social communication cannot exist without open access to information, knowledge and ideas. Even more so it requires the possibility for citizens to get access to the variety of communication spaces I sketched here; physical, urban and mediated. These resources and spaces are no natural givens, no passive entities, they need to be created, protected and maintained, they are the commons, that what is shared by a community of people who care enough to sustain them through actual use.

The creative commons has in 2005 been extended with a section called the *science commons*, which extends the principles developed in the larger project to scientific data, knowledge and publications, responding to increased commodification and commercial pressure on scientific knowledge production in the USA and the rest of the world.[8]

The Information Commons

[website off-line]

'The Information Commons' is a project stemming from the American Library Association and critically concerned with the commodification of the digital information space and the imposition of stricter Intellectual Property Legistation. They see this development as a mayor impediment to their appointment to make available as many information and knowledge resources to the wider public. Where technically the digital media hold an enormous potential for their mission, the new legal frameworks, most notably the Digital Millennium Copyright Act (DMCA) pose increasing limitations on their ability to fulfil their mission.

The Information Commons was a project initiated by Howard Besser, director of New York University's Moving Image Archiving & Preservation Program.[9]

Mindful Disconnection:

Counterpowering the Panopticon from the Inside

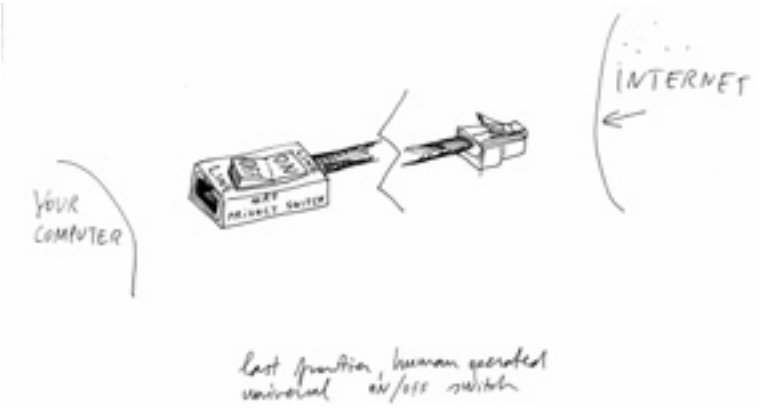
Howard Rheingold and Eric Kluitenberg

This article was co-authored with Howard Rheingold for a theme issue on Hybrid Space of the Dutch periodical OPEN *– Journal for Art and the Public Domain.*[1] *Our aim was to question the drive for ubiquitous connectivity and propose a possible alternative: a practice of 'mindful disconnection', or rather the 'art of selective disconnectivity'.*

> Although I have devoted decades to observing and using participatory media – from tools for thought to virtual communities to smart mobs – I want to propose that disconnecting might well be an important right, philosophy, decision, technology, and political act in the future.
> *Howard Rheingold*

> My involvement with new media arts and tactical media initiatives such as Next 5 Minutes has always insisted on the right of access and connection. The only practical form of resistance I can personally claim credit for is that to date I do not own, nor have ever owned a mobile phone – quite out of key with most fellow organizers in the cultural social/political field, but an immense absolution from social coercion.
> *Eric Kluitenberg*

Perhaps the act of mindfully disconnecting specific times, spaces and situations in our lives from technological mediation ought to be considered as a practical form of resistance – an act of will on the part of individual humans as a means of exercising control over the media in their lives. It remains uncertain whether it is possible or preferable to disrupt the technological augmentation of human thought and communication that is becoming available to most of the earth's population. We are not as convinced as others that technology is only, primarily, or



The Internet privacy switch, drawing by Janos Sugar, Media Research Foundation, Budapest

necessarily a dangerous toxin. There is a danger in locating technologies' malignancies in the tools themselves rather than in the way people use them, and mentally distancing ourselves from responsibility for the way we use our creative products might diminish our power to control our tools. We are increasingly convinced, however, that we need to resist becoming too well adapted to our media, even as creators. Perhaps tools, methods, motivations and opportunities for making the choice to disconnect – and perceiving the value of disconnecting in ways of our choosing – might be worth considering as a response to the web of infotech that both extends and ensnares us.

The capacity and freedom to disconnect might well be necessary to prevent the intoxication of technology from tipping into toxicity: it seems more effective and more humane to resist technologies' dangers through mindfulness, rather than through prohibitions, regulations, revolutions, or guardrails. It makes sense to expend intellectual energy instead of fossil fuels, deploy thought instead of bureaucracy, employ awareness rather than conflict. Mindful disconnection doesn't require a top-down change in large-scale institutions or a redesign of installed infrastructure. It only requires that enough people make a decision and act on it.

Resistance to the pressure to adapt ourselves to our tools is not a new idea, but neither Lewis Mumford, who traced the 'megamachine' back

to the ziggurat-building potentates of the first agricultural empires,[2] nor Jacques Ellul,[3] who warned about the seductive mechanization of humanity via 'la technique' in the early 1950s, before there were more than a dozen computers in the world, nor William Irwin Thompson, who called me (HR) out by name in the 1990s as an enthusiast for the demon of mindless mechanization,[4] could have foreseen the complex battle we've engaged ourselves in: the same technologies of freedom that make democracy possible are also the technologies of control that enable fascism .

The questions that Mumford and Ellul asked were not about a mystical human essence that is endangered by our species' proclivity for tool making, but rather they were attempting to address the risk of losing autonomy, the bedrock of liberty. Liberty is a political concept that must be constructed by a literate population, a Gutenberg-era expression of collective action that increases the range of control individuals have over their lives.[5] Autonomy, the broad range of activities that an individual has, in theory, some choice about, is fundamental. If we gain health and wealth, amusement and empowerment, through our use of a tool or medium, how have we, by that use, acted to constrain or expand the range of potential choices?

The matrix of change for global culture in the twenty-first century is the technology-mediated connectivity among people, data, media, products, processes, places and devices that began in the nineteenth century and accelerated through the twentieth. The technologies that enable the growing hyper-connectivity are microchips, personal computers, the Internet, mobile phones, bar codes, video cameras and RFID tags. Such diverse social and economic phenomena as just-in-time manufacturing, virtual communities, online outsourcing, smart mobs, supply-chain management, surveillance and collective knowledge creation are all human socioeconomic behaviours that weren't possible before connective technologies made them possible.[6] While the enabling technologies have received intense attention since the 'Victorian Internet'[7] wired the world at the end of the nineteenth century, less attention was paid until the end of the twentieth century to the social reactions of communication-enabled populations. Perhaps most significantly, Manuel Castells pointed out recently that we live in a network society, not an information society:[8] the Phoenicians at the time of the inven-

tion of the alphabet or Europeans after Gutenberg were information societies; humans are natural social networkers – cooperative defence and food gathering is probably what enabled our primate ancestors to survive and thrive in a predatory environment.[9] But there are natural limits to whom any person can network with, how many people they can organize, spread over how large an area, at what speed. The significance of the global technological network is precisely its ability to amplify the scope, reach, and power ideation and socialization: the telephone, the Internet, the digital computer combine to create a worldwide, powerful, inexpensive, radically adaptive amplifier of human social networking capability. The question to ask in this time of turbulent social change is whether our use of connectivity increases or decreases our autonomy.

One can sense a paradoxical influence on autonomy – the individual device, such as the personal computer and the aggregated network of the Internet, provide more choices for more people. But the technologies of connectivity have been evolving, too. First, the network was tethered to desktops, then it was untethered and colonized the pockets of billions, and next it is going to leap out of the visibility and control of individuals as trillions of smartifacts infiltrate the physical world.[10] The technologies that allow widespread creation of culture and political self-organization also support unprecedented surveillance capabilities – surveillance not only by the state, but by spammers, stalkers and the merely curious. Nobody thought seriously about spam and viruses when the Internet first began to grow, and very few suspected that the first webcam (aimed at a coffee-pot in a laboratory in Cambridge, England) would spawn a global, interconnected, CCTV web of spycams. How much information about individual data traces left by bridge-toll transponders, credit cards, RFID tags and CCTV cameras is captured, compiled and datamined? Who designs these connecting technologies and makes decisions about their implicit functionality, such as the things they allow and restrain? Who controls the technologies and the effects they produce? Who defines to which ends these connecting technologies will be used, and what exactly they will be used for – more specifically, to whom will these technologies mean increased freedom, and in what ways will they be used for ever closer scrutiny and control over our movements and behaviour?

If we knew the answers to these questions, and didn't like them, what could we do about it? In a world of prevailing disconnectivity, to be able to connect is a privilege (think about the 'digital divide). In a world of always-on connectivity, this relation might very well be reversed and the real privilege could then be the ability to withdraw and disconnect – to find sanctuary from eternal coercion to communicate, to connect, or to be traceable. In a society increasingly predicated on connectivity and real-time communication and traceability, shouldn't the ability to withdraw be enshrined as a basic right for all? In other words, in a network society the right to disconnect should be acknowledged as a fundamental human right, as crucial to our mental and physical well-being as the right to food, water, integrity of the body, or protection from political oppression.

Without this right to withdraw/disconnect, the network society indeed becomes an electronic prison of the type Gilles Deleuze muses about in his 'Postscript on the societies of control', a society of constant and real-time scrutiny.[11] In such a society, freedom, as first of all a particular state of mind relatively free of external coercion, cannot exist, and thus many of the other emancipatory claims made (by ourselves and many others) about the rise of networking technologies and a networking social logic are rendered failed enterprises. Foucault's notion of the Panopticon is too generic to be productive in understanding all of what is at stake and what could be an effective antidote. The question here is not about whether or not we are scrutinized. That is already a *fait accompli*, whether you like it or not. The question is whether we can develop procedures, methods, possibilities, spaces for 'selective connectivity', which make it practical to choose to extract ourselves from the electronic control grid from time to time and place to place.

Politically, the human right we propose is neither intrinsically a left- nor right-wing question – rather it is a question of twenty-first-century democracy. Only when people are free and able to choose can the choices they make be in any sense truly democratic. The right to withdraw from public life into the sacred domain of the private is constitutive of the democratic experience – the seclusiveness of the private enables the public as an alternate role, yet the very possibility of seclusion seems to be at stake in the networked, device-pervaded, communication-and-information-saturated, always-on society.[12]

The Pleasure of the Medium

Jouissance and the Excess of Writing

I am looking at a website - it bores me. I am delighted by my boredom.
Why should it not bore me?
Why should I be fascinated?
I am looking for an escape from spectacularity.
I don't want to be spectacularized.

I hear a discussion about 'quality'. I am bored by it.
I hate this boredom!
Why should I be interested in 'quality'?
What quality?
Whose quality?

'What is this shit?!??'
I hear desperation, unnerving irritation.
I am stimulated!

Who is saying this to me?

Who is writing?

Does it really matter?

The greatest fascination of a new medium always lies within the machine. It is not the old medium being the 'content' of the new medium – wrong formula. It is only when the old medium is discarded, even if this delightful moment is brought about by a mistake, that the magic of the new medium can disclose itself.

I had this experience when watching some of the magnificent websites created by jodi.org, specifically for the Netscape 2.0 browser on a mac system. The website would get stuck, seem to buffer indefinitely.

Then suddenly, the page would start to load again, superimposed layers of graphics and ascii swirls crowding the screen. Blinking signs, links to more digital garbage, neatly organized in the defunct mosaic.

We were at the launch of the net.congestion archive and we experienced net congestion . . . Some people from Seattle who had visited our festival about half a year earlier had made a real local show. We had asked participants to this festival of streaming media to 'stream-in' for the occasion. We were watching from a comfortable space in the centre of Amsterdam. The Riga crew, as always, knew exactly what they were doing – a nice, low-bandwidth, grainy, but perfect web video mix and stunning electronic music from that magical city in the Baltics. The people in Banff had made a wonderful sound loop, perfect reception from Canada – we projected an image of 'Sleeping Buffalo' to it, a local mountain just outside the Banff campus.

But Seattle – they topped it off. They gathered a crowd (with some 9 hours time difference) and were staging a real-life serious debate on the politics of the networked media sphere. It sounded inspiring and insightful, from what we could get at our end, but every 10 to 15 seconds the stream would break up. The face of a speaker would suddenly contort while the sound would squeak, turn into electrostatic noise (so it seemed) – on the projection screen we saw the most wondrous cubist images; constantly transforming over time, new contortions, blends of colours that were not there before, a grotesque, a caricature, emerging spontaneously. Adam, one of the organizers of the festival, was standing in awe watching this anti-spectacle – '*Wow, this is so beautiful! I could look at this for hours!*'

David Sifry, founder and CEO of Technnorati, reports on5 April 2007 that according to technorati.com's then latest count, about 70,000,000 blogs are online, with a significant growth of fake and spam blogs (splogs), but still far outranked by genuine postings.

An excess of writing.

Minor mathematics – to get an average readership of about 100 readers over a certain average period in which these blogs are available online, before they disappear into oblivion, requires a population of 7 billion.

The conclusion would probably have to be that population growth needs to be sped up so as to match the growth of blog-production and provide them with a readership.

Roland Barthes identified two types of pleasures in text – the text of pleasure and the text of *jouissance*:[1]

> Text of pleasure: the text that contents, fills, grants euphoria; the text that comes from culture and does not break with it, is linked to a comfortable practice of reading.
>
> Text of jouissance: the text that imposes a state of loss, the text that discomforts (perhaps to the point of a certain boredom), unsettles the reader's historical, cultural, psychological assumptions, the consistency of his tastes, values, memories, brings to a crisis his relation with language.[2]

The subject who holds these two texts in their field and in their hands, according to Barthes, is an anachronic subject. A contradictory subject who both 'enjoys the consistency of his selfhood (that is his pleasure) and seeks his loss (that is his ecstasy). He is a subject split twice over, doubly perverse.'

From Lacan we learned that the desire of the subject is oriented on an essential lack. This lack results from the illusory quest of the subject for its own consistency and unity that does not exist. This Lacanian subject

is lost between the emanations of its own body, the imaginary images it projects on itself (the images the subject mirrors itself in without ever having laid direct eyes upon itself), and the symbolic order, that of language and text paradigmatically, in which it tries desperately to articulate itself, while this act of articulation by means of language only results in a further deferral of the subject from its (supposed) self.

The excess of writing is the futile quest of the subject to fulfil its own impossible desire by means of language.

The ecstasy of writing is the realization of the impossibility of this quest and the willing submission to it – the subject willingly losing itself, dissolving into text.

The ecstasy of writing/reading is a bodily experience. It adheres neither to bourgeois morality nor to Marxist/materialist doxology. Barthes explains:

> On the stage of the text, no footlights: there is not, behind the text, someone active (the writer) and out front someone passive (the reader); there is not a subject and an object. The text supersedes grammatical attitudes: it is the undifferentiated eye, which an excessive author (Angelus Silesius) describes: 'The eye by which I see God is the same eye by which he sees me.'
>
> Apparently Arab scholars, when speaking of the text, use this admirable expression: 'the certain body.' What body? We have several of them; the body of anatomists and physiologists, the one science sees or discusses: this is the text of grammarians, critics, commentators, philologists (the pheno-text). But we also have a body of bliss consisting solely of erotic relations, utterly distinct from the first body: it is another contour, another nomination;
>
> . . . Does the text have human form, is it a figure, an anagram of the body? Yes, but of our erotic body. The pleasure of the text is irreducible to physiological need.[3]

The erotic can only come into being beyond utility. This is what Bataille has taught us. Only when sexuality is freed from its productive (reproductive) functions can it be transformed into an erotic principle. The sovereign experience of eroticism cannot accept any reduction to a sanctified social code – it is instead heightened in the transgression of that very code, in the moment of *jouissance*, the coming, the climax of ecstasy, of entering the 'beyond'.

Eroticism, as opposed to sexuality is what defines our humanity. The dialectic of desire and prohibition simultaneously conceals and reveals that which is of supreme (*souverainement*) importance to us – the *sacred*. Its consumption is a moment of absolute delight, but it also opens up an experiential void where we stare in the face of death.

The erotic is never a principle of efficiency. It does not attempt to produce a maximum effect with a minimum expenditure of energy. Quite the reverse, it attempts to achieve a maximum expenditure of energy, a climax, in which life's energy is expended excessively.

> Anguish, when desire opens onto a void – and, sometimes, onto death – is perhaps a reason for desiring more strongly and for finding the desired object more attractive, but in the last instance the object of desire always has the meaning of delight, and this object, whatever one might say of it, is not inaccessible. It would be inexcusable to speak of eroticism without saying essentially that it centers on joy. A joy, moreover, that is excessive. In speaking of their raptures, mystics wish to give the impression of a pleasure so great that the pleasure of human love does not compare. It is hard to asses the degree of intensity of states that may not be incommunicable, perhaps, but that can never be compared with any exactness, for lack of familiarity with other states than those we personally experience.[4]

The ecstasy of the writing (blogging) subject is the embrace of its moment of its loss into text. This loss constitutes a negative pleasure far greater than the appreciation of beauty, or the positive pleasures of taste and sanctioned intimacy. The moment of loss opens up a void in experience because it signals to the subject the loss of its illusory consistency

and unity of self (which never existed in the first place – but such a horror is simply too great to live with, and thus is always covered up by a phantasmatic support and imaginary self-images). In this sense, this moment of loss constitutes an absolute negativity – in that it signals the end of existence (of the unitary subject) – and confronts it with the face of death. But this text, written by the blogging subject seeking its own loss, comes back to that subject, and reconstitutes it, *in another place* according to Barthes. This moment of reconstitution of the subject produces a sensation of such absolute delight that it dwarfs any possible experience of positive pleasure – such is the nature of the existential sublime.[5]

A fundamental asymmetry between pleasure of writing and pleasure of reading remains, however:

> Does writing in pleasure guarantee – guarantee me, the writer – my reader's pleasure? Not at all. I must seek out this reader (must 'cruise' him) without knowing where he is. A site of bliss is then created. It is not the reader's 'person' that is necessary to me, it is this site: the possibility of a dialectics of desire, of an unpredictability of bliss: the bets are not placed, there can still be a game.[6]

In that sense the bliss of blogging does not end the objectives of literature.

To whom is this text addressed?

> I am offered a text. This text bores me. It might be said to 'prattle'. The prattle of the text is merely that foam of language which forms by the effect of a simple need of writing. Here we are not dealing with perversions but with demand. The writer of this text employs an unweaned language: imperative, automatic, unaffectionate, a minor disaster of static . . .: these are the motions of ungratified sucking, of

> an undifferentiated orality, intersecting the orality which produces the pleasures of gastrophy and of language.
>
> You address yourself to me so that I may read you, but I am nothing to you except this address; in your eyes, I am the substitute for nothing, for no figure (hardly that of the mother); for you I am neither a body nor even an object . . . but merely a field, a vessel for expansion.[7]

This text for Barthes is quite apart from *jouissance* – it is a frigid text.

The text produced by the subject attempting to escape its own lack is the producer of this prattle, frigid text.

The text produced by the subject consciously embracing its own loss into text, yes desiring to dissolve itself in the text to escape the sheer weight of its own desires and dabble in the delight of its reconstitution 'in another place', is the text of 'coming' of *jouissance*, of ecstasy - For, 'any demand is frigid until desire, until neurosis forms in it.'

Self-mediation is the act of constituting presence in a mediated environment. Formerly a marginal practice it has now moved to centre stage - *Broadcast Yourself!*

Presence in the mediated environment of digital electronic networks is constituted through the continuous circulation of images, sounds, streams in the network. Prosumed, picked up, remixed, laboured on affectionately, appropriated, commodified.

There is a subjectivity at work here, but a contradictory one. The images, the sounds, circulate, they are sampled more than created, mixed more than framed. The subject dissolves itself in the mediated streams of images and sounds – remix can dissolve the streams in turn to mere static.

Self-mediation does not aim at communicating information, at conveying a 'message' – instead it tries to establish affective relationships.

The networked subjectivity at work here is not an artistic subjectivity – the media space it creates is prattle. It does not push out the limits of what language and the machines are able to express (at all); to the point of crisis. Much rather, it embodies this crisis in constituting the

outer limit in itself – beyond which only an absolute negativity, death itself, stares back at it.

The self conscious self-mediating subject adheres only to its ultimate maxim:

I transmit, therefore I am . . .

The Society of the Unspectacular

Leaving Debord Behind

It is time to leave Debord's Society of the Spectacle behind. If we witness the hyperspectacular in the mass media today, this should not fool us. This is not the apotheosis of the spectacle, but its fatal eclipse – the final moment of tragic sublimity, of hyperviolence, before it fades away.

In many ways, the fate of the spectacle mirrors (and is mirrored in) the culture of the spectacle par excellence: the mass-mediated United States of America. If today, the USA projects its power as super-state throughout the world with an unprecedented hyperviolence, then we should not be deceived by this tragic spectacle. The USA has long shed it status as the sole superpower in the world. Silently financed by China, economically eclipsed by the European Union, by China again, and soon even India, unable to procure for its own wasteful energy needs (hence its dependence on countries like Russia, Venezuela, Saudi Arabia), culturally and intellectually unsettled, it has become a crash waiting to happen.

The mass media are about to dissolve into a sea of hypermedial fragments, transforming into a multitude of hybrids and singularities (does anybody still know what television actually is these days?). This inevitably invites a radical fragmentation of 'the public'. It is a process that has long taken hold of informational societies. The current explosion of self-publication in countless blogs, on community websites, self-video portals, online diaries, web forums and individual websites is only the first signs of an undercurrent that has already for many years been transforming 'the public' into an amalgamation of increasingly unrelated subjectivities and singular interest groups.

Today, we are witnessing the rise of swarm publics, highly unstable constellations of temporary alliances that resemble a public sphere in constant flux; globally mediated flash mobs that never meet, fuelled by sentiment and affect, escaping fixed capture.

The Face of 'Radical Mediocrity'

Rather than tending towards hyperindividuality, these swarm publics tend towards the lowest common denominator, the absolute unpar-

ticular, an excess of mediation that only establishes confirmation of its own averageness. This is what we could perhaps call the face of 'radical mediocrity' (as philosopher Henk Oosterling would probably call it, though I'm not sure he means the same thing by this as what I'm getting at here).

Mass media then become generic media. What we see on YouTube is first and foremost the eternal return of the same, the absolutely average, the radically unparticular, the excessive practice of everyday life.

The media space of generic media is a quotidian space: it is the space of the everyday. It is inherently unspectacular. Generic media is never in any sense an anti-spectacle, it is simply the denial of spectacle altogether.

What can be witnessed in the universe of self-media is the nominalization of the mediated image – and what is so striking is that the image (on average) is so exceedingly boring. It is the grand testimony to the human spirit's inability to move beyond itself. We witness it day in and day out trapped in its own circularity. The media image in the universe of self-publication tends towards that negative horizon where it loses all its articulation and becomes 'vernacular', something that is impossible to capture.

The current excess of self-mediation was already prefigured in the early experimental Internet cultures of the 1990s. When I was asked to reflect on the Liverpool variation of the 'Superchannel' project, a do-it-yourself web-TV platform facilitated by the Superflex collective from Copenhagen, called Tenant Spin. I couldn't help but notice while going through the archive of this web-TV project in the UK's oldest tower block under reconstruction, how incredibly boring, unspecific and 'normal' these webcasts were. In no way did they reflect the spectacle of mass media. I called it 'Aesthetics of the Unspectacular', and of course, these were media without an audience *par excellence*![11]

The Dark Face of 'YOU'

The productive moment of self-media is quite obviously based on its escape of authoritarian indoctrination. However, this certainly does not mean that it constitutes a space without conflict. On the contrary, tensions and conflict flourish in the system of generic media. In a sense, the space of self-mediation is the ultimate realization of Chantal Mouffe's notion of antagonistic pluralism. The system actually has a double face,

at once an expression of radical mediocrity and a much more darker semblance.

The dark-face of 'YOU' is constituted by the exponential proliferation of DiY xenophobia, racism, hatred and paranoia ('don't trust anyone – not even yourself!'). No theoretical account of social reality can be trusted anymore. Every argument is immediately suspect, overturned, reversed, subverted. Discourse is tribalized, fragmented and ultimately atomized. The unceasing online debate surrounding the conspiracy theories of 9/11 are the clearest case in point – this excess of DiY paranoia results in a space of complete disinformation, a context in which all public discourse breaks down (and decision making is entirely removed).

The state apparatus, no longer assured of mediated mass-mind-control, has to respond to the radical fragmentation of its publics with new systems of control, and adopts the swarm model of radically distributed surveillance (RFID, smart dust, and so forth) and the integration of the population's biological bodies in a technologically induced system of control (biometrics). If Joseph Goebbles still believed that the true base of political power was 'to capture the heart of a people and keep it', the contemporary regime of hypersurveillance strives for the complete traceability and scrutiny of all people.

Power today is vested not in the ability to connect and become visible, but in the ability to disconnect, to become invisible and untraceable, at will. This is the paradox: under conditions of complete media transparency, decision making retreats from the public sphere altogether. Agency today is located outside the domain of visibility.

Virtual Life

Can There Be Such a Thing as 'Community' in the Infosphere?

After a long drive with my friends we finally arrived at our destination: Sienna. This was nothing special, actually just a vacation trip with some old friends, most of whom were acquainted through their studies. Come to think of it, we all studied in the same city; Groningen, in the north of the Netherlands, a wonderful old university town.

There is a connection. Both towns flourished in the thirteenth century, but afterwards, things were never quite the same again. Few towns can surpass the beauty of Sienna, however. Always in the shadow of Florence, every visitor knows, Sienna is the real jewel in the crown of Tuscany.

We had to find a hotel. No tourist office open at this time, 'the evening spread out against the sky' . . . we felt awe. How to find the right place? And then, by some magic, we discovered the ultimate spot. From our hotel room window, we could see red roofs and the bell tower of Sienna's magnificent Palazzo Publico. The town square around the corner. And as I walked onto it, I realized once again, it's true, Sienna has the most magnificent central square in the world. At the edges, people eating, drinking, talking. Along the terraces, groups of Sienese gathering, discussing local matters, or maybe even matters of greater importance (perhaps the soccer competition). A well – the form of the square; a shell turned upside-down, the colours, and the Palazzo Publico. Later in the hotel, we noticed Sienna had its own local strip/game show on television, the electronic agora.

Sienna as it exists today, as a monument, a living archive of an ideal community, a wondrous remnant, presents us with a medieval model of an integrated public/private space. The town is divided into highly segregated districts. You will not find barbed wire fences here, but the social codification is very strong, even today. In fact, one cannot speak of a truly public space inside the various districts. These spaces principally belong to the inhabitants of the districts who resentfully tolerate the tourists (out of economic necessity), but can barely stand the residents of the

other districts. The mutually shared, neutral space of the city is the central square, where all the townsfolk meet, gather, discuss, fight, love.

The competition between districts is stylized in rituals – parades in expectation of the annual Palio. What seems like a tourist enactment is actually very much alive in the heart of Sienese community life. The parades represent the self-confidence and pride of each district, their willingness to match their skills against the other districts. The parades intensify as the Palio draws nearer. Finally, just before the actual race, the cathedral square becomes the scene of a bizarre baptizing of both horses and horsemen. In the old days, the horses even entered the Cathedral. Then the Palio – a bareback horserace on the central square, transformed into a temporary track, the gathering of all Sienese for a contest as short as it is furious that leads one jockey, one horse and one district into sublime glory for a whole year.

Sienna is unique in creating a completely integrated social, physical, cultural public space. All functions of public life connect and meet in the yearly Palio ritual: the worldly powers of governance (the town hall), spiritual and religious life (the cathedral), belonging and reconfirmation of social hierarchies (the districts competing in a horse race), and the shared centre to which all private lives in the community one way or another connect; the Piaza del Campo.

The Space of the Screen

This nostalgia is almost too beautiful for a post-industrial society where individual lives are connected through countless trajectories, economic, social, multicultural, ethnic, translocal, international or even global. Many of these connections have become virtualized – community identity and cultural memory have become dematerialized in the process of their mediaization. TV screens have replaced the monument as the embodiment of collective memory. We no longer know such monuments by their immediate presence in our own space and time, but by their infinite reproduction in electronic media.

Digital networks introduce a condition of absolute virtualization to the contemporary electronic media landscape. Infinity here means the potential of endless reproduction without loss of order, the finite description into a completely articulated language: the digital code. It allows for storage with ultimate precision, but it also opens up the pos-

sibility of endless mutation through all kinds of algorithmic processing procedures.

In a paradoxical way, these digital communication networks have been hailed as a possibility to recapture some of the sense of community that the Sienese model illustrates so strikingly. While the TV screen has indeed become both the agora and the monument, its model, the broadcast model, is still vigorously industrial. The same goes for radio. Broadcast output is standardized on the level of the lowest common denominator of its target audience; one product for all that can be reproduced at lowest costs exactly because of its standardization. The economic rationale behind it is the advantage of economies of scale. Feedback from the audience to the producer is weak and only filters slowly into the product (a TV or radio programme, a 'format' – game show, talk show, news bulletin).

What digital networks offer instead is a distributed model, a matrix or meshwork that interconnects all nodes in a reciprocal way. Not everybody on the Net has equal opportunity to present themselves or their messages, but at least everybody has the possibility to respond or create an alternative outlet for their ideas (a website). In a sense, the receiver can change roles at any time and become a sender.

For a long time, the Net was romanticized as a utopian kind of public space – decentralized, open, transnational and translocal, a space in which all of the connected could represent themselves and their interests on an equal basis. With the exponentially growing popularity of the Internet over the last year or so, remarkable changes have begun to manifest themselves. A great deal of the new digital public space has been occupied, privatized and sealed off by various forces. Some parts of the Net have become heavily commercialized and overburdened with advertisements. Others have been closed off altogether as corporate intranets of sometimes intercontinental dimensions. Also the academic world has started a dedicated networking structure, ironically called Internet II.

Public or Private Net Space?

Thus, in the overall picture, a redistribution of public and private territory on the Internet seems to characterize its current phase of development. On the personal level, the formation of public and private

Net space is characterized by a different kind of ambiguity. While on the one hand, the Net activity of individual participants unfolds in a publicly accessible space (in principle, anybody with a connection can access any website, discussion group or virtual environment that is not sealed off by passwords or credit-card checks), the reception of these processes is almost exclusively private. People rarely access the Net in a public space, and even less usual is a situation where this action is shared by a group of people. A web surfer usually is alone behind the screen, which makes the viewing operation distinctly private.

The popularity of the Internet can only be understood in terms of the desire it quite clearly fulfils. Part of this desire is a paradoxical longing for simultaneous anonymity and communication. The anonymity affords safety and a temporary release of social constraints and codified behaviours. At the same time, the possibility to connect to other like-minded souls seems almost irresistible. Communication is the driving force behind the development of this new medium.

The public nature of many Net forums seems to instil the fear of being unprotected in an unknown territory, whether they are Internet-based multiplayer adventure games (so called Multi User Dungeons; MUDs and MOOs), animated virtual worlds, or even simple online chat environments that proceed by text communication. One way to inhabit this foreign territory is to use guises and masks. Apparently, to create fictional virtual persona and assume alternate identities is a useful strategy for inhabiting these environments. The fear of the unknown, of unlimited open space is further enhanced by its private reception on the participant's end. Often this space is accessed from home. In this sense, the Net is only the next communication medium to invade the private sphere.

Virtual persona (usually referred to as *avatars* in the subcultures of the Net), could be seen as a way of inhabiting, of gaining presence, of making oneself 'at home' in a virtual world. All these concepts offer themselves for considerable elaboration, but it seems the most valuable lesson can be learnt from the notion of 'being at home'. There is something intrinsically rewarding in the feeling of being *at* home, wherever that may be. At the second *Doors of Perception* conference in Amsterdam (1994), architectural theorist Christopher Alexander showed pictures of his family life: the kitchen, children playing, and so forth. And he asked this one simple question: 'Can something like this ("home") be

designed?' Clearly, it cannot. Home is not designed, but simply the result of people making themselves comfortable and settling in a given situation and context. Home is an emergent property.

One way to make oneself at home in a boundless virtuality is to create a virtual domain of one's own. Yvonne le Grand, an artist physically living in the Netherlands, spent as much of her waking time as possible online for a whole year. She lived her virtual life both as herself and as her alter ego Nara Zoyd (a narrative being that existed only in the words she uttered and received). Nara became quite a popular character in various virtual environments and communities. She published her explorations of the boundless digital territory in weekly episodes, called jots, on her website. The souls she encountered became part of a fictional reality that grew with the life and experiences of its creator. With it, she produced a virtual domain that she inhabited with her virtual presence, it became a home to her in an authentic sense. The remains of this virtual, but real existence can still be found, though Nara has long abandoned her pataphysic domain.

A later project by the same artist called 'Public/Private' investigated the inversion of public and private space by new communications media. The setup was quite simple, a live linkup via the Internet, with a camera, a sound channel (music only) and a text chat. Participants in the project could either connect from home or from a gallery space, where the images normally seen on the monitor were projected large-screen on a wall. Interactions between participants at home, the artist in a secret location (only her hands were visible – typing), and the participants in the gallery space could be followed over the Net, or in the public space of the gallery itself.

The conversations, usually of a private nature, were placed in an ambiguous setting, shifting between the privacy of the participant at home and the public exposure in the gallery space. The project investigated the blurring of boundaries between the public and the private caused by the exponential growth of communication media. The project also questioned the assumption that most of the interactions conducted over the Net would be of an anonymous nature. In fact the display of the web interface in a physical public space hardly made the proceedings any more public than they already were, it only made the public nature of these interactions more tangible.

Now that the initial utopian phase of the Net as an open space is more or less over, new definitions of these social spaces are sought. While the Net does seem to have a potential to allow intense personal relationships between individual users to emerge, the bonds formed in these processes also seem less enduring than the ones formed in traditional social spaces. This could actually be seen as a liberating potential, a space for experimentation, for self-reflection, a place where roles can be tested, assumed and discarded. The shorter duration of these relationships could be an advantage for this process of experimentation.

While German researcher Barbara Becker in her paper 'Virtual Identities: The Imaginary Self' (1997),[1] does not reject this potential altogether, she is sceptical about the liberatory claims connected to the virtual multiple self-reinventions. A closer look at many of the virtual worlds, she argues, reveals how deeply socially and culturally codified they are. Often these codes take a very different shape than customary social codes, but they are nonetheless highly constrained. Two examples clearly illustrate this point; a Killer MOO where the object of the assumed role is to survive by killing everyone who crosses your path in the virtual world, contrasted with the dreamy Fairies MOO where the docile life of sweet fairies is the normative code of socially acceptable conduct.

More dubious is the potential of these virtual spaces to become spaces of absolute control and observation, where every step in our Net existence can be traced, stored and analysed. Here the blurring of boundaries between public and private life becomes particularly threatening, whether it takes the form of a nightmarish virtual police state or that of the direct marketer's wet dream.

Community, memory and deeply rooted forms of social bonding grow over time. Undesignable, they are the result of a social process that emerges out of the interactions of groups of people who inhabit and occupy a given territory. It is actually too early to find out if the Net can really sustain these kinds of social processes. One of the most successful initiatives to create a Net-based community thus far is the Digital City Amsterdam. It recently celebrated its fifth anniversary and at this point hosted just over 90.000 regular users; the size of a small city.

Is it time to let go of our community nostalgia?[2]

Media Without an Audience

Networked Presence and Radical Privatization

Presence in the mediated environment of digital networks is probably one of the most complex phenomena of the new types of social interaction that have emerged in these environments. In the current phase of radical deployment (or penetration) of the Internet, various attempts are being made to come to terms with the social dynamics of networked communication spaces. It seems that traditional media theory is not able to contextualize these social dynamics, as it remains stuck on a meta-level discourse of media and power structures (Virilio), hyperreality (Baudrillard), or on a retrograde analysis of media structures deeply rooted in the functionality and structural characteristics of broadcast media (McLuhan).

Attempts to come to terms with networked communication environments from the field of social theory are generally shallow, ill informed about actual practices, and sometimes simply too biased. Psychology does not contribute in any significant way to an understanding of these social dynamics either. The rather popular idea, for instance, that the screen is a projection screen for personal preoccupations, and that social relations that emerge through the interactions via networked media are mostly imaginary for lack of negative feedback or corrections, is deeply contentious. The idea that absence of corrective feedback stimulates the creation of fictitious relationships is an interesting one, but one that can apply equally well offline as it can online. It illuminates certain patterns of human behaviour, but it does not tell us much of what makes presence in the networks specific.

One of the greatest fallacies of current attempts to understand the social dynamics of networked media is the tendency to see these media as an extension of the broadcast media system. This idea has become more popular as the Internet is extended with audiovisual elements. Interactive audiovisual structures, streaming media, downloadable sound and video, all contribute to the notion that the Internet is the next evolution of broadcast media. But this vision applies only partially,

and is driven primarily by vested interests of the media industry. It is often not reflected in how people actually use the Net.

The predication of the conception of media on the broadcast model based on a division of the roles of the active sender <> passive receiver/audience relationship, is the greatest barrier to understanding what goes down in a networked media environment. The networked environment should primarily be seen as a social space, in which active relationships are pursued and deployed. Activities take place that often seem completely useless, irrational, erratic, or even autistic. The active sender and the passive audience/receiver seem to have been replaced by a multitude of unguided transmission that seems to lack a designated receiver. Thus the Net is seen as an irrelevant, chaotic, and useless infosphere, a waste of resources, a transitory phase of development that will soon be replaced by professional standards of quality, entertainment, information, media-professionalism, and above all, respect for the audience.

Let me be clear, I do not believe in this vision, and I am convinced that the Net will not evolve into the ultimate entertainment and information medium. Instead, it seems more likely that the seemingly unstructured mess of random transmissions will prevail.

Into the Soup

The ideal of conceptualizing the media environment as a social space has a considerable history. In the late 1920s, Bertold Brecht had already formulated his now famous theory of radio as direct two-way communication, and the media space as a connective network of decentralized nodes.

This notion heralds strong resonances with early cyber-utopian discourses such as Howard Rheingold's *The Virtual Community*. Or alternatively, John Perry Barlow's idea of 'the great conversation', emphasizing the kinship of network communication to the traditional meeting places, the street, the square, the agora, the theatre, the café. This early utopian phase of the Net is over, cyberspace is no longer 'independent'. Its sovereign existence is threatened by megafusions of the AOL/TimeWarner variety, but there is one aspect in which these early stories are right: pointing beyond the sender <> audience dichotomy of broadcasting.

A Progression of Media Phenomenologies beyond the Broadcast Dichotomy

Intimate Media

The first step towards a micropolitics of resistance against broadcast hegemony was introduced with the concept of 'intimate media'. I was first introduced myself to this idea at the second 'Next 5 Minutes' conference on tactical media in 1996.

Intimate media have a high degree of audience feedback. In broadcast media, the distance between the sender and the remote audience is typically enormous, if only because of the ratio between active senders and the overload of passive audience. Feedback mechanisms are necessarily complicated and bureaucratic: the letter to the editors, phone-in time available for only a tiniest fraction of the audience. Intimate media are instead micromedia, there is a close relationship between sender and audience. Ideally, the sender and the audience all know each other, while the relationship is still more than a one-on-one conversation (as in a telephone call).

Intimate media are spontaneous media. They emerge at the grassroots level. They cut across all available media, all available technologies. Intimate media can be low-tech, they can also be high-tech. What characterizes them is an attitude. Intimate media range from microprint to pirate radio, to hacked TV, webcasting, satellite amateurs, micro-fm or high-bandwidth networks. Intimate media can be organized in a professional way, though usually they are not. Most common is their appearance as amateur media – their reach is generally not viable economically. Intimate media are not a good stock option.

People often do know each other personally in these media networks. A curious incident at the second 'Art + Communication' festival in Riga (Latvia) illustrates this perfectly. All the discussions were sent out live via audio streams over the Net, and a few people were even listening at the other end. During one of the breaks, the stream continued and one of the artists decided to take the mobile microphone used by the presenters into the coffee room. He placed the microphone silently on a coffee table, where a lively conversation (gossip) was going on. As it turned out, the only person listening (in London) at the time was the very topic of conversation, and she protested on a chat channel within

minutes. This type of media intimacy is virtually unthinkable in the broadcast model.

Socialized Media

Media used in the context of a specified social group or in a specific regional context are best described as 'community media'. Common forms of community media that belong to a geographically situated locale are radio or television based. The use of the Internet in a situated context is generally referred to as community networking. This mode of networking has become especially popular throughout the USA, but also holds some importance in Europe.

Special interest groups are usually organized around a topic, theme or a shared interest. They are essentially translocal in nature, hooking up collectives or even shattered individuals who can be radically dispersed across different regions and countries.

Networked communications can be highly beneficial for building and strengthening the cohesion of such communities. It is obvious that translocal (special-interest) groups benefit the most from networked communication, since it offers a low-cost and fairly effective means of staying in touch and exchanging ideas. But the high degree of audience feedback and peer-to-peer interaction also makes networked communication technology an invaluable tool for social interaction.

Typical forms of networked communication are the newsgroups that emerged from Usenet, text-based forums where people exchange ideas and opinions about the topic of the newsgroup. MUDs and MOOs, or generically online multi-user environments, where people can interact directly online in a communications environment. MUDs and MOOs started out as text-environments and became popular as role-playing environments, but they have become visually animated and subsequently also integrated live speech and 3D environments that can be navigated in a more visceral way than the 'point and click' navigation of traditional web pages. Multi-user environments enhance the feeling of sharing a communications space with others. The mode of interaction has to be active, otherwise it does not work.

The collaborative networks that have emerged as a result of these low-cost translocal communication tools are another important aspect of socialized media. Email has helped tremendously in this regard.

Mailing lists are easy to set up and can help to distribute information evenly and effectively to a very large base of subscribers, while also offering each subscriber the opportunity to react to the sender as well as to the whole list. 'Audience' feedback here is immediate, distributed and non-hierarchical. It is far removed from the letter to the editor that most likely never makes it through the editorial filters. The practices of micromedia in the arts and net.casting have benefited enormously from the availability of mailing lists such as Syndicate, Xchange, nettime, Nice, and others, and have been tools to establish cooperation, a sense of community and a discourse that is more open than what any print magazine would have been able to support.

Create Your Own Solutions!

One of the most successful collaborative networks, still developing, has been the Interfund. The Interfund is 'a cooperative, decentralized, non-located, virtual but real, self-support structure for small and independent initiatives in the field of culture and digital media'. The Interfund proposes to become a shared resource pool, a 'Bureaucracy Protection Shield', a forum for the critique of (the inefficiency of) large institutions, a pool of shared skills.

Beyond the fact that the Interfund stimulates individuals to 'create their own solutions', one of the more ingenious of these self-help solutions was the *self-funding* scheme! This proposal addresses the nasty fact that cultural funding agencies will generally only support projects that are already supported by other funding bodies. The Interfund, therefore, came up with the idea of a microfunding scheme where projects from within the Interfund community (which itself is an open structure) would be immediately eligible for official support by the Interfund – in an amount of either 1 or 10 US dollars per project.

With the official letter of acknowledgement, new funding applications to local agencies can be given extra credibility. 'Look, our project is already supported by the Interfund!' – 'What, really?? Well in that case . . .'

If by chance the Interfund office is far away, or there is no time for a surface mail exchange, the entire collection of relevant documents can be downloaded in the form of PDF files and other design elements. Thus allowing each individual member to establish their own Interfund.

All of these types of media practices still have an attachment to the functional. There is an idea that something has to be communicated – a fallacy, of course. What mostly distinguishes intimate and socialized media from the broadcast model is that the media infrastructures here primarily act as support structures for certain intricate social figurations to emerge. There is a highly specific subset of these media phenomenologies, however, that seems to have emancipated itself from even those basic functional demands of use and has entered into a kind of 'phatic' state; the sovereign media.

Sovereign Media or 'The Joy of Emptiness'

Sovereign media are first of all media that simply exist for the sake of nothing else. Sovereign media produce signals *with* an origin/sender/author, but *without* a designated receiver. The term 'Sovereign Media' alludes to the notion of the sovereign as developed by Georges Bataille in *The Accursed Share*.

As a media phenomenology, it was first identified by Bilwet (a.k.a. Adilkno – Foundation for the Advancement of Illegal Knowledge). For Bilwet, the sovereign media are a bewildering new UTO – Unidentified Theoretical Object, which they studied with great curiosity and leisurely pleasure. Let me first share some of the early Bilwet/Adilkno observations about this UTO:

> The sovereign media are the cream of the missionary work performed in the media galaxy. They have cut all surviving imaginary ties with truth, reality and representation. They no longer concentrate on the wishes of a specific target group, as the 'inside' media still do. They have emancipated themselves from any potential audience, and thus they do not approach their audience as a mouldable market segment, but offer it the 'sovereign space' it deserves. Their goal and legitimacy lie not outside the media, but in practising (*practicable*) 'total decontrol'. Their apparently narcissistic behaviour bears witness to their self-confidence, which is not broadcast. The signal is there; you only have to pick it up. Sovereign media invite us to hop right onto the media bus.
>
> . . .

> Sovereign media insulate themselves against the hyperculture. They seek no connection; they disconnect. This is their point of departure. They leave the media surface and orbit the multimedia network as satellites. These do-it-yourselfers shut themselves up inside a self-built monad, an 'invisible unit' of introverted technologies, which, like a room without doors or windows, wishes to deny the existence of the world. This act is a denial of the maxim 'I am connected therefore I am.' It conceals no longing for a return to nature. They do not criticize baroque data environments, or experience them as threats, but consider them material, to use as they please. They operate beyond clean and dirty, in the garbage system ruled by chaos pur sang.
>
> Their carefree rummaging in the universal media archive is not a management strategy for jogging jammed creativity. These negative media refuse to be positively defined and are good for nothing. They demand no attention and constitute no enrichment for the existing media landscape. Once detached from every meaningful context, they switch over in fits and starts from one audio-video collection to the next. The autonomously multiplying connections generate a sensory space which is relaxing as well as nerve-racking.'[2]

Presence Beyond Utility

In *The Accursed Share*, Bataille defines the sovereign in opposition to the servile, in opposition to all activities subordinate to the demands of usefulness. The demands of usefulness, the basis of any kind of economic or productive activity, rule out the experience of sovereignty. By deriving its meaning and purpose from what it is useful *for*, the activity itself becomes intrinsically meaningless. The sovereign experience, on the contrary, is meaningful independently of its consequence. It always refers to the moment of its consumption, and never beyond.

'Life beyond utility is the domain of sovereignty,' Bataille writes. Only when experience is no longer subordinate to the demands of use is it possible to connect to what is 'supremely' (*souverainement*) important to us. Sovereign media should then be understood as media beyond use. They should not be understood as 'useless' but rather as 'without use'. The sovereign media are media that have emancipated themselves from the demands of functionality or usefulness to exist in their own right.

Quality Is Irrelevant!

Freed from the demands of usefulness, quality becomes an irrelevant criterion for these media signals. The signals exist – how they are interpreted, what the framework and the demands are that are projected upon them, is not a consideration in the process of their production. The signals can be beautiful and brilliantly clear, or amateurish and oblique. The traditional criteria of media professionalism have long been left behind in the universe of the sovereign media.

One of the most beautiful examples of a supremely sovereign media practice is the net.radio.night, a global micro jam in net.audio, regularly hosted by the xchange network. For a net.radio.night, a call is typically put out on the mailing list, inviting net.casters to join on irc and listen to a live stream originating from location one. Other locations listen and pick up the stream till someone announces on the irc channel that the live stream will move from its original location to theirs. The next stream is a remix of the original, with some things added, others taken away. The process starts anew and the stream moves to the next location and the next remix. This process can go on for hours, and very soon the origin of any specific sound is lost. What the net.radio.night imprints on the participants is a strong feeling of being in the network, where the relationship between origin and destination has been dissolved. The traditional audience can tune in and listen, but is of no consideration in the structure of the event.

A distinctive characteristic of sovereign media is their hybridity. Any medium can be combined with any medium. Sovereign media have a cross-media-platform strategy, but this time not to reach a new audience, but simply to extend the media space. Examples are the Virtual Media Lab, an intersection of all available media in Amsterdam, combining cable television with web casting, with radio, and even at times with satellite transmissions.[3]

Another interesting cross breed are automated media such as the Frequency Clock of r a d i o q u a l i a, or Remote TV of TwenFM, allowing automatic scheduling of live streams from the Internet on local radio and cable TV infrastructures. Or the project Agent Radio of the Institute of Artificial Art in Amsterdam that automatically and randomly selects sound sources from the Internet and schedules them in the ether.

All these media operate beyond the body count of viewer statistics.

Private Media

In the Digital City Amsterdam, the personal home pages of its 'citizens' are called 'houses'. For some years already the personal home pages on the World Wide Web in general, and the success of initiatives such as GeoCities, prevail in the face of adversity, while big-budget entertainment networks such as DEN (Digital Entertainment Network) collapse even before anyone really got to know about them. The highly respectable weekly economy magazine *The Economist* recently put a sad smiley face on its cover, testifying to 'what the Internet cannot do'. Inside the issue a careful analysis is made of why the Internet has such a hard time taking off as an entertainment medium, and is not living up to its promises at all.

Private media formations such as GeoCities, the Digital City in Amsterdam, and others, mostly do not deal with the communication of a specific message at all. They have no target audience, and are not part of the attention economy, but still they are highly successful as private media. More than the failed attempts to establish the ultimate entertainment medium, the Net has flourished as the ultimate personalization of media space. The endless stacks of private homepages are the icons of these truly privatized media. Their private messages, beyond anything else, simply state 'I am here', but this simple message should not be discarded as a banal statement.

Phatic Media

In their final phase of evolution media become phatic. The term derives from linguistics. In linguistics phatic language relates to speech used for social or emotive purposes rather than for communicating information. The typical, though admittedly somewhat stereotypical example, is the speech of housewives meeting every single day in the garden while hanging wash or taking care of domestic tasks. The exchanges of apparently meaningless phrases such as 'How are you?', 'How are your children doing in school?', and so forth, communicate something beyond the semantics of the individual words.

An amazing image: a test channel of a satellite TV transmitter, operated by satellite TV amateurs – an international network. One central image surrounded by smaller screens. They show what looks to most of us like 'nothing' – a small room, an attic, a technical workshop, equip-

ment, somebody sitting around, no apparent communication. The image just is, it does not speak. One of our civilization's most highly developed high-tech infrastructures, utilized to celebrate the joy of emptiness . . .

This type of media appears to be completely useless within the traditional (broadcast) media scheme. It is a mistake to take this view for granted, however. There is indeed nothing banal about this media behaviour. The media sphere is treated here as a new type of environment, 'in' which people create presences, but without a desire or aim to communicate a specific message.

In fact I understand this as a fundamental anthropological principle – a way of inhabiting a new environment, and one that is, after all, primarily a hostile environment for most of us.

Mediate YourSelf!

Create your own solutions

At the end of the third 'Next 5 Minutes' conference on tactical media (March 1999) in Amsterdam, an interesting discussion emerged around the question of how the minor media practices elaborated and highlighted in this vibrant event would ever reach a wider audience for lack of being covered by any mainstream outlet. At one point, some people from the back of the room (unfortunately I don't know anymore who exactly, I believe an Italian group), shouted: 'We don't want to be mediated – we mediate ourselves!'

This outcry stunned me. It seemed such a straightforward and challenging idea, that it would become a guiding notion for a whole string of projects I developed afterwards. The outcry also triggered a lot of new thoughts and ideas. My fascination for the question of self-mediation is not necessarily born out of disdain for mainstream broadcast media, but rather out of love for the fact that we are now in a position to turn the media around. Instead of being subjected to an outside alienating force, registering and mediating our lives, media can be used as tools to express certain subjective apprehensions about the world. The media system then becomes a set of instruments to disseminate particular views (my own views), without an external mediator or filter in-between.

At present, this discussion is framed by the emergence of new forms of net.casting, new options that the Internet is starting to offer for placing live and archived sound and video online and distributing it to an audience directly. It happens in various formats, and there is no clear standard as yet, neither in terms of a preferred method, nor a transparent technical standard and/or clearly designated market leader. But given that this is the frame, it is important to point out right at the beginning that though the idea of self-mediation is enhanced by some of these recent technological developments, it is primarily an attitude, or a certain consciousness about media.

The excitement that has surfaced, in my opinion rightfully so, about the possibilities of net.casting to create a more distributed system of broad- and narrowcasting, and thus democratize in a sense the

privileged role of the sender in the traditional broadcast system, has some strong historical precursors. It suffices here to mention just two examples, Bertold Brecht's Radio Theory of the late 1920s, in which he envisions the transmission space as a two-way communication system, totally decentralized, without a clear hierarchy of senders and listeners; and secondly, the so-called camcorder revolution: the moment when video recorders became a 'wearable' consumer item, and these cameras could be turned on the power structures traditionally in control of the media channels.

In this little essay, I try to develop some of the ideas related to this reversal of media roles, and apply some of the insights to the current stage of development of the Internet and its extension with all sorts of audiovisual components. In an earlier text, 'Media without an Audience', I played around with a number of less-well-established media phenomena and concepts that shift the focus of media theory away from a communications-based approach to a more anthropological understanding of media (networked digital media, in particular). This investigation actually led me much closer to how people actually use the Internet than traditional media theories. It also brought me closer to the more exciting practices that I have seen emerging over the last few years, again, especially in the context of networked media (the Internet).

Here I want to explore self-mediation in relation to community-building processes and the construction of a public domain in the new media landscape, which is neither state nor market-controlled. The superchannel project, offering public tools for anyone to create their own web TV channel, is an ideal case study to investigate and explore these questions. What links up all three texts is a shift in approach, away from discussing media in the framework of communications theory per se, towards seeing certain kinds of media behaviours and media phenomenologies as new forms of habitation: a series of attempts to inhabit the media landscape. I think that the essence of this kind of media behaviour is close to an anthropological concept of the creation of 'presences' in a new territory. In this case, the new territory is the expanded media landscape.

Now the creation of presence in an alien environment, or a new territory, is an enormously complex anthropological notion, of which I certainly do not have any secure enough understanding or insight to

offer a 'theory'. This lack of understanding is, however, exactly why it is such an exciting opportunity to focus on a specific project that embodies some of the key aspects that, I feel, need to be investigated to come closer to an understanding of what is going on 'at ground level' in a networked media environment.

A Community without a Network Does Not Exist

Let's first get away from an immediate misunderstanding that haunts a lot of so-called 'cyber theory' – the term 'network' refers to much more than just the physical digital/electronic networking infrastructures. Network as a generic term can relate to a physical infrastructure as well as to a social infrastructure and practice. So, without wanting to be too strict or academic, it might be a good idea to distinguish between these different types of networks, by referring to digital networks in the specific case of computer-based infrastructures, and to networks in general when the social phenomena and practices are concerned.

It is quite crucial to understand that society is permeated by all kinds of networks, physical, social and cultural, but also hybrid combinations of all of these. The range of networks is vast: transportation networks, communications networks, family networks, social-class networks, networks of peers, professional networks, and many more. Every society consists of a complex layering of all these different types of networks that intersect and interact with each other in countless ways. Community results as an emerging property of these networks, but not without a decided effort.

The community discourse around digital networking technology was very strong in the early 1990s. Especially in the USA, high hopes were placed on networking technology to offer new tools for shaping communities translocally, as well as strengthening localized communities. During 12 years of Republican rule, with tax cuts and the subsequent reallocation of the nation's wealth to the wealthiest 5 per cent of the nation's citizens, the public sphere was effectively slaughtered.

By closing down the public mental hospitals and support units and turning thousands of psychiatric patients loose on the streets, the public space in the big US cities became a nightmare. The explosion of drug abuse and small-scale crime, an inevitable result of this totally irresponsible act of the Reagan administration, then became the perfect

pretext to start the holy 'war on drugs'. Polarization of public opinion, buzzwords such as the 'moral majority', and an anxiety campaign about the dangers of public space were the final ingredients used to kill public discourse and community in the USA. In this barren desert of social isolation, any tool that could recapture something of this lost *socios* was embraced eagerly, and we must understand much of the enthusiasm of early cyber utopia in this context.

Howard Rheingold, one of its most influential proponents, has made a lot of very useful distinctions in terms of how digital networking technology can aid and strengthen community structures. In his book *The Virtual Community*, he describes the creation of translocal communities, organized around a shared interest, topic or theme. These 'special interest communities' can be totally decentralized, dispersed in some instances across the globe. Because these communities were mostly debating societies, arguing their case via text-communication tools (e-mail, IRC chat, bulletin boards) the translocal dimension could be very strong. Connection speed was only a minor consideration (still quite important for transcontinental data traffic). When digital networking technology is used in the context of geographically situated community, a town, a village, a region, Rheingold refers to it as community networking. This term has become a well-established concept through digital cities, municipal information and communication networks, and many other types of local networking structures.

But What is a Community About?

Superchannel, the do-it-yourself web-TV platform, set up by the Danish arts and autonomous technology initiative Superflex, accommodates both these notions of community. Translocal communities, special interest groups for art, music, lifestyles and subcultures can bring people together in the project, but superchannel can also relate specifically to a particular local context. In the first superchannel project in Liverpool, Coronation Court, the context is extremely localized: Liverpool's oldest tower block, a remnant of urban utopia of the 1950s and '60s.[1]

In an introductory video to the project we are introduced to a deeply common microcosmos; the tower block and its tenants, some of who have lived there since it was established. Ideas about living and housing

change, so does insight, with experience about what works as an architectural and urban reality, and what does not. As many people would have it, a tower block would stand as a symbol for urban isolation and alienation.

In Amsterdam certainly, one of the most problematic areas of the city is a high-rise district called the 'Bijlmermeer', in recent years renamed Amsterdam South East, a euphemism to disguise the actual existence of a ghetto in the egalitarian Dutch society. The Bijlmermeer district started as an urban utopia. Tower blocks would be built, with spacious and cheap apartments. It would offer a new luxurious environment for families, who traditionally lacked proper living spaces in the old districts of Amsterdam, where houses are exceedingly small, and consequently escaped into suburbia. The tower blocks were interspersed with large green recreation areas, ponds and greenery. Located at the edge of the city but still close to the centre, connected by excellent public transport facilities, this district was to stop families from fleeing the city, and offer the best of both worlds, the city at hand and comfortable living spaces at home.

Packing Geldershoofd, mural painting for 'Debates & Credits', Amsterdam 2002/2003

But the Bijlmermeer became an urban disaster. Ridden with crime, the green areas being desperately insecure at night, the district quickly became a despised area. Flats remained empty. In the next stage of development, the tower blocks became popular with immigrants. They were cheap, big and easy to get. Control was slack and illegal occupants started to dominate the district. For the housing authorities, it became increasingly unclear who was actually living in a given apartment, or even how many people. Up to today the authorities have no clue how many people died when an El Al freight plane crashed into one of the big tower blocks in the Bijlmermeer.

Does this desperate image apply equally to the Liverpudlian remnants of this failed architectural and urban utopia?

In the Coronation Court introduction video the interviewer asks some of the tenants if there is a sense of community within the complex, and what community means to them. One of the ladies interviewed responds with a remarkably poignant answer. She says: 'Community is being caring, without being familiar'. Probably much to our surprise, people here do feel passionate about their living environment, and do want to be closely involved with the process of restructuring it, which is about to set in (as is also happening in Amsterdam's troubled Bijlmer district). So, more than anything else, what the subsequent video reports of the refurbishment procedure show, is how engaged the people are whose lives revolve around Coronation Court. No abstractions. We witness the architects coming in. We follow discussions with officialdom, but most of all, superchannel offers a way for the tenants to create their own message, according to their own standards and specifications.

This moment of self-mediation is an important aspect of community building with networked media. The media tools become instruments with which to make the ideas and sentiments visible of the people who actually live in the structures that the professional elites have constructed for them. Without the outside filter, the communicative quality of the message varies and discontinuities emerge. Friction is part of the community-building process, and media friction is inevitable as soon as the old imperative of the clear message that needs to be communicated to an audience (broadcasting) is left behind. In the new media ecology that emerges around community networking, the way in which

people inhabit media space is as equally complex and incongruous as it is in physical space.

There is no reason to be naïve or overly enthusiastic about all of this, conflicts are also carried over into this media ecology. Blatant racism, ethnic dispute, quarrels, gossip, temporary alliances and deceit are as much a part of the media sphere as they are of the customary social space. Most of all, these media spaces can be downright boring to look at. Still, there is a fundamental sense that when the old relationship of the sender <> audience relation is left behind, new ways of creating meaningful structures within the mediascape set in. The marking of new territories, the creation of personal and social spheres are part of these formative processes, and the people that participate in them become involved in the creation of a new kind of presence in the space of media.

Aesthetics of the Unspectacular

Why should we be interested in looking into someone else's living room? Is this an act of voyeurism? Why should we pay attention? After the initial wave of webcams showing gorgeous girls in their home environment, the voyeuristic impulse will quickly subside. Big Brother may be on its second rerun in the Netherlands, but cameras in private houses are becoming such a common thing on the web, that it is most probably also the last. The webcams hint at an intricate redefinition of the borders of private and public, rather than a voyeuristic <> exhibitionist relationship. Very soon this mediated privacy will have lost its spectacularity altogether. There is something exceedingly boring about witnessing daily life as it passes by in front of the camera, scale 1:1 – waiting for the event that never happens.

Still, more and more people set up webcams in their homes, much like the apparently typically Dutch habit of having the curtains open till late at night. It now seems that lives in many countries are becoming increasingly translucent with the advent of digital networks. But is this an invitation at all? Isn't the signal just there to be picked up? There seems to be hardly any incitement to get you to go there (save a few early commercial variations).

In fact, this media behaviour looks more like how people move through the city streets. In principle, everybody is open to be addressed

by all the other passers-by, yet very few people actually talk to each other. A glance in passing is what the interaction usually remains confined to. But there are a whole series of unwritten rules of how to mark presence in that physical environment. It seems to me that, rather than some exhibitionist act, putting up webcams in private homes is quite a similar act of marking presence in the media environment, an extension of the private icon of the homepage. The act of looking at the images these webcams generate also seems closer to the passing glance than to the voyeur's fetishist preoccupations.

With thousands, and at some point possibly millions, of web cams online, the need for spectacle completely disappears from these images. The image becomes inherently unspectacular. It exists, it marks existence, but it no longer demands the attention of the masses. These kind of private media operate in clear contradistinction to the spectacle machines of broadcast and mass media. The private webcam reverses Guy Debord's concept of the society of the spectacle.

Also, web-TV, or streaming video on the Net, adhere more to the aesthetics of the unspectacular than the aesthetics of perfection or the high-tech glitch. The current low-rate live streams on the Internet deny the spectacle in a very literal sense: movement actually blurs the image! By its very nature, the medium seems to take a stance against the mainstream spectacle.

Since people like to spend a lot of time online in places that offer possibilities for egalitarian forms of social interaction, the community concept became an interesting 'format' for commercial media operators, to glue 'eyeballs' to advertisers messages. The commercial appropriation of the community concept, and of community media, has eroded a lot of the high aspirations of community networking and virtual communities in the last few years. Special interest communities offer highly attractive target audiences for specialized niche markets, and marketeers have not been sleeping. The exploitation of the 'community format' has in fact been one of the few successful strategies in the business to consumer segment of the new economy.

One of the possible counter strategies to this erosion of the community concept could be the 'real privatization of the media'. True privatization of the media should take the idea to its extreme and put the tools in the hands of individual people. Such truly privatized media can

create a counterbalance to the corporate appropriation of the concept of 'community'. No prefab solutions from the marketing department, but simply the reflection of what people have to say about themselves, the world, and the things they are interested in. It is in this self-created public domain, that is neither market nor state, that true community emerges.

Mediate YourSelf

Find your Other

Notes

The Post-Governmental Condition

1 Next 5 Minutes 3 Workbook, *PGO Introduction* (Amsterdam, 1999), 59.
2 Fashionably referred to as 'globalization', although the term is already somewhat jaded.
3 First and foremost, of course her study *The Global City* of 1991 and revised second edition of 2000 (Princeton NJ: Princeton University Press).
4 My understanding of Issue Politics has been deeply informed by the insightful research and PHD thesis *No Issue, No Public - Democratic Deficits after the Displacement of Politics*, defended by political and science philosopher Noortje Marres at the University of Amsterdam in November 2005.
5 Michel Feher, 'The Governed in Politics', introduction to: Michel Feher with Gaëlle Krikorian and Yates McKee (eds.), *Nongovernmental Politics* (New York: Zone Books/MIT Press, 2007), 12.
6 Next 5 Minutes 3 Workbook, op. cit. (note 1), 59.
7 And by now the foundation has shifted its attention to other regions on the globe.
8 See: Karl Popper's key works on political philosophy *The Poverty of Historicism* (London: Routledge & Kegan Paul, 1939/1957) and *The Open Society and its Enemies* (London: Routledge, 1945).
9 Geert Lovink, *Ins and Outs of the Soros Internet Program in Former Eastern Europe* – An E-Mail Exchange with Jonathan Peizer, posted on the international nettime mailing list, 4 January 1999.
10 Ibid.
11 Richard Sennett, *The Fall of Public Man* (New York/London: W.W. Norton & Company, 1974), 282-283.
12 See: www.opencahier.nl – Issue #11 *Hybrid Space*.
13 The use of wireless electronic place-sensitive technologies, such as GPS (Global Positioning Systems), often integrated in a wearable device, can be called 'Locative Media'.
14 Sennett, *The Fall of Public Man*, op. cit. (note 11), 340.
15 The so-called Turing Machine, named after the mathematician Allan Turing – the machine that is capable of simulating any other machine.
16 Lev Manovich, 'The Poetics of Augmented Space', *Visual Communication* 5 (2006), 219-240.
17 The mass production of RFID tags compelled producers to minimize the security provisions incorporated to allow the tags to be applied cost effectively to virtually any conceivable consumer product. A policy of giving priority to the safety and reliability of the chips and the information stored on them would make them much too expensive, restricting their development to specialized niche markets.
18 Examples of a new kind of civil disobedience include deactivating RFID tags with the aid of an adapted mobile phone, hindering the operation of smart cards, regularly swapping client cards, deliberately supplying false information when registering online and using 'anonymizers' on the Internet, 'encrypted' (coded) mobile phones and local gsm blockers.

The Intensification of Time

1 Taken from: F.T. Marinetti, 'The Founding and Manifesto of Futurism', in: Umbro Appolonio, *Futurist Manifestos* (London: Thames and Hudson, 1973), 19-24.
2 The citation here is taken from the epilogue to Walter Benjamin's famous essay 'The Work of Art in the Age of its Mechanical Reproducibility' (Paris, 1936).
3 Paul Virilio, *La Machine de Vision* (Paris: Éditions de Galilée, 1988/Berlin: Merve Verlag, 1989), 150.

4 Ibid., 151.
5 Ibid., 154.
6 From an interview with Paul Virilio republished in: *Kunstforum international*, Bd 114, 'Imitation und Mimesis' (Cologne, July/August 1991), 270-271.

The Politics of Cultural Memory

1 Editorial Note: This text is a considerably re-worked version of a lecture presented in Tirana (*Piramedia*), Tallinn (*Action – Reflection*) and Prague (*Translocation*). A previous version of the text was published in the book *Media Revolution*, edited by Stephen Kovats, Edition Bauhaus #6, published by the Campus Verlag (Frankfurt a/M & New York), released as a bilingual German/English edition on 11 October 1999. It was accompanied by the *Ostranenie 99* CD ROM.
2 Distilled from the song 'War' by Henry Cow (Anthony Moore/Peter Blegvad), 1974. Motto after William Blake.
3 I paraphrase Volker Grassmuck here from his text 'The Living Museum', which has been an invaluable source of references. The text can be found at: http://waste.informatik.hu-berlin.de/Grassmuck/Texts/Museum/museum.html . Grassmuck refers in his text to: Jan Assmann, *Das kulturelle Gedächtnis. Schrift, Erinnerung und politische Identität in frühen Hochkulturen* (Munich: Beck, 1997).
4 Benedict Anderson, *Imagined Communities – Reflections on the Origin and Spread of Nationalism* (London/New York: Verso, 1983).
5 Marshall McLuhan, *Understanding Media – The Extensions of Man* (London: Routledge, 1994, originally 1964), 336-337.
6 Boris Groys, *Logik der Sammlung* (Munich: Carl Hanser Verlag, 1997), 52-53.
7 Ibid., 54.
8 'Kosovo' in Serbian means 'black bird'.
9 In one sense YouTube has since (the original essay dates from late 1999) created such a space, but it is a corporate space, owned by a single company and under market pressures to recover initial investments made in it – it is not the open participatory space that a democratic politics requires.

'freedom'

1 The text to follow was presented at the LEAF 97 symposium in Liverpool as part of the Video Positive 97 'Escaping Gravity' festival. The text was a first attempt to establish an argument from which recent discourses on 'freedom' in relation to the Net and the emerging information society may be interrogated. The text also served to establish a conceptual framework to build the programme of a highly concentrated one-day conference, which was to be part of the 'Interstanding' 2 event in Tallinn, 8 October 1997.
2 Further references at Nicholas Carr's weblog *Rough Type*: www.roughtype.com/archives/2006/12/avatars_consume.php - posting dated: 5 December 2006.
3 Manuel Castells, *The Information Age, Volume I: The Rise of the Network Society* (Malden, MA: Blackwell Publishing, 1996).
4 Ibid., 428.
5 www.debates.nl.
6 Tatiana Goryucheva and Eric Kluitenberg (eds.), *Debates & Credits – Media/Art/Public Domain* (Amsterdam: De Balie, 2003), 8.
7 See: Klaus Theweleit, Der Knall, *Das Verschwinden der Realität - 1. Ein Video Clip von CNN*, (Frankfurt am Main: Stroemfeld Verlag, 2002), 63-67 for a detailed discussion.
8 Ibid., 20.

Constructing the Digital Commons

1 Source: *Oxford English Dictionary* (online edition – date: 19 September 2007).
2 Monica Narula in: *Tales of the Commons Culture*, *Mute Magazine*, London July 2001.
3 FAQ about the Public Domain, at: http://amsterdam.nettime.org/Lists-Archives/nettime-l-9901/msg00063.html..
4 See David Bollier's website for further details: www.bollier.org.
5 There is a further complication here: outside of the Anglo-Saxon cultural sphere the notion of public domain and its translations means a host of different things – the concept of 'la domaine publique' in French, for instance, refers strictly to the domain of the state. The commons as a term remains by and large untranslatable since the notion of *common land* is not a transferable concept, but at least it does not give rise to erroneous cross-language interpretation.
6 reBoot web site: www.khm.de/~reboot/.
7 see D&C web journal: www.debates.nl.
8 Science Commons: http://sciencecommons.org.
9 An extensive collection of papers, project documents and references can be found at the website of Howard Besser at New York University: http://besser.tsoa.nyu.edu/howard.

Mindful Disconnection

1 Jorinde Seijdel (ed.), *OPEN #11: Hybrid Space - How wireless media mobilize public space* (Rotterdam/Amsterdam: NAi Publishers/SKOR, 2006), all of the texts in the issue are available online: www.skor.nl/article-2883-en.html.
2 Lewis Mumford, *The Myth of the Machine: Technics and Human Development* (New York: Harcourt, Brace, Jovanovich, 1971).
3 Jacques Ellul, *The Technological Society*, translated by John Wilkinson (New York: Knopf, 1964).
4 William Irwin Thompson, *The Americanization of Nature: The Everyday Acts and Outrageous Evolution of Economic Life* (New York: Doubleday, 1991).
5 Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, (New Haven: Yale University Press, 2006), www.benkler.org/wealth_of_networks/index.php?title=Main_Page.
6 Howard Rheingold, *Smart Mobs: The Next Social Revolution* (Cambridge: Perseus, 2002).
7 Tom Standage, *The Victorian Internet* (New York: Berkley, 1999).
8 Manuel Castells, 'Why Networks Matter', in: Helen McCarthy, Paul Miller and Paul Skidmore (eds.), *Network Logic: Who Governs in an Interconnected World?* (London: Demos, 2004), www.demos.co.uk/networklogic17castells_pdf_media_public.aspx.
9 Robert Boyd, Joseph Henrich and Peter Richerson, 'Cultural Evolution of Human Cooperation: Summaries and Findings', in: Peter Hammerstein (ed.), *Genetic and Cultural Evolution of Cooperation* (Cambridge, MA: MIT Press, in cooperation with Dahlem University Press, 2003).
10 *Everyware: The Dawning Age of Ubiquitous Computing* (New York: New Riders Press, 2006).
11 Gilles Deleuze, 'Postscript on the Societies of Control', in: *OCTOBER 59* (Cambridge, MA: MIT Press, 1992), 3-7.
12 The original article written for *Open #11 Hybrid Space* concluded by drawing up a list of anecdotes and tools related to the 'art and science of selective disconnectivity. This list and the article can be found online at: www.skor.nl/article-2883-nl.html?lang=en.

The Plesure of the Medium

1 Barthes borrows the term *jouissance* from Lacan, which is most commonly translated as 'bliss', though some theorists consider 'ecstasy' a closer approximation of its intended meaning. I decided to use the original French word where its translation is ambiguous.
2 Roland Barthes, *The Pleasure of the Text* (New York: Hill and Wang, 1975), 14 (French original 1973).

3 Ibid., 16-17.
4 Georges Bataille, *The Accursed Share - Volume II: The History of Eroticism* (New York: Zone Books, 1993, orig. 1976), 103.
5 And this we knew already from Edmund Burke, see: Edmund Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* (1757, second edition 1759).
6 Barthes, *The Pleasure of the Text*, op. cit. (note 2), 4.
7 Ibid., 4-5.

The Society of the Unspectacular

1 See the essay: 'Mediate YourSelf!' in Part 2 of this book.

Virtual Life

1 See: http://wwwcs.uni-paderborn.de/~bbecker/publications.html.
2 This text was originally part of the catalogue of *Connected Cities - Ein Kunstnetzwerk für das Ruhrgebiet*, edited by Söke Dinkla, organized in Duisburg Germany from June till August 1999.

Media without an Audience

1 This essay is an expanded version of a talk given at the Banff Centre for the Arts Interactive Screen 0.0 workshop (August 2000), and the introduction to the ‹target.audience=0› panel at net.congestion – International Festival of Streaming Media, in Amsterdam, October 2000.
2 From the Bilwet Media Archive.
3 At: http://media.live.nu.

Notes *Mediate Yourself*

1 The project was subsequently carried on under the name Tenantspin and is still active. See: www.tenantspin.org.

Part III

Questioning the Unrepresentable

The Unrepresentable

Infinity, Rupture, and the Secret

> In search neither of the place, nor of the formula
> (Blanchot)

To present the unpresentable, to demonstrate that the unrepresentable exists, is the highest aim of art today, the French philosopher and aesthetician Jean-François Lyotard once insisted, reflecting on the legacy of the avant-garde.[1]

The unrepresentable, at first sight, would seem to designate that which defies description. As such, it is in essence impossible to say what it is, as this would fix it in a descriptive formula. It is possible, however, to say what it is not, to encircle rather than to describe this concept. To point it out 'negatively' as philosophers would say. In its simplest form then the 'negative' description of the 'unrepresentable' is *that which cannot be represented*.

This second term should be considered in somewhat more detail: to represent can be read as to '*re*-present'. This '*re*' indicates that it deals with a reconsideration. In this case, a reconsideration of the term 'present', and this can be rephrased as follows: *To re-present means to make present (again) in another place, in another form.*

In other words, something is made present (again) that comes from another place and time. There is a double displacement in this act of representation: both spatial and temporal. This displacement can provide a clue as to why certain things that are thought to exist can nonetheless not be represented; things that cannot be moved to another time or place.

An example of such an unrepresentable thing is the notion of infinity. We can name 'infinity', we can indicate it with a symbol (ffi), but we cannot imagine infinity, we cannot picture it, nor conceptualize it in its full meaning, as this act would imply confining it to the limits of individual consciousness, thus to set borders on that which is by definition without borders. Doing this would mean to misjudge it entirely. Nonetheless, we can understand that infinity can exist (an infinitely

expanding universe, for instance, or the infinity of time), but it is and always remains a 'beyond'.

Thus the concept of the 'unrepresentable' centres on a negative of cognition and symbolization, a non-form, a non-time, an outside. In this respect, the 'unrepresentable' remains 'outside', and is at once unassailable. The question is, what could possibly be the sense of spending any time on this idea (or rather, this 'non-idea')? Why bother? Aren't we overburdened with much more pressing concerns (overpopulation, ecological breakdown, war, famine, or even simply the failure of basic human communication)? What is to be found in that what resists, qua definition, essentially and inexorably, both understanding and symbolization?

This is a valid question. Certainly if we were to pursue the unrepresentable as a mere philosophical fancy, a play of concepts within a system of pure and formal circulation. For formal logic, the only relevant question about the notion of the unrepresentable is to show that it exists within any system of formal reasoning. And this, as we know from Kurt Gödel's famous inconsistency theorem, is a condition that afflicts all systems of formal reasoning. It has, therefore, already been shown to exist – case closed. What more is there to do other than become logicians ourselves, attempting to disprove Gödel's theorem? That would certainly not be my objective here. For a mathematician, the unrepresentable is scarcely more than an exception clause – nothing problematic. It can simply be 'indicated' by an extra symbol that does not 'represent' but merely points – 'it is there', 'it is there where we cannot see or reason it', not part of this system, unquantifiable. Much like the mathematical symbol for infinity (ffi).

But our question here is not about formal logic, nor about mathematics, but rather, our concern should be directed at a certain existential anxiety, a sense of desperation about the culture of highly technologized societies. If anything, the incorporation of everything, even our biological bodies, into technological, functionalist and utilitarian systems in the real-time society described in this book, asks for a fundamental critique. Such a critique, however, requires an 'outside', an external point of reference from where it can be launched. It seems to demand, in effect, exactly that exteriority already pre-emptively incorporated and interiorized by this all-encompassing sociotechnological

form. The principal question, therefore, is whether such a critique is possible at all?

If we wish to answer that question, however, then it is first necessary to answer another question, which precedes this outcry of desperation: Is it possible to define an 'outside' to these utilitarian systems of complete determination (*societies of control*, as Deleuze has named them)?

If radical subjectivity (artistic or otherwise) dissolves itself in writing and symbolization, dissolves itself into the symbolic order, and by bringing the symbolic to a crisis can reveal its limits, then this movement should be regarded as the attempt to reach the outer limits of the symbolic. This clearly is not enough for the demand just specified – the demand for an 'outside'. This 'outside' can, after all, only be found beyond this final border, beyond the limits of the symbolic order. The only thing that Lacan knows to exist beyond the symbolic order is 'the real', but this real is unknowable, always in its place, 'known to exist' as it were, but nothing more is or can be known about it. Paradoxically, it is exactly here that Jean François Lyotard has located his critique of the determining systems of technoscientific rationality, and their externalization into the technologies of control, from which we want so desperately to be able to escape, if only for a brief moment, in some temporary autonomous zone, of whatever kind or 'determination'.

It is the existence of the 'unrepresentable' that constitutes this fundamental 'outside' for Lyotard, and although we can never fully comprehend or imagine it – since its very essence is based on the impossibility of being synthesized into a unique form in space and time – we can nonetheless show that it exists, point it out, *present the unpresentable*, and thus make its presence felt in our lives. The heightened sensitivity for the presence of the unrepresentable is, for Lyotard, the foundation of a political programme of resistance against the determining mechanisms of unrestricted technoscientific rationality.

In the final essays of this book, I hope to demonstrate how this concept from Lyotard can provide the basis for an immensely powerful critique of technological systems. In particular, systems of digital mediation that, regardless of their complexity, search space or 'resolution', ultimately rely on the complete articulation of a message through (digital) mediation, and therefore, always remain tied to the realm of the

representable. The unrepresentable cannot enter the realm of the digital by matter of principle and remains, therefore, preserved as an outside, an exteriority.

Secondly, the analysis that follows will also convey the limits of Lyotard's critique. In that sense, it should be seen as a preliminary step to move beyond critique in the direction of more practicable models of engagement. The important point being, of course, that in passing through this moment of analysis, through the 'instance' of the unrepresentable, the critical component is not lost, but still remains present in all that follows. Indeed, the fundamental danger of Lyotard's insistence on the unrepresentable is that critical engagement with the system of digital mediation, technoscientific rationality and the utilitarian logic of commodification becomes locked in a hermetic discourse of refusal (of all representation), trapped in a 'dead-end street', or a hermit's cave. The urgency of a practicable critique demands, however, that such a trajectory be averted.

The Instant: Barnett Newman

Lyotard's discussion of the unrepresentable is based on a reconsideration of the aesthetics of the sublime. While the experience of beauty is the domain most commonly associated with the pursuit of aesthetics, there is a field of passions more intense, but more dark, which has been the object of philosophical contemplation for many centuries: that of the sublime. This discourse has become of principal interest to the arts since the artistic programmes of Romanticism at the latest. The nature of the experience of the sublime has, however, been recognized and developed more adequately by a long series of artists working under the rubric of the 'avant-garde'. It is here, through a discussion of the works and aesthetic programmes of these artists, that the sublime experience is articulated most clearly. As an experiential category it is, however, certainly not limited to the arts.[2]

Here, Lyotard's discussion of the work of Barnett Newman is particularly insightful.

> The work of Newman belongs to the aesthetic of the sublime, which Bolieau introduced via his translation of Longinus, which was slowly elaborated from the end of the seventeenth century onwards in

> Europe, of which Kant and Burke were the most scrupulous analysts . . .
>
> Newman had read Burke. He found him 'a bit surrealist' (cf. the monologue entitled 'The Sublime is Now'). And yet in his own way Burke put his finger on an essential feature of Newman's project.
>
> 'Delight', or the negative pleasure which in contradictory, almost neurotic fashion, characterizes the feeling of the sublime, arises from the removal of the threat of pain. Certain 'objects' and certain 'sensations' are pregnant with a threat to our self-preservation, and Burke refers to that threat as 'terror': shadows, solitude, silence and the approach of death may be terrible in that they announce that the gaze, the other, language, or life will soon be extinguished. One feels that it is possible that soon nothing more will take place. What is sublime is the feeling that something will happen, despite everything, within this threatening void, that something will 'take place' and will announce that everything is not over. The place is mere 'here', the most minimal occurrence.[3]

In Newman's work, the essence of the experience being conveyed is the moment here and now of the viewer in direct and immediate confrontation with the work she or he is looking at. His paintings have a common structure, they display an indeterminate non-space, and would also belong to a non-time were it not for a sublime intervention, a 'split' in the painted surface, a minimal occurrence. Instead of the horror that nothing will happen anymore, the viewer witnesses an intervention as a manifestation of an ordering thought, an emanation from the non-space and non-time of the indeterminately painted canvas.

This emanation declares that life has not come to an end, but manifests itself in the physical world, emanating from an unknowable origin (*Ein Sof*). The origin itself cannot be conceived other than by the pure fact of its existence. All manifestations originate from what cannot be presented but is nonetheless real: the origin which holds the secret of existence. The fundamental threat of the infinite non-space and non-time of this secret origin is banned by a sublime intervention, which engenders the dialectic of pleasure and pain that is fundamental to the experience of the sublime. This manifestation is the moment that is the subject of

Newman's work, the moment at which the emanation from the unknowable origin manifests itself in space and time.

The unrepresentable in Newman's work can be interpreted as a teleological principle connected to his Jewish background. *Ein Sof* or *Ayn Sof* (literally: 'without end'; a Cabalistic term that usually refers to an abstract state of existence preceding God's Creation of the limited universe. It is both the point of origin and that without limits (and in this sense unrepresentable). When used more precisely, however, *Ein Sof* refers to God's infinite light, before the beginning of creation. Some commentators on the explication of this term claim that where *Ein Sof* (literally 'no end') is meant to refer to the essence of God, it would be more appropriate to call Him *Ein Techila* ('no beginning'). 'No end' would imply a beginning that precedes it. Nothing in this teleology precedes God. The infinite light that emanates from God's very essence is considered to possess a beginning (God's essence), but not an end. In the principle of the *Ein Sof*, therefore, we find three instances of the unrepresentable: infinity, limitlessness and the unknowable origin (that which precedes all that is – *the moment before the Big Bang* in another cosmology).

Aesthetics of the Secret

There are instances of some inexpressible mystery that continuously imposes itself upon individual or collective consciousness. And even though its content is essentially unspeakable, it constantly seeks to express itself. This unspeakable presence is marked as a secret. Although it is possible to indicate the existence of this secret, its content cannot be revealed without destroying its essence, its secret unspeakable content.

Kosuth

The American conceptual artist Joseph Kosuth has become famous for his formally 'empty' works, consisting in later years primarily of reproductions of printed words; generally in the form of dictionary definitions that reflect on the nature of language and the nature of art itself. His work is deliberately self-reflective. It no longer meditates on how art is able to represent something outside itself, but on how art can question its own status, its existence in the world and, considered within the context of art, the 'meaning of meaning'. Kosuth's art belongs to a quest he undertook, together with other artists usually labelled as

'conceptual', to reconstitute art as an idea, something that followed in a lineage from Duchamp's abandonment of 'retinal art'. In this mission to establish art as an idea, the artist attempts to shed the materiality of the art object, which is ultimately impossible without leaving the domain of art altogether. Kosuth's solution to this problem is to reduce the work to printed text, using the modalities of dictionary definitions and a generic typeface, to create works that formally are as impersonal as possible. These works (non-images) always point beyond their immediate presence – towards the idea behind them. Sometimes the 'texts' conceal objects, or even entire spaces, begging the question, what it is these works conceal? Or is it rather that the words themselves and the definitions they form are hiding something? An unspeakable secret? Lyotard writes:

> Kosuth's work is a meditation on writing. According to the moderns this writing is represented as the actualization (performance) of a system of arbitrary elements, the graphemes, which are the equivalents of what the phonemes are for spoken language (competence). Their function is to convey distinctively the meaning of words. Decodable, transparent, they efface themselves for the benefit of meaning – they become forgotten.
>
> Kosuth's visual work questions this forgetfulness and forbids it. Writing conceals some gesture, a remainder of gesture, beyond readability. The obvious meaning of the writing hides other meanings. The written sentence is never transparent like a windowpane or faithful like a mirror. Thought is art because it yearns to make 'present' the other meanings that it conceals and that it does not think. There is, in art as in thought, an outburst, the desire to present or signify to the limit of totality of meanings. This excess in art and in thought denies the evidence of the given, excavates the readable, and is convinced that all is not said, written, or presented.[4]

In his essay 'The Play of the Unsayable', Kosuth reflects on Wittgenstein and his struggle to designate the proper place and function of language:

> Ludwig Wittgenstein's task in the early tractatus, as I see it, was clarification of language: First he wanted to give language a scientific,

> clear, specific and sure basis: to articulate what 'could' be spoken. His second agenda, to show what 'could not' be spoken, was, by necessity, to be left unsaid through omission.

But Kosuth considers Wittgenstein's agenda 'incomplete' as it actually signals the breakdown of the 'authentic voice of the traditional philosophical enterprise', rather than our ability *suis generis* to engage that which cannot be captured by formal language. Instead, there are domains where 'indirect assertions' can be found – the construction of negative signs, for instance – and art is one important domain where constructive elements for such an enterprise can be found according to Kosuth.

The failure of the philosophical enterprise then is the starting point for the artist to take over the reflection on that which in the Wittgensteinian formula falls outside of the domain of descriptive, clearly articulated language:

> The task of Ludwig Wittgenstein's early work was the construction of a general critique of language in which it can be seen that logic and science had a proper role within ordinary descriptive language. The result of this is a representation of the world parallel to mathematical models of physical phenomena. This leads to his second (and perhaps more important) point, that by falling outside the limits of this descriptive language, the questions of value, ethics, and meaning of life must be the objects of another kind of insight and treatment. It is this second aspect of language where Wittgenstein's insights prove most useful in relation to art.[5]

The most obvious objection to Kosuth's argument, an argument infinitely refined on the pages that follow these opening remarks in his essay, is that this movement beyond descriptive language to a different treatment of questions of value, ethics and 'meaning of life' invites mysticism. What kind of voodoo is Kosuth conjuring up, underneath his printed cloths covering up the remnants of our cultural past? What is hidden by language that in some unspeakable ritual is revealed by the artist/priest/master? To look at Kosuth's assertions through this prism would mean to mistake his deeply serious intent altogether. Why is

Kosuth, after all, so attracted by one of the most austere and hermetic formalists of twentieth-century philosophy?

There must, in short, be one aspect, one dimension in this discussion that has been overlooked, that has not been addressed as yet, that is not spoken about directly, and yet is present everywhere, between the lines, inside the empty spaces between each syllable – outside the text but inextricably linked to it. Not underneath the printed cloth, but neither on its surface, and still it informs all of this. This exteriority that is presented through its absence is politics. And the reason that it is not spoken about directly is that it is impossible to do so within the discursive frame that Kosuth has constructed for himself – not out of some fancy whimsicality, not because of a deliberate withdrawal, or unconscious denial, but out of some essential inability to speak about the absolute negativity that informs this work, that resonates at the heart of it as an open and inexpressible wound.

The Disaster

How to write 'the disaster' is a question that also haunts Maurice Blanchot. In his book, *The Writing of the Disaster*, Blanchot finds his path in a fragmentary procedure, almost aphoristic at times, to write about that event that remains unspeakable, the absolute negativity of the disaster, which eludes description. In a startling collection of references, citations, literary and philosophical fragments, we are brought ever closer to the disaster that no word can capture. The unrepresentable is ever-present in these pages. Blanchot:

> The Disaster, unexperienced. It is what escapes the very possibility of experience - it is the limit of writing. This must be repeated: the disaster de-scribes. Which does not mean that the disaster, as the force of writing, is excluded from it, is beyond the pale of writing or extratextual. . . . It is the dark disaster that brings the light.[6]

If the Disaster is unspeakable - why not give up writing? Blanchot:

> Not to write – what a long way there is to go before arriving at that point, and it is never sure, it is never either a recompense or a punishment. One must just write, in uncertainty and necessity. Not writing

> is among the effects of writing; it is something like a sign of passivity, a means of expression at grief's disposal. How many efforts are required in order not to write – in order that, writing, I not write, in spite of everything. And finally I cease writing, in an ultimate moment of concession – not in despair, but as if this were unhoped for: the favor disaster grants. Unsatisfied and unsatisfiable desire, yet by no means negative. There is nothing negative in 'not to write'; it is intensity without mastery, without sovereignty, the obsessiveness of the utterly passive.'[7]

Perhaps the only way to ascertain the secret of the unspeakable disaster is to eliminate everything that can be said – Blanchot: 'When all is said, what remains to be said is the disaster. Ruin of words, demise writing, faintness faintly murmuring: what remains without remains (the fragmentary).'[8]

Does the disaster have a name? Blanchot:

> The unknown name, alien to naming:
> The holocaust, the absolute event of history – which is a date in history – that utter-burn where all history took fire, where the movement of Meaning was swallowed up, where the gift, which knows nothing of forgiving or consent, shattered without giving place to anything that can be affirmed, that can be denied – gift of very passivity, gift of what cannot be given. How can it be preserved, even by thought? How can thought be made the keeper of the holocaust where all was lost, including guarding thought?
>
> In the mortal intensity, the fleeting silence of the countless cry.[9]

To Whisper

The Jewish/German poet Paul Celan responded to the disaster by reducing the scope of his poetic language to nearly nothing, to indicate the impossibility of speaking when the unspeakable stifles speech. If the wound of history becomes to vast to be opened, than perhaps the only way to resume speech is to speak softly, or, as one commentator noted about him: 'Celan has taught the German language to whisper again.'

Transfiguration of the Avant-Garde

The Negative Dialectics of the Net

In his essay, 'Presenting the Unpresentable: The Sublime', Jean-François Lyotard observes that capitalism, technoscience and the pictorial avant-garde of the twentieth century share an 'affinity to infinity'. All three point towards a sensibility that is constitutive for the experience of the modern world.

Lyotard is best known for having coined the term 'post-modern' for a certain diagnosis of the social conditions of advanced capitalist society. His work fascinates because of the intersection it creates between contemporary aesthetics, the avant-garde (especially in the visual arts), and their relationship to the seemingly separate areas of technoscience and advanced capitalism.

Paradoxically, however, the position he takes vis-à-vis the new technologies, and especially the process of digitalization, is stifling for any critical engagement with these technologies. His position denies the possibility of critical artistic and cultural activity in the realm of digital mediation, exactly at a point where his reading of the avant-garde could play a tremendously productive role: in a further exploration of this affinity to infinity that not only informs the avant-garde, technoscience and advanced capitalism, but that can also be recognized in the rise of what sociologist Manuel Castells has called the network society.

Lyotard's exploration starts with the assertion of the 'impossibility' of painting. So this is where I will start to consider his argument.

Infinity

For Lyotard, the impossibility of painting is a result of the arrival of photography, which makes painting economically unsustainable, while photography itself and the act of image making falls prone to the infinity of the capitalist production/consumption cycle. He writes:

> Something 'too beautiful' is inherent in the perfectly programmed beauty of the photograph: an infinity; not the indeterminacy of feeling, but the infinite ability of science, of technology, of capital to

realize. The ability of machines to function is, by principle, subject to obsolescence, because the accomplishments of the most esteemed capitalists demand the perpetual reformulation of merchandise and the creation of new markets. The hardness of industrial beauty contains the infinity of technoscientific and economic reasons.

The destruction of experience that this implies is not simply due to the introduction of that which is 'well-conceived' into the field of aesthetics. Science, technology, and capital, in spite of their matter-of-fact approach, are also modes of making concrete the infinity of ideas. Knowing all, being capable of all, having all, are their horizons – and horizons extend to infinity. The ready-made in the techno-sciences presents itself as a potential for infinite production, and so does the photograph.

The pictorial avant-garde responded to painting's 'impossibility' by engaging in research centred around the question, 'What is painting?'

One after another previous assumptions about the painter's practice were put on trial and debated. Tonality, linear perspective, the rendering of values, the frame, the format, the supports, surface, medium, instrument, place of exhibition, and many other presuppositions were questioned plastically by the various avant-gardes.[1]

According to Lyotard, the great transformation in the act of image making that the avant-gardes introduce is not so much their insistence on constant transformation of the visual field. These transformations perform a highly specific function: they all point towards the fact that any convention of image making not only presents a specific possibility of giving order to the visual field, but that it simultaneously conceals the infinity of possible alternative modes of ordering that visual field. This infinity of alternate visual modes is necessarily absent from the image as it remains unrepresentable. It is, however, referred to indirectly by the denial of a definite visual order of things.

And Lyotard asserts: 'The avant-garde painter feels an overriding responsibility to the fulfilment of the imperative implied by the question, "What is painting?" Essentially what is at stake is the demonstration of the invisible in the visual.'[2]

Entering the Realm of the Negative Sign

The avant-garde painters engaged in a negative dialectic of the image – a continuous invention of visual modes that challenge and *negate* previous propositions of what an appropriate image looks like. This process of the negation of dominant artistic conventions can be illustrated with some classic examples of avant-garde interventions:

Cubism; breaking up the unified perspective

In the cubist painting, the object represented is shown from different angles simultaneously, thus alluding consciously to the artificial constraints of the two-dimensional surface of the canvas, and acknowledging the fact that the eye only perceives when it is in constant motion. The cubists understood that, therefore, visual perception always rests on the combination of a multitude of images received from different points of view, even when the eye is firmly fixed on a certain object. With their multidimensional perspective, the cubists denied the validity of linear perspective (as it is programmed in the photographic machine) as the 'correct' representation of the world in visual terms.

Simultaneity; breaking the unity of time

Giacomo Balla's beautiful image *Dynamism of a dog on the line* of 1912 perfectly illustrates the point. Rather than showing only one moment frozen in time, the image represents a series of moments in one image – the paws of the dog moving swiftly as he tries to keep track with the elegant lady walking the dog. Frantisek Kupka had started introducing this principle of simultaneity to painting, inspired by the chronophotography of Etienne Jules Marey. And of course Duchamp's famous *Nude descending a staircase* further imprinted this visual principle upon the public consciousness. Here the arbitrary nature of the frozen image, as opposed to the constant flux of life processes, is acknowledged and revealed. We know from historical sources that the experiments with photographing animal motion revealed that their traditional representation in 'realist' painting and sculpture was but a convention.

Abstraction; breaking away from figuration

This case is all too obvious, looking back from a contemporary point of view. With the acceptance of abstraction, painting shed its last ties to

an illusionist mode of representation. Rather than representing a specific outside reality beyond the painting itself, it could now become an inverted symbol for the infinity of the visual and the infinity of ideas.

In the end, the process of negation of dominant visual languages even abolished the image itself. Emblematically, in the case of the black square of Malevich. Here the image has become a non-image: devoid of shape, colour, texture or representation, the painting had become a negative sign; an inverted symbol for the absence of the image. But this non-existence did not point towards the impossibility of image production as such. Rather it had become a negative sign for the unrepresentable infinity of possible modes of visual invention, or what Lyotard describes as 'the infinity of plastic invention'.

Thus, Lyotard concludes that the avant-garde painters introduced painting into the field opened by the aesthetic of the sublime. In the Kantian formula, an *Un-Form*, something that cannot be synthesized into a unique spatiotemporal form, as (by no coincidence) the concept of infinity.

The Immaterials/Les Immatériaux

In 1985, Lyotard was responsible, together with Thierry Chaput, director of the Centre de Creation Industrielle, for the concept and realization of a groundbreaking exhibition called 'Les Immatériaux' – roughly translated as 'The Immaterials'. 'Les Immatériaux' attempted to highlight and intensify a sensibility about the things in our immediate surroundings that have been influenced by new materials and conceptions of reality that predominantly derive from technoscientific enquiry. In the press-release for 'Les Immatérieux' of 8 January 1985 he states:

> Why 'Immaterials'? Research and development in the techno-sciences, art and technology, yes even in politics, give the impression that reality, whatever it may be, becomes increasingly intangible, that it can never be controlled directly – they give the impression of a complexity of things . . .
>
> The devices themselves are also becoming more complex. One step was set as their artificial brains started to work with digital data;

> with data that have no analogy to their origin. It is as if a filter has been placed between us and the things, a screen of numbers . . .
>
> A colour, a sound, a substance, a pain, or a star return to us as digits in schemes of utmost precision. With the encoding and decoding-systems we learn that there are realities that are in a new way intangible. The good old matter itself comes to us in the end as something which has been dissolved and reconstructed into complex formulas. Reality consists of elements, organized by structural rules (matrixes) in no longer human measures of space and time.[3]

Technoscientifc inquiry thus testifies to the infinite malleability of the concept of reality. Reality, according to Lyotard, first of all consists of the messages that we receive about it. But these messages are increasingly mediated by ever more complex machines. Digitalization introduces a final level of abstraction into this process by imposing a finite scheme of encoding that translates all messages into one abstract universal code, the digital code; a code without an analogy to its origin. 'The model of language replaces the model of matter,' Lyotard asserts, and with it, the concept of reality becomes as malleable as language itself.

Critical Arts in the Age of Total Media Incorporation

The capitalist commodification of everything includes the domain of beauty, and even those monstrous negative non-entities that were once the exclusive terrain of the avant-garde. These negative modes of representation have long been identified as marketing tools to provide access to fringe and niche markets. They have become a form of distinction and possibility for identification with those market segments that the aesthetics of beauty tends to exclude. Aesthetics, both in its positive forms and its negative manifestations, has thus become part of the infinite quest for markets that lies at the very heart of capitalist logic.

For Lyotard, digitalization marks the final incorporation of experience in a finite scheme of coding – the digital matrix. With it, experience is trapped in the system of technoscientific logic and its infinite quest to transform the concept of reality. Within technoscientific logic, the world is translated into a problem as coding, as Donna Haraway puts it, and made entirely subject to the functional demands of scientif-

ic enquiry and the advanced forms of informational capitalism. Escape from this defining logic is no longer possible within the system of digital mediation, incorporation is complete.

Against this view I would like to propose a completely opposite analysis of digital mediation. The system of digital mediation, and in particular the sphere of networked digital communication, presents itself as a highly productive domain for critical strategies and artistic intervention. Interestingly, it is the legacy of the avant-gardes of the last century that provides an enormously useful set of conceptual tools and references to develop a critical engagement with the conditions of digital mediation. The context in which these avant-garde strategies play out has, however, radically transformed. It takes these strategies far beyond the sanctified realm of the arts.

The Negative Screen

The screen of global media presents itself as a seamless surface; be connected wherever you go, see whatever happens anywhere, communicate in real-time. This is the utopian image of global mediation. The industrial model of broadcast media, television and radio, in the age of digital media is diversified to fine-tune the media offerings to ever more precise market segmentations. The clean and seamless surface is the mythological image of the networked media age. In the ideology of its protagonists, it should remain unchallenged, inviolable. The mechanisms directing this permanent electronic enactment of the world remain well out of sight, deliberately hidden beneath the illusionary surface of the screen.

The absolute horror of the media professional is the interrupted broadcast. In the TV format, it is sometimes witnessed in a brief interval as a traumatic black screen – the moment when the signal drops away, when the spectacle suddenly turns into a black square, ironically reminiscent of Malevich's sign of the infinite. In radio, the despair of silence is even greater than the absence of the image on TV. *Horror Vacui* is replaced here by an electronic form of *Horror Silentiae*. The silence of the faded radio signal and the blackness of the imploded screen do not merely mark the absence of a signal. The implied horror refers to the immanent destruction of the seamless media surface, which requires the continuous illusory suggestion of immediacy and connection that

gives the viewer the reassuring impression of the transparency of the media screen.

It is the moment at which this flow is interrupted, when the code is broken, or when the sound has collapsed and the screen is extinguished, that the possibility for an alternative message, a new code, is created. This is the space of negation: the void created by the rupture is the open field in which a new synthesis of unique forms in space and time become possible. The emergence of the new code out of the void of the *Horror Silentiae* reconfirms the connection of the media subject to the world. It is within this moment of delight over the conquered threat of the end of existence that the avant-gardes come into play and transform the meaning of the media codes.

The strategies, the conceptual tools, the tactics of intervention in the new digital hypersphere are highly familiar. They draw on the legacy and experience of the avant-garde movements. Indeed, many of the interventions that have been most successful in engaging the new conditions of digital mediation have been artistic interventions. But something has changed dramatically; the object these interventions engage with is no longer the aesthetic framework of contemporary art, not the holy concept of the author, nor the artist genius, or the canonized conventions of artistic creation. What is challenged is the seamless surface of the networked media spectacle itself, and its illusion of stability. The negative dialectics of the digital avant-garde no longer challenge the notions of art, but those of the symbolical digital realm it operates in, and its inherent instability.

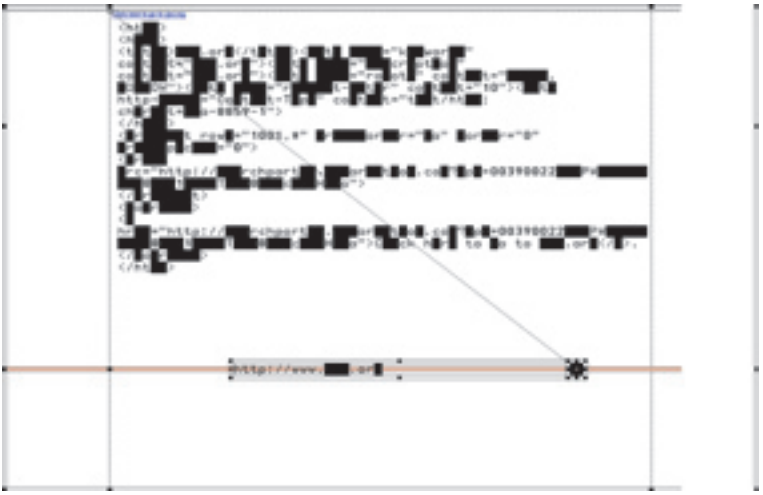
The Aesthetics of Impropriety

The pure and simple disruption of media signals is an obvious strategy of challenging the dominant media codes, but it is not a very interesting one. The disruption of the appropriate flow of media signals is only the entry-point for an alternative discourse, nothing more.

The transference of the classical avant-garde's negative dialectics of the image to the networked media screen has been executed most paradigmatically by the artists duo jodi.org.[4] On their now famous website, they have been creating incomprehensible, yet highly poetic and evocative visual and sometimes auditory processes that seem to reverse the hierarchy of the professional media screen.

All sense of connection is lost, intelligibility is gone. Instead of the conventional presentation of printed page-type layouts with a mediocre amalgamation of pseudo-moving imagery, supported by lengthy invisible sets of code, at jodi.org, the screen is in constant flux and occasional stasis. There is no clear relationship between the action of the viewer and the response of the system. Sometimes the page halts, but we don't understand why, then the screen suddenly changes but we are left clueless, why at this particular moment? The screen is continuously strewn with code that can sometimes be recognized as fragments of disjunct HTML, sometimes as meaningless ASCII garbage and is sometimes just sheer incomprehensible and meaningless code.

The artists are often asked: 'What is this all about??', to which they provide no answer. The imagery and processes that the viewer witnesses on entering the site are deliberately 'inappropriate'. Their ambiguous and incomprehensible nature refers to the virtually inexhaustible array of possible modes of representation in the digital hypersphere. Jodi.org often seeks out the mistakes in the software. A careful analysis of new mainstream software products reveals where the bugs are, and these mistakes, that may cause delay, flimmering screens, erratic movement or infinitely repeated loops, are immediately transformed into aesthetic



Jodi.org %Wrong Browser

material. These 'mistakes' then become not the disruption of a code, but the essence of the new code that jodi.org replaces the conventional ones with. In short, jodi.org creates a set of negative signs that point towards the infinity of alternate codes of writing and reading networked media.

The impressive Wrong-Browser project makes this point even more clearly.[5] Here, we are presented with a set of browsers that read HTML and process them as abstract data-structures, represented in a highly colourful aesthetic language programmed in the browser software. Invariably, the software becomes a subjective machine for aesthetic processing, the outcomes of which are defined by the contestational logic of its program code.

A Case of Mistaken Identity

The US-based art collective ®™ark deploy quite a different strategy, but one that reveals the vulnerability of the web-based representational systems more dramatically. In 1999, during the anti-WTO/G8 protests in Seattle, ®™ark produced a website which has since become well known in net.art and net-culture circles. The site, www.gatt.org, was named after the General Agreement on Tariffs and Trade, one of the early global trade liberalization treaties that many of the protesters on the street were contesting.

At first glance, the gatt.org site looked very much like the official website of the World Trade Organization (www.wto.org). No surprise, since ®™ark had simply copied the entire layout, graphics and pictures from the original WTO site for its own, including the welcoming word of the WTO director Mike Moore and his picture. The text, however, was entirely reversed. Where the original WTO site praises the benefits of market liberalization and global free trade, the gatt.org site laments the destruction of democratic politics and the lack of social and environmental responsibility that informs the trade liberalization negotiations. And the policy documents on the WTO site were replaced with counter documents from many of the social and ecological movements that were protesting in the streets of Seattle.

This would have probably gone more or less unnoticed had the WTO not attempted to intervene in the publication of the gatt.org website. Infuriated by this case of illegitimately appropriating of their corporate image, they issued a warning on their site that informed the general

public of a fake and misleading website 'purporting to be the official web site of the World Trade Organization'. The site 'compromised the transparency' of the WTO and its efforts to make policy documents publicly available via their website.

Of course, the warning was quickly adopted by the gatt.org site, which then claimed the WTO site was illegitimate. This continued in a cat-and-mouse game that resulted in the WTO issuing an official press release denouncing the attack on the 'organization's transparency' by a fringe art group. With this press release, the site hack became world news and attracted millions of visitors to the gatt.org website.

Strangely, the story did not end there. After the attention for the struggle on the appropriated site died down, and the WTO decided to change the entire layout of its page, gatt.org seemed to lead a quite life as an archived document of a curious artistic intervention in networked global politics. However, after some time, the ®™ark collective started receiving emails from visitors to the gatt.org site that indicated that these visitors were still under the impression of visiting the WTO site, despite the notably different content of the messages on the site. These emails included invitations to high-level international trade conferences as official representatives of the World Trade Organization.

®™ark adopted an alternate guise (the ¥€$ Men) to respond to these friendly invitations, and accepted a limited number of invitations by actually going to these conferences to lecture, posing as official representatives of the World Trade Organization. One of the most hilarious of these site-specific performances is the lecture given at an international textile producers conference in Tampere, Finland. The action is extensively documented on the 'theyesmen.org' site.[6] In this lecture, one of the artists first gives a totally implausible account of free trade, and then reveals a golden suit that supposedly provides the manager of the future with bodily feedback about productivity in the sweatshops they are controlling. Immediate contact with the work floor is provided by a gigantic inflatable phallus fitted with a video-screen that has a wireless connection to the sweatshop in real-time – be connected wherever you go!

This performance seamlessly crosses over from the imaginary (the gatt.org website) to the real (the textile trade conference in Tampere), and back to the imaginary (the ¥€$ Men's sarcastically staged lecture/performance). Amazingly, the lecture remained totally unchallenged by

conference participants, testifying to the strong belief they put in the fact that they were being presented with an actual representative of the WTO. This expectation was built on the initial belief of the organizers in the representational system of the website they visited, the WTO iconography, tone of voice and familiar narratives for trade liberalization, even if, as on the gatt.org site, the message carried by these narratives was entirely reversed. Beyond this mistaken identity and its hilarious results, the action reveals the seamless transition between the real and the imaginary within the networked media spectacles.[7]

To Act; the Geste

The sphere of international economics and politics has become inseparably linked with the new constellations of broadcast and networked media. The principal challenge of the network society is the complete fusion of media, digital technology, economics and politics. The logic of the digital network now informs all dominant aspects of society. On the one hand, this fact marks the end of the virtual, a sphere that has become completely intertwined with the 'real' world. At the same time, however, every significant social interaction can only become meaningful by virtue of how it is mapped in the digital domain.

Beyond representation, the space of digital networks has become the backbone of economic interaction, enabling the immediacy of financial and economic flows across geographical and territorial divides. The connections between the networked structures and the physical domains have become so diversified and interdependent that it is no longer useful to distinguish physical geography as 'real', from networked constellations as 'virtual'. In fact, the very opposition of the real and the virtual has become misleading. Geography and technological, social and economic networks together create one system that is becoming increasingly integrated and sophisticated. But this system remains highly problematic for excluding more than it accepts.

The new sphere of networked media and communications is intrinsically vulnerable to the type of interventions described above. This double-sided nature of the Net is puzzling in many respects. On the one hand, digital networks appear as the ultimate control apparatus, but simultaneously, they remain a refuge for alternative views, a space without final closure, always only partially under control, and in

permanent transformation. The authority of the system is challenged when the seamless surface of the media interface and its illusion of transparency are broken and reconstructed in a multitude of alternative agendas, indeed an infinity of alternative micro- and macropolitical agendas.

Saskia Sassen once pointed out, and quite rightfully so, that the Internet is constituted by the practices employed in it. But the nature of interventions in this space of networks transcends the limits of conventional representational systems. There is a specific form of performativity here, where the symbolic interventions on the level of social discourse become paradoxically real. Rather than 'representing' reality, the intervention is an act, a *geste*, that 'creates' an alternative reality in the immediacy of its digital mediation.

Real-Virtuality

The conditions that create this specific form of performativity are what sociologist Manuel Castells describes as the 'culture of real virtuality' in *The Rise of the Network Society*.[8] Here, he asks what is a technological communication system that, in contrast to earlier historical experience, generates real virtuality?

> It is a system in which reality itself (that is people's material/symbolic existence) is entirely captured, fully immersed in a virtual image setting, in the world of make believe, in which appearances are not just on the screen through which experience is communicated, but they become the experience.
>
> All messages of all kinds become enclosed in the medium, because the medium has become so comprehensive, so diversified, so malleable, that it absorbs in the same multimedia text the whole of human experience, past, present, and future, as in the unique point of the Universe that Jorge Luis Borges called Aleph.[9]

Castells goes on to demonstrate that the culture of real virtuality is not a condition that is entirely specific to the system of networked media and communications. The superimposition of the real and the imaginary onto each other, within one and the same multimedia text, is something that began to form in the television age, but was heightened

and intensified after the emergence of ever more diversified wireless communication media.

Castells himself takes his prime example from American television, a strange blending of fiction and reality that happened during the election campaign for the US presidency in 1992. At the time, George Bush Sr and vice-president Dan Quayle were competing with the Clinton/Gore team.

In a televised election speech Dan Quayle started to attack the fictional persona Murphy Brown, the main character of a popular TV series by the same name. The character was played by the actress Candice Bergen. Murphy Brown was a typical independent woman, living in one of the major cities of the USA, unmarried and in control of her life. She (MB) decides at some point that she wants to have a child, but without a father, and takes the necessary steps to have that child. And it is exactly at this point that Quayle intervenes and attacks her for a lack of, in his view, moral standards, and for exhibiting a behaviour that is not conducive to proper family values.

What is really strange about his intervention is that it was not aimed at the scriptwriters and director of the series, nor at the actress Candice Bergen. Instead he chose to point his criticism directly at the fictional character Murphy Brown, acknowledging the importance of this character as a role model for real-life social arrangements. The creators of the series responded intelligently by letting the fictional character Murphy Brown, in the fictional setting of the TV series, watch and comment on the 'real-life' speech of vice president Dan Quayle.

Out of this curious dialogue between a real and an imaginary person, a heady political discussion evolved about 'a woman's right to choose' that had a significant impact on the course of the election campaign. Ultimately the Quayle/Bush Sr team lost, for a host of reasons, but the relevant point here is, of course, the blending of the real and the imaginary in a crucial sociopolitical process. The criticism of the real vice president Quayle became part of the fictional narrative of the series and the narrative of the series became part of the real presidential campaign. This was only possible because both operated in the same 'multimedia text'.

Castells explains that this condition is truly inescapable, because these messages can only achieve communicability by being mapped

in this new sphere of interconnected media and communication networks. But once part of this system of electronic and digital mediation, they become vulnerable to the inherent inconsistencies of this system. Castells:

> What characterizes the new system of communication, based in the digitized, networked integration of multiple communication modes, is its inclusiveness and comprehensiveness of all cultural expressions. Because of its existence, all kinds of messages in the new type of society work in a binary mode: presence/absence in the multimedia communication system. Only presence in this integrated system permits communicability and socialization of the message. All other messages are reduced to individual imagination or to increasingly marginalized face-to-face subcultures.[10]

To act in the culture of real-virtuality means to act both symbolically and real at the same time, because both levels of social reality coincide within the same 'multimedia text'. In this paradoxical environment, dominant discourses of social, political and economic power can be challenged at the level of the representational systems they employ. The classical avant-gardes provide a repository of ideas, tactics and strategies that are played out in a radically enlarged context; no longer the context of art itself, but that of the network society.

The negation of a dominant mode of speech implies the infinity of possible modes of speaking.

Postscript: The Ethics of Symbolic Intervention

If under the conditions of real-virtuality, as outlined by Manuel Castells, to act symbolically within the realm of networked media in a paradoxical way also means to act directly on social reality, then this would imply that such symbolical interventions carry a deeper and more serious ethical dimension. Political contestation in a networked media environment should take conscious account of that ethical dimension if it is to retain a basic sense of legitimacy. Symbolic acts in such an environment have actual consequences – we would be tempted to say 'real-life consequences', but that assertion would still overlook the crucial point that these symbolic interventions are already 'real' in

and of themselves. It is this aspect that makes things complicated (and interesting) here.

This principle became more clear than ever in what till date (October 2007) is probably the ¥€$ Men's most famous and controversial intervention, the appearance of ¥€$ Man 'Andy' as Jude Finisterra, spokesman for Dow Chemical's Ethic and Compliance Office, for a live

Jude Finisterra of the Dow Ethics Compliance Office speaking on BBC World News on the 20th 'anniversary' of the Bhopal disaster

interview on BBC World on 3 December 2004, 9 am GMT, commemorating the 20th anniversary of the disaster with a chemical plant, then owned by US chemicals company Union Carbide, later bought up by Dow Chemical, in Bhopal, India on 4 December 1984. An explosion and subsequent leakage of toxic chemicals in a residential area is considered responsible for the death of at least 3,500 people, as well as injuring, in some cases severely, many thousands more. Twenty years after the disaster, the victims have not received adequate compensation, the site has not been cleaned up and remains highly toxic, while responsible top-level management of Union Carbide and Dow Chemical have continued to deny legal accountability. The spokesmen for Dow's (non-

existent) Ethics and Compliance Office, 'Jude Finisterra'[11] announced that all this will change, and that Dow Chemical will finally and fully acknowledge its legal responsibility, resulting from the take-over of Union Carbide ('We knew what we were getting when we took over Union Carbide'). The Bhopal plant will be sold and dismantled, 'liquified' into 12 billion US dollars, this money will be used to compensate the victims and for medical care, but also for research into the effects of toxic poisoning and the development of ecologically responsible production methods. Furthermore, Dow Chemical will finally make public the information of the exact compound that was released into the Bhopal environment (an industrial secret kept by Dow Chemical for over 20 years), so that more targeted medical treatment can be developed 'at long last' for the victims of the disaster. Finally, the site of the Bhopal plant will be cleaned up, something that was never done, either by Dow Chemical or by the Indian government, even though it continues to be used as an 'informal' residential area and children's playground.

The enormous breakthrough of this action should not be underestimated. The 20th anniversary of this tragic disaster and the gross negligence of both Dow Chemical and the Indian and US governments in dealing with the aftereffects and compensation of the victims all became headline news around the globe. The broadcasts on BBC World themselves informed an audience of millions, while they also helped to stir up a global debate about the Bhopal disaster as well as responsible business practices (or the lack thereof). Most importantly, the appearance on BBC World helped to link the name of Dow Chemical to the Bhopal disaster, which had till then consciously been linked to the name Union Carbide, the company later bought by Dow Chemical. This link of Dow Chemical to the disaster was something that ecological activists had been trying to achieve for many years, basically since Dow Chemical bought Union Carbide, but had never managed to achieve in mainstream media coverage of the disaster and commemorative actions concerning it.

The ethically disturbing aspect of this action was exactly its reverberation around the planet. First of all, it was broadcast live on satellite television in many countries, including India itself. Subsequently, the coverage of the action, responses, denial of responsibility by Dow

Happy smile, behind the scene in the Paris recording studio

Chemical and public discussion obviously also reached Bhopal and the victims involved in the disaster, many of whom still require expensive medical treatment which they either do not receive or which lead them into financial ruin. None of the problems the victims are facing on a daily basis have been resolved for them, not even some three years after this intervention. While most victims will probably welcome the worldwide attention to their horrible fate, this has not meant any improvement in their daily living conditions, and of course it raised false hopes that were quickly shattered.

The question is: How can activists respond to such conditions? In their website coverage of the action, the ¥€$ Men themselves address this issue in some detail. First of all, they were aware of this problem before the action was launched, when there was reason for some initial doubt. Their estimate was that if the live interview would be carried with success, the hoax would probably be discovered within one or two hours at the most (in actuality it took two hours, and the interview was actually aired a second time in a rerun, one hour after it was recorded). Two hours compared with 20 years was an acceptable trade-off, accord-

ing to the activists. On the question of raising false hopes with the victims of the Dow Chemical Bhopal disaster, they write:

> 'Whatever be the circumstances under which the news was aired, we will get $12 billion from Dow sooner than later,' one Bhopali activist is quoted as saying. But the 'false hope' question does come up in some articles, especially in the UK. Much as we try to convince ourselves it was worth it, we cannot get rid of the nagging doubt. Did we deeply upset many Bhopalis? If so, we want to apologize. We were trying to show that another world is possible.
>
> We're also bothered that the BBC has taken the fall, and that this has somehow called the BBC's credibility into question. It shouldn't. The BBC, as soon as Dow finally noticed out that 'Jude Finisterra' wasn't theirs, promptly and prominently retracted the story. There was no net misinformation. In fact there was significantly more information as a result, since more people knew about Bhopal and Dow, especially in the US.

And in the 'Frequently Asked Questions' section of the¥€$ Men website, they answer two more concerns about the ethical dimension of their real-symbolic intervention.

Do you feel bad about the consequences of your action, the raising of false hopes with Bhopali in particular?

> If you think we hurt the Bhopalis, then do something about it! If the deaths, debilities, organ failure, brain damage, tumors, breathing problems, and sundry other forms of permanent damage caused by Dow and Union Carbide aren't enough to arouse your pity, and the hour of 'false hopes' we caused is – fantastic, we won! Go straight to Bhopal.net and make a donation.

Why don't you feel bad about it?

> Two reasons:
> 1. Our intention was to get news about Bhopal into the U.S., where most people don't even know what happened there in 1984, let alone

that a person still dies every day from residual pollution that has never been cleaned up. Right there in Dow's headquarters – Midland, Michigan – most people don't realize that Dow still refuses to do the slightest thing to repair the damage they are responsible for. In getting the news to these folks, we succeeded wonderfully: hundreds of articles about the event made it into the U.S. press, whereas on most anniversaries of the accident, it hasn't even found its way into one mainstream source. (Note: Whereas much of the UK press focussed on the 'false hopes' angle, almost none of the US press did, perhaps because they had to spend the column-inches explaining what Bhopal was in the first place. Since the UK wasn't our target – almost everyone in the UK had heard plenty about Bhopal in the media – the coverage there just didn't matter.)

2. The Bhopali activists we've spoken to are very happy with these results. In fact, they were happy about them the same day, as soon as they got over their disappointment. Why would we care about what anyone else thinks?

3. We're not trying to win a popularity contest.[12]

The main argument they provide for the justification of this intervention is highly interesting; 'We were trying to show that another world is possible', which is of course first of all a word play on the famous slogan of the World Social Forum meetings and the insistence on an alternative to current forms of institutional politics and economics locked in free-market fundamentalism, but this statement also locks the intervention firmly in the avant-garde's pursuit of infinity. The negation of an institutionalized reality (the *non-lieu* for Dow Chemical over the Bhopal disaster, the dissociation of corporate policies and long-term social and ecological detriments) is replaced not so much by an alternative reality but by a void that negatively indicates the infinity of possible alternate solutions – of which Dow Chemical selling the Bhopal plant and using the revenue to compensate victims, clean up the mess and start research into responsible company policies is only one possible version (a highly attractive one for those involved, no doubt), but many other alternatives can be thought of through this moment of negation.

The effect for the BBC was indeed quite damaging. While the ¥€$ Men also acknowledge that the coverage by the BBC of the Bhopal

disaster has been strong, insightful and well-informed, the BBC lost its credibility in this matter, as a result of badly checked credentials of the spokesman of the Dow Chemical Ethics and Compliance Office. Curiously, the journalist who conducted the live interview also disappeared quickly after from BBC World – leaving one to wonder if he had become too much of a liability, the face of deception, for the BBC?

Finally, the shares of Dow Chemical on international stock markets took a plunge. Not surprisingly, shareholders were not amused by the sudden change of direction in company policies, which would inevitably lead to lower financial results of the company – stimulating shareholders to quickly vent their portfolios of Dow Chemical shares before they collapsed altogether. Here the interplay between two symbolic domains, both networked in near real-time becomes apparent, that of the integrated international multimedia network and that of the international financial system. The speed of reaction within the financial system is further accelerated by the presence and formative role of automated trading systems that react to market information without a deeper qualitative analysis of the context in which this information stands. Complete automation of this process is not a regular feature anymore since the 1987 crash of Wall Street, caused by trade computers going haywire in real-time, but it is still a factor that intensifies and exacerbates the volatility of the international trade and financial system.

This seamless transition between the real and the imaginary in the context of internationally networked communication media is hardly understood today, and certainly not taken very seriously in most centres of political and economic decision making. It is, however, a condition that increasingly influences the outcome of processes of social and political confrontation. To quote Paul Virilio: 'It is time to develop a media ecology.'

A Sublime Encounter

Observations on Art and Terrorism

> Imagine this, that I could create a work of art now and you all were not only surprised, but you would fall down immediately, you would be dead and you would be reborn, because it is simply too insane. Some artists also try to cross the boundaries of what could ever be possible or imagined, to wake us up, to open another world for us.[1]

Every act of creation is always necessarily and inescapably an act of destruction. The formation of an abstract concept, idea, sensation or feeling into a unique form in space and time extinguishes an infinity of other possible unique forms. To create meaning, it is necessary to impose constraints and limitations on this infinite space of possibility (however arbitrary). In the arts, this infinity is constituted by the theoretically unlimited modes of speaking, of representation, or of plastic invention. This infinity is extinguished in the very moment that a particular form is chosen, when a particular mode of speech is used, or a particular representational system is adopted.

As discussed earlier, Jean-François Lyotard has noted how the avant-gardes, the technosciences and advanced capitalism share a deep affinity to infinity.[2] The avant-gardes demonstrate the infinity of plastic invention, the technosciences demonstrate the infinity of knowing, and advanced capitalism demonstrates the infinite ability to realize.[3] The problem is, of course, that infinity itself cannot be represented (as a unique form in space and time) by virtue of its limitless nature.[4] It can only be 'shown to exist', and this fact is exactly what is demonstrated in these three domains of human activity.

The avant-gardes in the visual arts have engaged in a trajectory of 'negative dialectics' – first of the image, and after Duchamp's rejection of the retinal, of the space of concepts. In the avant-gardes' version of the negation of negation, a particular representational scheme is no longer rejected simply to replace it with another. The avant-gardes' double negation rather, as a seemingly destructive act, introduces a negative category, a non-form (*Un-Form*[5]) that alludes to the infinity of

possible forms. The negative gestures involved in such acts are occasionally deeply inscribed by the mark of the destructive: the destruction of colour (black monochromes); the erasure of the image (as in Arnulf Rainer's famous series of *Übermalungen*); the destruction of the bourgeois harmonic musical order (as in Schönbergs atonal system, and later more vigourously in Nam June Paik's action-music performances and 'prepared piano's'); the Dadaist's destruction of meaning and semantics in language and literature (as in Kurt Schwitters' 'Ursonate'); the rejection of the material in performance and the attack on the (artist's own) body; or the destruction of the spectacle (as in recent exhibitions of non-spectacular art in Moscow), to give just a few examples. Through such practices, avant-garde artists came to understand the principle that every image hides more than it reveals.

In this regard, avant-garde art and terrorism seem to share a certain predilection for utilizing destructive gestures to open up new spaces of discourse and experience; with the former primarily aesthetic and experiential, while the latter is directed at political discourse and action. Still, acts of (avant-garde) art production and terrorism are not customarily equated to one another. If such a boundary transgression occurs, and more so, when it enters the public domain through an intense media visibility, it becomes necessary to devote close attention to such an occurrence, and especially to the conditions that have made this transgression possible in the first place.

Recently, two cases emerged that emphatically call for such analysis. These incidents, the first Karl Heinz Stockhausen's interpretation of the terrorist attack on the New York World Trade Center's Twin Towers, and the second the arrest and criminal investigation for bioterrorism of the artist Steve Kurtz and the subsequent charges against scientist Robert Ferrell, in many ways appear to mirror each other. With both, we are confronted by perplexing misinterpretations of events, intentions and signs, which require careful reconstruction in order to understand the interplay of random chance and strategic interests at play in each occurrence, and the wider public reaction and indignation towards them. Although the trial against Steve Kurtz and Robert Ferrell potentially holds much more profound implications for the societal position of the contemporary arts practice, I would first like to take up Stockhausen's remarkable interpretation of the so-called '9/11 events'.

The Greatest Work of Art

> What has happened is – now you all have to turn your brains around – the greatest work of art there has ever been.

The remarks that Karl Heinz Stockhausen made at a regular press conference for the Hamburg Music Festival on 16 September 2001 have received tremendous public attention. Stockhausen held the conference because four of his works would be executed during the festival, and thus created a main body of work in the overall programming of the event. Five days after the 9/11 attacks, the media was rightfully busy with the implications of these attacks, their political fallout and immediate significance. Five years on, we also understand that those worries were more than justified.

Towards the end of the press conference, Stockhausen was asked for his personal view on the horrific events of five days before. After some pause, he gave a rather surprising interpretation in what was otherwise a rather dull and uneventful press ritual. As Klaus Theweleit in *der Knall* (the Bang) later observed, Stockhausen was talking foremost as an artist, but now, with the change of subject away from his 'cosmic' music towards the turmoil of international politics, his remarks moved decidedly into a different terrain and context. His remarks were not so much misinterpreted, as that they started to function under a different operational logic, a system which emphatically was not governed by the principle of 'anything goes'. To relate the response accurately, let me quote the exact words that Stockhausen used in the press conference:

> What has happened is – now you all have to turn your brains around – the greatest work of art there has ever been. That minds could achieve something in one act, which we in music cannot even dream of, that people rehearse like crazy for ten years, totally fanatically for one concert, and then die. This is the greatest possible work of art in the entire cosmos. Imagine what happened there. There are people who are so concentrated on one performance, and then 5000 people are chased into the Afterlife, in one moment. This I could not do. Compared to this, we are nothing as composers . . . Imagine this, that I could create a work of art now and you all were not only surprised,

> but you would fall down immediately, you would be dead and you would be reborn, because it is simply too insane. Some artists also try to cross the boundaries of what could ever be possible or imagined, to wake us up, to open another world for us.

Now, there are a number of things that are striking about Stockhausen's remarks. First of all, the outrage that followed his statement focussed on the ethical position he takes, or rather the absence of such a position. This seems clearly the least relevant or surprising. When asked during the same press conference for some further clarification, whether this act should not primarily be interpreted as a crime, Stockhausen readily agreed and described it as crime, since the people who were 'chased into the Afterlife' did not sign up for this. They did not even agree to go to a 'performance' where the possible consequence could be losing your life or becoming witness to grand-scale human suffering.

In general, the outrage that Stockhausen's remarks inspired was a predictable effect of the media context of the conference he was participating in, and which he should have taken into account. That his comments were somehow ethically suspect is, however, questionable at the very least, since they fall primarily outside of the field of ethics as such. Stockhausen's words are, first of all, experiential, and he speaks as an artist, an accomplished artist, standing in a long tradition of avant-garde art. Interpreted in this context, his words seen rather tame when compared, for instance, to the ecstatic adoration of the aesthetics of war by Filipo Tomasso Marinetti, the Italian Futurist front man, in his *Manifesto on the Ethiopian Colonial War* of 1934, as famously quoted by Walter Benjamin at the end of his 'Work of Art' essay:[6]

> Accordingly we state: . . . War is beautiful because it establishes man's dominion over the subjugated machinery by means of gas masks, terrifying megaphones, flame throwers and small tanks. War is beautiful because it initiates the dreamt-of metallization of the human body. War is beautiful because it enriches a flowering meadow with the fiery orchids of machine guns. War is beautiful because it combines the gunfire, the cannonades, the cease fire, the scents, and the stench of putrefaction into a symphony. War is beautiful because it creates new architecture, like that of the big tank, the geometrical

> formation flights, the smoke spirals from burning villages, and many others . . .

A Double Transference

The problem for Stockhausen was that the very moment when a non-art question was asked by a journalist who stepped out of the 'art system' he, as private person in a public setting, was also no longer speaking in the system of art. Even though this question was asked of a man who, as a composer, was supposed to introduce four of his works of 'cosmic art' to a local audience. This transference of systems of speech and context was the first real problem, as Klaus Theweleit clearly recognizes:

> One thing was therefore clear: he had spoken within the wrong system, as the Bielefeld' divider of realities Lühmann would have termed it: as artist in the political, as composer in the field of 'fundamentalism and international terrorism'. This man from Bielefeld had established that within these different fields different rules apply. It is not enough to be a fundamentalist total-musician to count for anything in the field of 'political fundamentalism'. The editors knew this when they asked the composer about the World Trade Center Crash, but Stockhausen did not know it, or he did not want to know.[7]

But there was a second, more serious transference of domains at play in Stockhausen's observations, a transference that was close at hand in the very fabric of his artistic position and the untimely context he was speaking in. It is this second-order transference that made the transgression between the customarily unrelated domains of (avant-garde) art and terrorism possible in the first place. It also helps to understand how Stockhausen's apprehension of the 9/11 events could quite naturally be interchanged with the highest aspiration for the arts that he believes in, while they could at the same time be the cause of such outrage on the part of the wider public, listening in disbelief to this icon of contemporary music.

Most importantly, Stockhausen's particular phrasing is pregnant with allusions to the aesthetic of the sublime. The sublime as a distinct category of aesthetic experience is usually connected to experiences

of phenomena and occurrences, events that can still be ascertained or theorized rationally, but that cannot be subjectively absorbed because of their sheer vastness, their sensuous overpowerment of the subject or boundless nature (infinity). Such overwhelming experiences, or conversely, the absence of perceptible form, give rise to an enormous tension between rational approximation and subjective experience. As Edmund Burke, one of the classic theorists of the sublime, observed, 'there are passions that stir the soul to a far greater degree than those aroused by the experience of beauty'. And a long lineage of avant-garde artists have learned and adopted an extensive repertoire of artistic procedures to investigate and play on these motives of the sublime – experiences that stir the soul more intensively than the experience of beauty alone ever could.

Now, it is exactly these experiential motives of intense passion that Stockhausen is continuously playing on in his late works. His allusions to a cosmic art as the highest aim for his practice as a composer serves to demonstrate to the listener the infinity and 'inhuman character' of the cosmos. Stockhausen seeks to open human experience to these categories that transcend the limits of what is subjectively possible, even if his art necessarily fails in reaching this ultimate goal.

Jean-François Lyotard, as an aesthetician, has given the aesthetics of the sublime a central place in his theories of avant-garde art production in many memorable essays and interviews (not least in *Kunstforum International*). However, the aesthetics of the sublime are significantly transformed in his thinking. Lyotard links the aesthetics of the sublime quite directly to the concept of infinity in the case of the arts, the infinity of possible language games in literature, and of possible modes of representation and the infinity of plastic invention in the visual arts. Infinity as such, because it has no borders, can neither be represented in a concrete form (synthesized into a unique form in space and time, according to the classic Kantian formula), nor be subjectively understood or experienced (if only because life itself is limited in time). Stockhausen's aim of representing the Cosmic infinity in his musical works is, therefore, destined to fail according to this understanding of the sublime.

Infinity can, according to Lyotard, only be demonstrated in a negative form, a non-form (Kant uses the term *Un*form), or in the moment of negation of any positive form, the negation of a unique form in space

and time. Infinity, or more broadly, 'the unrepresentable', is demonstrated only in the moment of rupture as a bottomless pit, a moment of complete disconnection, a void. Stockhausen's failure to represent the cosmic is, therefore, Lyotard's moment of ultimate success. It is only when the listener is thrown into the utter uncertainty beyond what is possible to represent that this cosmic unrepresentability is disclosed as an inverted sign, pointing out the infinity of possible forms and modes of experience.

Stockhausen's comments must be taken as genuine reflection on what has just happened. It is otherwise simplistic to denounce them as an ethically unsustainable provocation, even though his remarks might appear highly dubious. What Stockhausen failed to recognize was not only that he was speaking as an artist 'out of context', but also that he tried to aesthetically interpret non-art events, and thereby interchange two categories of human experience and action that are quite distinct. Stockhausen, and with him countless others watching the screens in disbelief, was going through a genuine experience of the experiential sublime, which was engendered by a clear non-art event, a terrorist attack of mesmerizing proportions, and he was only able to find adequate terms for it in his own 'cosmic' artistic vocabulary. This demonstration of the unthinkable (and, therefore, unrepresentable), realizes what his own 'cosmic' art (necessarily) fails to achieve, and thus he cannot but recognize that this must be a superior artistic achievement – 'The greatest work of art that has ever been'.

In almost every aspect, Stockhausen's words reflect the classic rendition of the experiential sublime by the eighteenth-century British philosopher and statesman Edmund Burke in his *Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*.[8] The point Stockhausen missed, or ignored, wilfully or not, is that the experiential sublime describes a particular form of experience that, while it is distinct from scientific and moral judgement, and differentiates itself from religious experience and the aesthetic experience of beauty, it is not restricted to any particular domain, and appears across different forms of experience. As noted earlier, Burke recognized this experiental mode as a powerful passion that 'moves the soul' to a far greater degree than the experience of beauty. And this experience is certainly not the exclusive domain of the arts.

Privation, Horror and Delight

Following Burke's theory, the experience of the sublime involves a highly specific set of conditions that always necessarily follows a similar pattern of sensations that give rise to it: privation, horror and delight. These sensations involve a highly ambiguous mixture of pleasure and pain, which partly explains why his theory was later written off by many modern thinkers as too 'surrealistic'. The intense pleasure of delight is often brought about by a fundamental existential fear that precedes it, explaining the strength of the subsequent sensation. I will follow here the explanation of the existential fear of darkness that clarifies the main line of Burke's arguments, especially the progression of privation, horror and delight.

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 for an indefinite period of time, this privation gives rise to the fear of darkness without end, and in the absence of light, we are surely destined to perish. Prolonged darkness heightens the anxieties of death to the threshold of absolute panic, of horror. The confrontation with absolute darkness is the confrontation with an experiential rift, a non-space and a non-time. It is the confrontation with the very principle of death itself, and such a confrontation mobilizes the sense of self-preservation as an extreme reaction.

When light is finally reintroduced, and the existential fear 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, precisely because of its existential nature. Such a singular sensation required a new name, and Burke named it 'delight'.

Rupture of the Screen

We were walking back from the car to the cultural centre, and strangely I saw the crowd of artists and theorists who had gathered in the Croatian town of Labin walking away from the centre. That seemed odd.

Labin is a lovely town, just off the coast somewhat up in the hills. Driving down to the coast you get a wonderful view of the Adriatic Sea.

The weather conditions were moderate at the time, sunny, not particularly warm.

I shouted to Adam, whom I recognized: 'Where are you going?', and he answered that someone had smashed an aeroplane into a high-rise in New York. That seemed funny, another disaster movie? So we joined up with the group, grim faces there. I asked him again: 'So what's going on?' 'No, really, somebody just crashed a jumbo-jet into the Twin Towers,' and the fun was gone. We were en route to a room in a pension that was fitted with a small colour television, which was able to receive CNN. When we got there all seemed perfectly quiet outside, a nice residential district, very peaceful. Inside by now over 20 people were packed together, all participants in an international media art workshop. Two of us were from New York, one couldn't stop talking, the other was sitting in a chair with blanket over his legs, knees up, unable to speak, nervous, on the verge of tears.

A new report was coming in. On the screen amateur video and improvized shots from some roofs somewhere in lower Manhattan. Smoke, city officials on the phone, but no clear assessment. The second tower had just been hit. It seemed so unreal. We watched the amateurish images and listened to more scattered reports and concluded that this would not lead us anywhere in figuring out what was going on. The New Yorkers needed to contact their friends, phone lines seemed overburdened, so we went back to the centre to check online for further information and send out emails.

Although the Internet connection was at times slow, it was working pretty reliably all the time. But now we couldn't get through to a lot of places, especially the CNN news site was down, and it remained down for quite some time – disruption of the real-time flow. When CNN came back on the image was quite unbelievable. At first it was just a white screen with nothing else on it other than the CNN logo. I stared at the screen for quite some time and couldn't think of anything other than Malevich's Black and White Squares – a negative sign, the negation of the news, termination of connection, the unrepresentable disclosing itself in a negative sign.

When the site came back on it was in text-only mode, a unique decision to ban all images and advertisement. The clean and continuous media surface was ruptured in this moment of negation. But soon the

connection was re-established and the dominant media codes re-imposed on this mediated reality, closing the experiential rift.

It is interesting that almost everyone, at least everyone I have talked to, has such vivid and precise recollections of where they were, what they did, with whom they were, and how they experienced the first moment when the news of the 9/11 attacks was brought to them. It was hard, in that very moment, to miss the significance of the event. For me personally, the most singularly impressive experience was the brief time when the dominant media codes were broken by the events – the rupture of the screen. In the case of the live television transmissions, it was the rupture of the professional media codes, which signalled complete panic and disarray. On the web, it was quite literally the rupture caused by the extinguished news sources on the web. For a brief moment, this ruptured screen signalled the infinity of possible alternative discourses, of other possible modes of explanation and interpretation. It also signalled an intensity of experience that was soon to be extinguished by the reassertion of disaffected professional media codes.

For us, with Stockhausen looking at the screens, it seemed the unthinkable had taken place. The privation here was the removal of certainty about what could conceivably happen at the heart of the developed world. What had previously been relegated to the realm of the fictional through its endless (pre-)enactment in disaster movies, now broke through the screen into reality. The horror instilled was not just that of the events and the suffering at hand, or of the immediacy of the confrontation, but the uncertainty about what was to happen next, an existential anxiety about an uncertain and uncontrollable future, collectively experienced in this one moment – this was simply too insane indeed. With the reassertion of the dominant code and the dominant discourses of power, reconnection was established, immersing the soul in absolute delight. Producing a deep affect, a global audience was reborn in an irreversibly transformed semiotic landscape and social reality by these shattering attacks. Yes, these terrorists had crossed the boundaries of what could ever be possible or imagined to open another world for us, but they were certainly not artists. The deep affect produced with the global media audience was seized upon by a regressive, reactionary, hyperviolent politics that played out in years to come.

When Art Becomes Crime

Even though C.P. Snow's assertion of the two cultures, each en route on ever divergent trajectories, seems to hold true for the mainstream development in contemporary art practice and the practice of natural sciences, there is a persistent strand of activity in post-war culture that nonetheless attempts to bridge this ever widening rift. Such attempts to bridge the arts/natural sciences divide have existed at least from the Art and Technology movements of the late 1960s onwards. To some extent they can be traced back to the early pre-war twentieth-century avant-garde movements, where both conceptual and embodied practices crossed these disciplinary boundaries. The post-war activity is, however, less connected to a coherent artistic and social programme (as could for instance be identified in the Constructivist' concept of 'The New Man' and their ideal of a grand fusion of art and engineering).

A lot of this boundary-crossing activity typically takes place at the intersection of art and technology. Here, artists foray deeply into the domains of engineering and applied sciences, not least by utilizing the same instruments. At times, critical artistic practices also venture into the domains of fundamental natural sciences research, exploring the conceptual spaces engendered by these scientific practices, and their wider social and political context. Fuelled by the advance of information technologies, the rise of the Internet and wider availability of vast amounts of scientific and research data, this niche of the art/science field has gained considerable momentum over the last 15 years, and it has also managed to attract increasing public attention. The art/science connection is tremendously diverse, ranging from work that explores the aesthetic dimensions of scientific research, visualization and the machinic, to more metaphoric and conceptual approaches where scientific reasoning and artistic exploration are brought into some form of interplay.

A specifically critical approach to the wider social and political context of the technoscientific complex (and its connections to the military apparatus) has, however, been rare. Most of this kind of work seems to concern itself with primarily short-term interventions and short-lived public spectacles. This is understandable since in-depth involvement with the technoscientific field requires considerable resources, time and labour. Coupled to that is a political context that has become ever more

reprehensive and hostile towards this kind of boundary-crossing activity, especially when it starts to ask difficult questions about the political and economic context of emerging scientific practices. Serious artistic work is discouraged, economically as well as practically and professionally, through various forms of political coercion.

It is remarkable that domestic exploration of scientific processes for the 'home explorer' is, by constrast, strongly encouraged, while any kind of critical investigation of these practices, their underlying claims and wider sociopolitical context hits a wall of discountenance. Thus the home laboratory, formerly the site of glassy-eyed teenagers, now becomes a site of ideological investment. Encourage the positivistic and unquestioning embrace of science and technology, dissuade any attempt to figure out who actually benefits from any particular trajectory of technoscientific development and what the strategic investments in these domains actually are. Difficult questions such as the latter should be restricted to the professional domain of science itself, which can be easily contained by various professional coercion (career-sensitive) mechanisms. The amateur, the one who acts out of love for the subject, has no place there.

This attitude is stifling critical public debate and engagement with some of the most crucial developments in technologically advanced societies today, something which should be considered of prime interest to twenty-first-century democracies. The list of disavowed topics here is vast and impressive, ranging from biotech and life sciences, to nanotechnology, the scientific and technological basis of nuclear, fossil and renewable energy, the study of electronic security and cryptographic systems, biometrics (electronic processing of biological characteristics such as finger prints, iris scans, DNA sampling and more), visual pattern recognition, artificial intelligence, artificial life, robotics, GPS, RFID and other identification and tracking technologies, to name but a few of the most sensitive and contested areas.

Become a home explorer! Buy a home computer and learn how to program, or at least use it for any creative urge you may have. Install a GPS system in your car and never get lost again. Track your kids! Pass more quickly alongside the rows at airports. But please do not ask disturbing questions. Do not ask: Who owns these technologies? Who pays for their development? Who benefits from their deployment (fi-

nancially, politically)? Why do we invest so much in one energy source and ignore so many other possible sources? If I can track my kids, who can track me? Where is biotechnology being applied? How much of this research is funded from military sources? How does this military funding affect the agenda of such research? Why is there so little critical public debate? Does biometric and genetic profiling actually further the cause of freedom and democracy? And there are many more questions that could be asked. Questions that by and large cannot be asked, not at least in public, not persistently, and not without risk.

Serious artistic work that seeks an engagement with the domain of advanced technoscience beyond the merely metaphoric and the incidental is indeed rare. One of the few examples of such a critical, long-term and in-depth engagement, which has been able to generate considerable public appeal, is the work of the Critical Art Ensemble (CAE)[9]. CAE have over the last 15 years built up a consistent body of critical work on the application and hidden agendas behind new (information) technologies.

Of late, they have focussed more specifically on the contested domains of biotechnology and life sciences. This work has resulted in a long series of public performances, installations, temporary laboratories, films, exhibitions, audience education programmes, and a number of distinguished books on tactical media and the scientific and technological appropriation of biological materials and processes. Most of CAE's larger public presentations hold the middle between installation and performance. Often a laboratory is created in which the audience actively participates in the various biotechnological proceedings led by the collective's members. These kind of participatory public displays serve both as an instrument of public education and a material demystification of scientific processes, making them immediately accessible to a wide audience.

The positions taken by CAE have been persistently critical and controversial. With texts and books with titles such as *The Electronic Disturbance*, *Electronic Civil Disobedience*, *Digital Resistance*, *Molecular Invasion*, or *Fuzzy Biological Sabotage*, it is not hard to see why their activity would raise more than just an occasional eyebrow. However, the shift from controversy over critical public positions to a framing of this contestational artistic practice as a terrorist activity probably required

a post 9/11 type of mindset, and a reactionary political climate such as the one that pervades current American mainstream politics, where the idea of a 'New American Century'[10] has become a central system of belief. However, as with Stockhausen, even though CAE's public appearances and publications cannot be denied a certain radicality, if considered as part of the avant-garde's legacy and compared to the ecstatic embrace of the putrefying powers of all-out war of the Futurist Marinetti cited earlier, their tone of voice would appear rather 'tame'.

A Bad Script that Narrates 'the Real'

In a dramatic turn of events, the frontal collision between CAE and the authoritarian tendencies in contemporary American and Western society revealed itself like a 'raging broom of madness'. On the morning of 11 May 2004, Steve Kurtz, front man of Critical Art Ensemble, woke up to find his wife Hope Kurtz lifeless beside him in his bed. Panic stricken, he dialled 911 to ask for help. It was later revealed that she had died from cardiac arrest.

Buffalo Local TV Channel 5, video still from the report of the raid of Steve Kutz's private house by the FBI

Upon arrival in the Kurtz's home, the paramedics befell to a complete frenzy. The combination of the sudden death of Hope Kurtz and the extensive chemical and biological equipment in Steve Kurtz's home laboratory incited grand-scale alarm. Titles of books on the shelves such as *Contestational Biology* and *Fuzzy Biological Sabotage* further helped to trigger an anxiety about a possible source of bioterrorist threat emanating from Kurtz's amateur laboratory. This scare should also be seen in the context of a series of anthrax alarms and supposed attacks on public institutions in the USA, which had previously brought the American public to the brink of collective panic and hysteria.

Within hours, the FBI was brought in to verify the situation on site in Kurtz's home, the nature of his equipment, the substances found in his home (chemical, biological and otherwise), and the activities he was involved in, professionally and personally. The house itself and the block around it were cordoned off as a precaution, and agents dressed in biohazard suits were brought in to complete the inspection of the house. Steve Kurtz was detained, the body of his wife confiscated for examination, as well as Kurtz's (living) cat.

In the stream of events, Kurtz was initially detained and accused on grounds of suspicion of preparing potential acts of bioterrorism. Especially the fact that live strata of different bacteria were found in his home (Serratia Marcescens and Bacillus Atrophaeus) served to support these very serious accusations. Kurtz used these materials for exhibits, demonstrations and public displays in his artwork. Very quickly, however, it was revealed that the materials obtained from Kurtz's home were quite harmless. Neither of the two organisms appears on a government list of substances that might be used for biological terrorism. In fact, both strands are quite regularly used for teaching and demonstration purposes at high schools. The equipment confiscated from Kurtz's home can be acquired legally by any resident of the USA. Also, no connection was shown to exist between the cause of the sudden death of Kurtz's wife Hope (cardiac arrest) and the confiscated substances present in the house at the time of her death. Finally, the detention of Steve Kurtz was deemed illegal, and his house had to be released under court order after it had initially been designated a 'health hazard'.

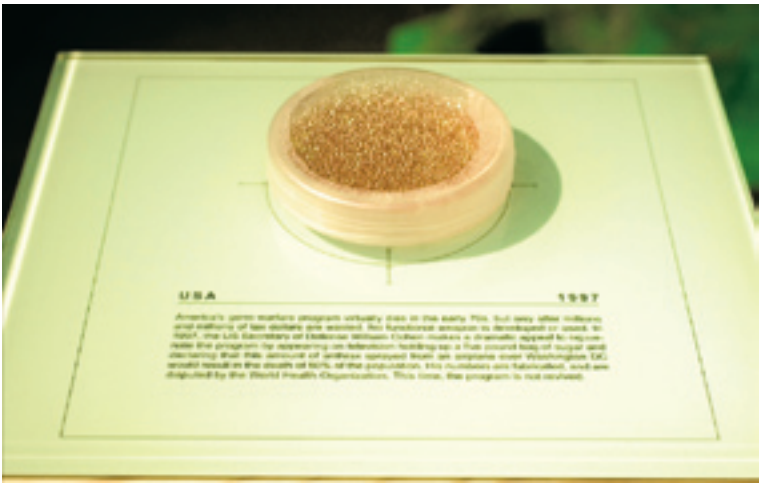
In a fearful social and political climate, this rather amazing string of events could somehow be understood as a misinterpretation of various

worrying signs. However, the prosecution of Steve Kurtz did not stop when the various charges brought against him invariably were shown to be unfounded. Instead, investigation was intensified and a long list of colleagues, artists, scientists and board members of the Universities of Buffalo, where Kurtz teaches as an art professor, and Pittsburgh, where his scientific collaborator on many events geneticist Robert Ferrell works, were subpoenaed to appear in court, to testify in the case, which was staged under the US Patriot Act ('homeland security'). New charges were subsequently brought against Steve Kurtz, but also against his scientific colleague Robert Ferrell. These charges consisted of four counts of mail and wire fraud, suggesting that the biological materials Kurtz was using for his artwork were illegally obtained from Ferrell's labs and sent against regulation over surface mail (a practice quite common among scientists in cases of such non-hazardous biological materials). Furthermore, the case was construed as disenfranchisement of public property (the materials were valued at 256 US dollars), even though neither of the universities involved had pressed charges, and had even stated in court that they would not pursue such charges in the future as they could see no wrongdoing. In fact, the university boards encouraged public debate on the emerging fields of biotechnology and life sciences.

Although a mail and wire fraud case over 256 US dollars worth of material might seem highly remote from the initial severity of the bioterrorist charges that could not be sustained, nonetheless the potential maximum sentence for such cases is 20 years in prison. The prolonged court case, which at the time of this writing (April 2006) is still ongoing and far from over, also constitutes an enormous cost burden, currently estimated to total some 400,000 US dollars at its conclusion, possibly even more. The investment on the side of authorities is considered to outnumber these expenses by several counts. The fact that this case is pursued with such intensity has sent a signal of distress throughout the international artistic and scientific community and raised broad protest. Countless distinguished curators, scientists and artists came out to condemn any further legal action being pursued and demanded its suspension, including the esteemed scientific journal *Nature*. A campaign and legal defence fund[11] was erected on behalf of Kurtz and Ferrell that managed to attract substantial funding through a high-profile art auction in New York in the Fall of 2005.

Given the imbalance between the legal case as construed by the FBI over 256 US dollars worth of material against the enormous efforts expended on both sides of the legal argument, there is a strong indication that a broader political motivation exists behind it. At the very least, the prosecution of Kurtz and Ferrell has raised serious questions about the limits of artistic and scientific freedom in the New American Century.

In a short essay that can be found on the website of the CAE Defence Fund, called 'When Thought Becomes Crime', Critical Art Ensemble provide three reasons they see for what they tern a 'Kafkaesque legalistic repression':



Critical Art Ensemble, Germs of Deception, installation (detail), NGBK, Berlin, 2005
CAE: 'In 1949, a US military group charged with biological research sent an agent to release Serratia marcescens (a harmless anthrax simulant) into the air ducts at the Pentagon. The mission was successful, and the results (complete contamination by the bacteria) were forwarded to the Pentagon. They neglected to mention that 100% germ coverage does not translate into 100% infection rate which does not translate into 100% mortality rate. Officials at the Pentagon became so panicked they immediately devoted generous amounts of resources to the research group. This con (or one like it) has been often used in the genesis of many of the world's germ warfare programs. In Germs of Deception, CAE traces these cons, and recreates the misleading experiment in the gallery. According to our findings, NGBK is a suitable site for an anthrax attack, as the distribution rate was perfect. All our sensors lit up.'

The first reason, we believe, involves the discourse in which we framed our project. By viewing the scientific process through the lens of the capitalist political economy, we disrupted the legitimized version of science as a self-contained, value-free specialization.

The second challenge we posed came from our amateur approach to life science knowledge systems, experimental processes, acquisition of materials, etc. An amateur can be critical of an institution without fear of recrimination or loss of status or investment.

(Thirdly) With special regard to the institutional financing of science, the amateur reveals the profit-driven privatization of a discipline that is purportedly – mythologically – open to all. By undertaking research as if science were truly a forum in which all may participate according to their abilities and resources, CAE angers those who manipulate scientific activity through capital investment. The financial stakes are so high that the authorities can imagine only one motivation for critical, amateur research, particularly if it is conducted at home outside of systems of surveillance/discipline. If that research intends to expose, disrupt, or subvert the meta-narratives that put scientific investigation in the service of profit, the amateur investigator must want to produce terrorist acts.

The most significant achievement of CAE's practice over the last 15 years is to break open the closure of (expert) scientific discourses for public scrutiny and debate. To show that expert knowledge is not always required to understand the processes scientists and engineers are working on. To disclose the research agendas implicit in mainstream scientific practices, especially in the fields of biotechnology and life sciences, and therefore (the beginning of) public accountability. Here, a deeply sinister possibility suggests itself. The current US administration has been shown to have revived and intensified biological weapons research and experimental programmes, and has established a series of military biotech laboratories and facilities across the USA, in spite of a host of international treaties signed by previous administrations that ban the use and research of these weapons. An official response to these allegations is either absent or refers to the necessity to develop effective countermeasures to any possible biological or chemical (terrorist) strike against the USA. However, this declared purpose cannot properly

explain the scale of this intensified biological weapons programme. On the part of the administration, and in view of the international context, public debate and critical public scrutiny of these programmes is strongly discouraged.

There is something that links the 'amateur' engagement of advanced technoscientific practices by Critical Art Ensemble to the legacy of the avant-garde. It is the principle of the negation of dominant discourse and established modes of representation. Through its critical deconstruction of scientific and technologically driven discourses, CAE opens up a (theoretically infinite) space of alternatives. The 'language games' of technoscientific discourse are thus repositioned as an infinite number of possible 'language games' that can exist vis-à-vis the very notions of what constitutes life, evolution, genetic memory and corporeal identity. It is difficult to imagine a more valuable artistic practice at the intersection of culture and technology today, one that performs such desperately needed broader public education purposes. This makes the prolonged court proceedings in the 'land of freedom' all the more astounding.

Power that Shifts from the Embodied to the Symbolic (and Back)

In their book *The Electronic Disturbance*, CAE identified a crucial shift in the operation of power in network societies. A shift from the embodied realm of political action to a disembodied realm, an electronic field in which authority can (de-)locate itself through public media spectacle and the coordination of events via electronic networks. They see the rise of a new form of Nomadic power that can quickly exert and divert control by means of interconnected communication and surveillance technologies. The street, once the principal site of political mobilization and contestation, is now considered irrelevant by dominant power elites; it is now left completely to the underclasses. The strategy of this new nomadic power is to remain invisible, and thereby prevent the enemy (that is, the public that demands accountability from the authorities) from constructing a 'theatre of operations', a site at where this power can be engaged. About this new networked strategic formation they write:

> This archaic model of [nomadic] power distribution and predatory strategy [ed: remaining invisible, and thereby preventing the enemy

from constructing a theater of operations] has been reinvented by the power elite of late capital for much the same ends. Its reinvention is predicated upon the technological opening of cyberspace, where speed/absence and inertia/presence collide in hyperreality. The archaic model of nomadic power, once a means to an unstable empire, has evolved into a sustainable means of domination. In a state of double signification, the contemporary society of nomads becomes both a diffuse power field without location, and a fixed sight machine appearing as spectacle. The former privilege allows for the appearance of global economy, while the latter acts as a garrison in various territories, maintaining the order of the commodity with an ideology specific to the given area . . .

The shift from archaic space to an electronic network offers the full complement of nomadic power advantages: The militarized nomads are always on the offensive. The obscenity of spectacle and the terror of speed are their constant companions . . .

First world, third world, nation or tribe, all must give tribute. The differentiated and hierarchical nations, classes, races, and genders of sedentary modern society all blend under nomadic domination into the role of its service workers – into caretakers of the cyberelite. This separation, mediated by spectacle, offers tactics that are beyond the archaic nomadic model . . .

The retreat into the invisibility of nonlocation prevents those caught in the panoptic spatial lock-down from defining a site of resistance (a theater of operations), and they are instead caught in a historical tape loop of resisting the monuments of dead capital. (Abortion rights? Demonstrate on the steps of the Supreme Court. For the release of drugs which slow the development of HIV, storm the NIH). No longer needing to take a defensive posture is the nomads' greatest strength.[12]

The CAE has persistently been revealing this hidden nomadic power in order to illuminate how power is exerted through new regimes of information and surveillance, the new control over the technological interface to biological materials and processes, and, ultimately, the reconstruction of the very building blocks of life itself. They demonstrate how 'virtual selves' were actually turned into databodies, structured

archives of information that register every significant move in personal and social life through interconnected correspondence and the creation of informational profiles. As these databodies became increasingly 'liberated' under the pressures of antiterrorism measures (the removal of privacy- and data-protection regulations), the free movement of biological bodies was increasingly and exponentially delimited. The CAE revealed how new biotechnological procedures make the body perfectly readable, how they create new dependencies on genetically modified food supplies (characterized by megamonopolies of the Monsanto-type), how the genetic imprint of each individual can be read, and how it affects living conditions in society (screening for hereditary illnesses as part of a job application or health care intake procedures for instance).

But the most vexing problem is how to engage this new technologically-enabled nomadic power elite when it operates without fixed locality, when it is a highly unstable and heterogeneous aggregate (no longer a class with common political and economic interests), when this elite is essentially invisible? Moreover, it is almost impossible to get any direct information on them, leaving us even more than in the past with 'speculations drawn from questionable empirical categories'. As CAE observes:

> How can a subject be critically addressed that cannot be located, examined, or even seen? Class analysis reaches a point of exhaustion. Subjectively there is a feeling of oppression, and yet it is difficult to locate, let alone assume, an oppression . . . The cyberelite now is a transcendent entity that can only be imagined. Whether they have integrated motives is unknown . . . The paranoia of imagination is the foundation for a thousand conspiracy theories – all of which are true. Roll the dice.[13]

The migration of this new power elite to a networked informational domain requires a new form of contestation. Not just a 'making visible' of the new structures of power, but a direct engagement in the domain in which this power is vested. The shift from the material to an informational domain, a domain of representation, of endlessly malleable data structures, in short, a symbolic domain, offers a radical possibility: if power shifts to the symbolic, then interventions into that domain also

become direct interventions into that system of power. Rather than the symbolic enactment (the street protest, the 'spectacular' action, coverage in mass media), shifting public opinion to exert pressure on one or the other (visible) authority, symbolic action now intervenes directly into the invisible system of symbolic power, and more than merely exposing it, transforms it, derails, 'disturbs' or unhinges it. This is the new shape of political engagement and cultural resistance. We encountered it with ®™ark and the ¥Đ$ Men, but CAE's *Electronic Disturbance* predates these interventions as a manual for new modes of contestation. CAE comments:

> The avant-garde never gives up, and yet the limitations of antiquated models and the sites of resistance tend to push resistance into the void of disillusionment. It is important to keep the bunkers under siege, however, the vocabulary of resistance must be expanded to include means of electronic disturbance. Just as authority in the streets was once met by demonstrations and barricades, the authority that locates itself in the electronic field must be met with electronic resistance... It is time to turn attention to the electronic resistance, both in terms of the bunker and the nomadic field. The electronic field is an area where little is known; in such a gamble, one should be ready to face the ambiguous and unpredictable hazards of an untried resistance. Preparations for the double-edged sword should be made.[14]

Since the publication of *The Electronic Disturbance* in 1994, the development of informational technologies of various kinds has by no means ceased. The remarkable development of the Internet as a public medium, spawning such vernacular media forms as email, websites, P2P file-sharing networks, mailing lists, podcasts, streaming media, net-radio and many more, has further intensified the urgency of the critical questions that CAE has been raising about the new electronic domain of invisible power and coercion. But in the current frame, analysis needs to be broadened even further to understand how this (invisible) form of networked electronic power is projected back onto physical reality with unprecedented vigour. While CAE claims in *The Electronic Disturbance* that *spatial strategies may not be key in this endeavour*,[15] and are treated as a mere 'support' in the case of a *broad spectrum disturbance*, these spatial

strategies should be seen today as absolutely crucial for critically addressing this domain of political power.

The conditions that create this urgency have been examined in detail throughout the discussion on hybrid space and disconnectivity earlier in this book. On the threshold of introducing radically distributed sensor technology, ambient intelligence and ubiquitous computing, at the dawn of the disappearing computer and many other research programmes that converge in creating a system of continuous and complete surveillance, it is no longer only our movements through electronic data space that become completely traceable, but also the movements of persons (bodies), objects, and their relationships in physical space. This system, contained in the mass-production of radio-frequent identifiers, smart sensor systems, automated surveillance cams, perceptrons, biometric scanning devices of almost any conceivable form, magnetic, X-ray and penetrating visual observation devices, creates unprecedented levels of 'transparency' and unprecedented possibilities for profiling and sorting, in public space and indeed on the street.

Meanwhile, the question of access to the data produced by these systems and the control over them, or over the use of those data, is distributed completely asymmetrically between different social actors in society. This is not just a question of citizens versus authorities – countless private actors operate in this new hybrid control space (security, marketing companies, large corporate players, the controlling bodies of retail outlets and shopping malls, and many, many others). The dominant actors in this new hybrid and radically dispersed, ubiquitous control space remain, however, as elusive and invisible as ever, similar to the authority that locates itself in the electronic field of 'cyberspace' as in the CAE discussion.

It is this move back to the physicality of embodied space that apparently attempts to compensate for the symbolic vulnerability of a power system that has retreated into the realm of a disembodied electronic data space. Recognizing that control over this symbolic domain alone does not put all threats at bay, and always leaves the option open for some of these flesh-and-blood actors to launch a realistic assault on the symbolic domain, the new authorities located in the electronic field need to find ways to project this mediated power onto the physical domain, while remaining crucially invisible in the remote-control

mode. That system of remote networked control of the physical is what the new distributed sensor and biometric technologies bring into being. They literally create a network of objects and bodies, continuously traceable and visible, while the new authorities remain well out of sight – truly an 'Internet of Things' (living and non-living), from which the power elite has securely detached itself, firewalled off from any possibility of reciprocity.

Revealing the existence of this new hybrid control grid is not sufficient to make a critical address, let alone introduce any significant change: public accountability, for instance, proper legal provisions for ordinary citizens to file complaints about mistakes or misuses, accountability to democratically elected parliaments, independent supervisory bodies with real powers of intervention, transnational accountability to transnational governing agencies – are but a few of the crucial institutional provisions that are urgently required to prevent this hybrid space from becoming (or rather remaining) a completely authoritarian control space, but they are largely non-existent. Revealing this state of affairs has long been done, not just by activists, or investigative journalists, but also by government agencies and internationally appointed investigative bodies, as for instance in the case of the EU investigation of the ECHELON system, the signals intelligence collection and analysis network.[16]

Significant change in this unfolding system of ubiquitous and continuous surveillance will only come about through a large-scale disturbance of the electronic field. Only in the rupture of this field, the breakdown of its functions, deliberately brought about by civic intervention (what CAE later would call 'electronic civil disobedience'[17]) a negative space is opened that reveals, inversely, as a negative sign, the infinity of all possible alternative modes of how the new hybridized social spaces could be constructed. We might agree with Critical Art Ensemble that 'the avant-garde never gives up'. It should certainly not give up here!

The Sublime Unrepresentability of War

Silence of the disaster

Info-Holocaust

Already in the 1950s, Albert Einstein maintained that there are three fundamental threats to human civilization and mankind. The first of course is the threat of nuclear holocaust. The third is the threat of the population explosion. But the most surprising of Einstein's concerns is the second; the information explosion. Einstein feared that the information explosion could have an equally disrupting effect on society as the nuclear holocaust.

In a discussion for *Arte* in November 1995 with Friedrich Kittler, Paul Virilio mused about the fatality of the information explosion. For him the fatality is the reduction of the entire world into one time form by the real-time technologies, which reduces all distances to zero and thereby destroys all difference, every possibility for reflection, and deconstructs the intimacy of direct interaction between individual people into a paradox mediated co-presence from a distance in real-time.

Through the real-time technologies the information societies have reached the ultimate threshold of acceleration, the speed of light, beyond which no further acceleration is possible. Whereas all progress of the traditional societies in the past always relied on the possibility and ability of these societies to accelerate, now this possibility is no longer given. Virilio: 'This is an unprecedented accident, a historical accident as has never been seen before. As Einstein very appropriately put it: a second bomb.'[1]

The emergence of real-time media and communication technologies has resulted in the acceleration of history into hyperreality, of politics into the autocracy of immediacy, of culture into ubiquity, and of technology and defence into the invisibility of the intensive time. Each of these elements of the fatality that Virilio diagnosed, this unprecedented historical accident, have already been discussed previously in this book. Yet, one constitutive element of the hyperreal still requires more in-depth attention: the process of digitalization. It is necessary to discuss its implications to conclude this discussion.

As observed by Lyotard and Chaput in the introduction to their 'Les Immatériaux' exhibition, the relationship of man to material reality has become strangely elusive as a consequence of the fact of the advent of the 'new materials':

> In the tradition of Modernity the relation of man to the materials has been formulated in a Cartesian program: the aim is to become master and proprietor of nature. A free will imposes his objectives on given circumstances, by alienating them form their natural purpose. He determines his objectives by means of language, that allows him to articulate what is possible (a project), and to impose it on that what is real (the materials). . . . The manifestation entitled 'Les Immatériaux' intends to make tangible how much this relation has changed through the fact of the 'new materials'.[2]

Digital versus Sublime

New technological inventions and artificial materials have changed this relationship of man to material reality, but for Lyotard the most fundamental and dramatic change has been introduced by the digital technologies.

Two things are important here: Lyotard maintains that we first of all relate to reality through the messages we receive from the outside environment. In the post-industrial societies these messages have become increasingly mediated. It is, however, a characteristic of mediation that the messages communicated through that medium have to be translated into the code of that particular medium. The digital technologies signify a fundamental break. All messages, regardless of their origin or constitution (image, sound, text, data, etcetera) have to be translated into one universal code of digital information; the process of digitalization.

In order to be able to process the information with a digital system, the information has to be atomized, broken up into the fundamental smallest units out of which every message is composed. Atomization of information involves the need for a complete description of the phenomenon in terms of these smallest units. What falls outside of this description, because, for example, it is to small to be measured, is disregarded. Something of the original source information is always lost in

this process of atomization and digitalization of information. 'It is as if a filter has been placed between us and the things, a screen of numbers,' as Lyotard writes in the press release to 'Les Immatériaux'.

Exactly these two consequences – universalization and atomization of information – Lyotard takes to be crucial to the problems that are posed by the 'Immaterials'. In a conversation with Christine Spies, conducted on 6 May 1988 and later published in the German art journal *Kunstforum International*, Lyotard re-states this problem:

> The media are intended to close the system within itself, by incorporating the exteriorities in the system. As in 'Mother', 'mat' (from: 'maternité' = motherhood in French) signifies something which has given birth, so something which constitutes the secret of existence, and seems to be similar to the media in that sense. But the exteriority is preserved. This exteriority is found at the origin and is lost, it is however lost as an origin. The immaterials signify the loss of this lost thing. It is as if there is no origin at all. The important point is the incorporation of the exteriorities in the system, not just in the system of the media, but also of the techno-sciences in general. The consequence is that everything becomes a message, even the silence that strictly speaking does not tell anything, does not exist. 'Mother' entails basically the concept that something has been lost (the origin), that its disappearance does not tell anything, but generates meaning.[3]

The abstraction implicit in the process of digitalization is the ultimate embodiment of a hyperreality in which the messages circulate and propagate endlessly, without any connection to an original source or reality. Through their performativity they continuously reconfigure lived social reality – according to the demands of productivity. This loss of the lost origin thereby completes the politics of terror and exclusion Lyotard considers intrinsic to the culture of technoscientific rationality.

Silence

The completeness of the media incorporation by the digital systems leaves no room for escape. It denies the possibility of the 'silence' Lyotard considers essential to generate meaning. But, how can we understand this demand for silence as a political programme?

To understand Lyotard's conception of this 'silence', some of his more general concerns as a philosopher have to be understood first. Lyotard's position is not arbitrary but revolves around a fundamental concern, which takes on the form of a confrontation and results in a crisis. All his writings depart from and return to a single moment in Western European civilization; the fact of 'Auschwitz'. 'I hold that the name 'Auschwitz' marks a breach . . . it is foolish to continue with philosophy as before, or to continue with politics as before, as if nothing has happened.' Auschwitz constitutes a moment of silence in Western history and civilization, a silence that seems impenetrable, inaccessible to understanding, opaque to the feelings aroused in us. This silence is a zero point of civilization that can neither be properly understood, nor even be represented because it is absolute.

In 1988, Lyotard published a book called *Heidegger and 'the jews'*, which at first sight appeared to be his contribution to a debate that had gained quite some momentum in the media about Heidegger's affiliations with the National Socialist Party during the war, and his unwillingness to reject his Nazi past afterwards. The book, however, is divided into two parts: in the first part, 'the jews', Lyotard attempts to find his answer to the question of the position and meaning of the holocaust and 'the jews' within the larger framework of Western-European culture and thought.

The history of Jewish culture in Europe has been one of constant repression and exclusion, in which the choice left to the Jewish part of the population has mostly been one between conversion or annihilation. The fundamental unwillingness and inability of European culture to come to terms with 'the jews' is a constant concern for Lyotard, because it points beyond the disaster of Auschwitz to a fundamental tendency in that culture. Auschwitz has exposed this tendency by turning it into an absolute negativity.

All of the attempts to represent the holocaust in the form of writings, documentaries, films, and so forth result, according to Lyotard, in the same thing; they are all attempts to forget the unforgettable. They are ways to express moral indignation, to renounce what has happened, to acclaim the violated worthiness of man (humanism), and finally to swear that something like this will never happen again. Then the matter is closed and put to rest. These attempts to represent what is unrep-

resentable because it is an absolute, are in effect attempts to make this fact controllable, to pacify it, in order to be able to finally forget it, or to be able to even deny that it ever happened at all (the 'Historikerstreit').

But Auschwitz, as a fact of history, is unrepresentable because it is absolute, because it constitutes an absolute negativity. The aim of the holocaust was *Endlösung*, the total elimination of 'the jews', of Jewish culture, of Jewish history, of the Jewish religion, and of the Jewish people, without leaving any trace. To eliminate the very fact of their existence. This programme was carried out with an absolute rationality of design. It was carried through with an industrial organization, highly reminiscent of the lessons learned from Frederick Taylor's principles of scientific management and the organization of mass production that resulted from these ideas (the Ford factories). And finally, this programme was carried through with absolute conviction and dedication. Auschwitz's destruction machineries were still operating at full force when the front had already neared the camp as close as 10 kilometres, even though all forces available were badly needed at the front. The completion of the programme had become the highest aim.

The destruction of 'the jews', of the 'Other' in Western civilization, has therein become absolute, inaccessible to our feelings, but also operating outside of any political directive. The destruction had become an end in itself, but not one that generates meaning, but rather one that tries to erase it to hide its own deficiency.

Lyotard returns to Kant's third critique, the *Critique of Judgement*, to use it as a foundation for his idea of the unrepresentable. In the first and second critique Kant had described his apprehension of the rules of the acquisition of knowledge about the world and the principles of moral judgement. His third critique deals with experiences that lie outside of the strict domains of knowledge and moral judgement; the aesthetic and the sublime. The sublime is a very particular experience. In Kant's explanation it is first of all a confrontation with something that may be theorized rationally, but cannot be understood subjectively, is impenetrable to feeling, because it transgresses the very possibility of reception.

The spectacles of unordered nature serve as a first example, which became a highly popular motive in the arts of the Romantic period. But the aesthetics of Romanticism misjudge the essence of the sublime experience by their attempt to recapture those experiences in definite

images (in something that Kant would characterize as a synthesis into unique forms in space and time) – the problem with this is that the sublime is exactly the experience that escapes this possibility of imagination and synthesis.

There is a crucial passage in the previously mentioned interview with Lyotard, about the spectacles of unordered nature and the experience of the sublime. Lyotard:

> The grand spectacles of unordered nature are an example of something that human art can never bring about. Because all human art is always only mimesis and therefore ultimately suspect, there is always a possibility that it has been conceived intentionally, and for this reason is burdened by a concept and a purposefulness with purpose. While beauty is already relatively suspect, the sublime appears to be even more suspect. Nonetheless, the truly important point - and this even from a Kantian point of view - is this breach, this split in representation through synthesis, in the ability that synthesises something into a unique form in space and time, this explains the theme of the 'UnForm'. The disorder of nature, the storm, and so on, i.e. the incommensurable for imaginative synthesis, serves solely to illustrate that what Kant is trying to say. The actual transcendental or critical content of that what Kant calls 'the sublime' (Das Erhabene), is much rather this inability of synthesis, and one can imagine that artists do indeed try to bring about something, through abstraction, or minimal art, that produces a failure of these form-syntheses, and in this sense is quite comparable to the transcendental essence of the sublime with Kant. The aesthetics of the sublime in Romanticism, however, relies clearly on a misconception.[4]

In his essay 'The Sublime and the Avant-Garde', Lyotard offers an elegant description of the ambiguous nature of the pleasure of the sublime experience, discussing Edmund Burke's ideas on the subject[5]. Lyotard:

> Beauty gives positive pleasure, but there is another kind of pleasure that is bound to a passion far stronger than satisfaction, and that is suffering and impending death. In suffering the body affects the soul, but the soul can also affect the body, just as though it were experienc-

> ing some externally induced pain, and it can do this solely by means of representations that are consciously linked to painful situations. This entirely spiritual passion, for Burke, is synonymous with terror. Terrors are linked to privations: privation of light, terror of darkness; privation of others, terror of solitude; privation of language, terror of silence; privation of objects, terror of emptiness; privation of life, terror of death. What is terrifying is that the 'It happens that' does not happen, that it stops happening.
>
> Burke wrote that for this terror to mingle with pleasure and with it produce a sublime sensation, it is also necessary that the terror-causing threat be suspended, kept at bay, held back. This suspense, this lessening of threat or danger, provokes a kind of pleasure which is hardly positive satisfaction, but is rather more like relief. This still qualifies as privation, but it is privation in the second degree, the spirit is deprived of the threat of being deprived of light, language, life. Burke distinguished this pleasure in privation from the positive pleasures, and he baptised it with the word 'delight'.[6]

Romanticism

As noted, the aesthetic of the sublime played an important role in the artistic programmes of the Romantic era, and it was first and foremost Edmund Burke's theory of the sublime that exerted a strong influence on these artists. Art historian William Vaughan writes about this:

> Burke's theory was vital to the Romantics both because it emphasised the suggestive quality of art and because it gave a new importance to the disturbing. The artist who concentrated on this now was not simply engineering a Baroque thrill; he had become an explorer. For Burke's notion of the Sublime emphasised that man was disconcerted primarily by that which lay beyond his control or comprehension. Ultimately repulsion could become a new means of intimating the Ideal, which, for the Romantics, was always unknowable.[7]

The misconception in the arts of Romanticism that Lyotard refers to, pertains to the inherently flawed attempt of these artists to make the sublime experience present again in their art works. With this gesture these artists attempt to provide a visual or textual formula that can

engender the spiritual anxiety encountered when confronted with the spectacles of unordered nature, the experiential rift of being confounded with the threat of infinite extension, or even more directly the threat of loss of life. They fail to understand that it is exactly the impossibility of imagination to produce an adequate synthesis for this type of experience that gives rise to the intense passions of privation, horror and delight – the foundational structure of the experience of the sublime.

Classic examples of marvellous art works that nonetheless are afflicted with this inherent failure are for instance: Piranesi's *Carcere d'invenzione* (1745-1761) part of a series of etchings called *vedute*, depicting views of the monuments of Rome, where exaggerated proportions are intended to create an overpowering sense of grandeur. Henri Fuesli's *The Artist Moved by the Grandeur of Antique Fragments* (1778-1779). Turner's *Hannibal Crossing the Alps/The Morning after the Deluge* (1843). Turner was a master at bringing out the overwhelming effects of the unleashed elements of nature, in this work his picture turns almost completely abstract, foreshadowing in a sense many things to come. And of course Caspar David Friedrich's opus magnum *Das Eismeer (Die gescheiterte Hoffnung)* (1824).

Lyotard comments on Kant's interpretation of the aesthetics of the sublime:

> In the event of an absolutely immense object – a dessert, a mountain, a pyramid – or one that is absolutely powerful – a storm at sea, an erupting volcano – which like all absolutes can only be considered without reason, the imagination and the ability to represent fail to provide appropriate representations. This frustration of expression kindles a pain, a kind of cleavage within the subject between what can be conceived and what can be imagined. But this pain in turn engenders a pleasure, in fact a double pleasure; the recognition of the impotence of the imagination contrarily attests to an imagination striving to illuminate even that which cannot be illuminated, and the imagination thus means to harmonise its object to reason – and furthermore the inadequacy of images, as negative signs, attests to the immense powers of ideas. These powers give rise to an extreme tension (Kant's agitation) which sets the pathos of the sublime apart from the calm sense of beauty.

The Romantics rightfully noticed that the experience of the sublime offered an alternative to the appalling conditions of the industrializing society they sought to detach themselves from. The absoluteness of the experience of unordered nature seemed to resist the apparent incorporation of every aspect of nature and the social sphere in a technological system we now call the industrial society. In fact the uncontrollable absoluteness of nature appeared to constitute the very opposite of this industrializing process, whose declared aim it was to control every aspect of nature and put it at man's service. However, the Romantics failed to understand the unrepresentable nature of these experiences. By painting, and describing (in words or music) sceneries of unordered nature (turning them into representations; unique forms in space and time), they completely denied the very essence of the experience of the sublime. They failed to address the paradoxical question of how to present what is essentially unrepresentable.

Presence of the Unpresentable

Most of all the experience of the sublime is a confrontation with an instant recognition of an all-encompassing concept which discloses itself as a secret in a moment; a transgression of the existing order, which opens up an endless void, a non-space and non-time that threatens the very fact of existence and produces an absolute anxiety. Out of this void an ordering thought appears to confirm that existence has not come to an end, but instead re-formulates itself in an awareness of the 'otherness' that lies beyond the existing order.

All-encompassing concepts such as nature, the universe, time, and the divine are instances of the sublime. These concepts can be theorized rationally, but are fundamentally unknowable (by virtue of the fact that they are all-encompassing) and inaccessible to feeling (because they supersede any possible feeling). These concepts are represented in definite forms or concepts only to control them, to deny their essence, to eliminate the threat they pose to the existing order, to forget about them. The experience of the sublime is the ecstatic confrontation with something which cannot be synthesized into a definite form in space and time, but nonetheless is real; and therefore unrepresentable.

How then can the existence of the unrepresentable be made manifest in culture?

Kant himself hinted at one possibility when he referred to the Jewish mosaic law which banns figurations of the divine – a similar motive can also be found in Islamic religious art – the principle of 'negative representation'. In Islamic religious art there is a total ban on figuration. The reason is simple; man has been created in the face of god, to represent man is therefore to represent the divine, whereas the divine is an all-encompassing principle, an absolute totality, which can never be reduced to a single unique form. To make this picture is to commit blasphemy. In Islamic religious art, however, by the very absence of figuration, the divine is always present, everywhere (ubiquitous) and cannot be reduced to a single instance. Its presence manifests itself through this absence, which declares that the unrepresentable divine exist and is omnipresent: 'presence-through-absence'.

Lyotard paraphrases Kant on this principle: 'Optical pleasure reduced to nearly nothing promotes an endless contemplation of infinity.'

Presenting the Silence of the Unspeakable

Lyotard proposes a similar strategy for the presentation of the unrepresentable silence of Auschwitz: remembering by presenting the fact that this unrepresentable exists, as an inexpressible wound in European culture, so that it may remain unforgettable. The unrepresentable presents its presence in society and culture through its absence, through the silence that does not tell anything, but instead generates meaning.

If all films and other representations of the holocaust have failed, there may still be one exception to this rule for Lyotard, the film *Shoah* by Claude Lanzmann:

> Not just because he omits every representation in image and music, but most of all because it contains practically no testimony in which the unrepresentable does not emerge temporarily, even if it is only for a brief moment, in a change of the timbre of the voice, the throat that contracts, a sigh, tears, the witness that flees away from the camera, a disruption in the tone of the account, an uncontrollable gesture. From this we can gather that the apparently unmoved witnesses, how ever they present themselves, are surely lying, 'acting', that they hide something.[8]

To testify to the existence of the unrepresentable, the open wound at the heart of Western culture, then offers a final escape from incorporation by technoscientific rationality and unitary utilitarian logics. It opens up the opportunity for the 'Other' to exist within that culture.

Notes

The Unrepresentable

1 Paraphrased from: Jean-François Lyotard, *Philosophie und Malerei im Zeitalter ihres Experimentierens* (Berlin: Merve Verlag, 1986), 51-78.

2 That the notion of the avant-garde in itself is a problematic category within art-theoretical discourse, that it refers to an enormous heterogeneity of artistic and aesthetic paradigms, is considered here a matter of common consent. It is impossible to address the complexity of this on-going debate, including the question of whether the avant-garde should be considered a purely historical phenomenon today, whether it still informs discourse and practices of living contemporary art, and whether artists and collectives can still legitimately claim this label for their activities today, or be labelled as such? These are all matters of debates that are far from settled. This should by all means be taken into account, but I cannot possibly settle any of these questions here.

3 Jean-François Lyotard, 'Newman: The Instant – The Sublime', in: Lyotard, *The Inhuman – Reflections on Time* (Stanford, CA: Stanford University Press, 1991), 84.

4 Jean-François Lyotard, 'Foreword: After the Words', in: Gabrielle Guercio (ed.), *Jospeh Kosuth – Art after Philosophy and After, Collected Writings, 1966-1990* (Cambridge, MA/London: MIT Press, 1991), xv - xvi.

5 Joseph Kosuth, 'The Play of the Unsayable: A Preface and Ten Remarks on Art and Wittgenstein', in: Guercio, *Jospeh Kosuth*, op. cit. (note 4), 245-246.

6 Maurice Blanchot, *The Writing of the Disaster* (Paris: Éditions de Galimard, 1980/Licoln, NE: University of Nebraska Press, 1986/1995), 7.

7 Ibid., 11.

8 Ibid., 33.

9 Ibid., 47.

Transfiguration of the Avant-Garde

1 Jean-François Lyotard, 'Presenting the Unpresentable: The Sublime', *Art Forum*, New York, March 1982, 64-69.

2 Ibid.

3 Jean-François Lyotard, Thierry Chaput et al., *Les Immatériaux - Conception* (Paris: Centre de Creation Industrielle/Centre Georges Pompidou, 1985).

4 www.jodi.org.

5 www.wrongbrowser.com.

6 http://theyesmen.org/finland/.

7 This seamless transition between the mediated and real also implies an important complication of the ethical dimension of the type of symbolic intervention that The ¥€$ Men became experts in – some thoughts on this follow in the post-script to this essay.

8 Manuel Castells, 'The Culture of Real Virtuality', in: *The Rise of the Network Society* (Malden/Oxford: Blackwell Publishing, 1996), 355-406.

9 Ibid., 373.

10 Ibid., 374.

11 Again, as with the appearance in Tampere, the invitation came in via a spoof website mimicking the corporate website of the company under attack – in this case: www.theyesmen.org/en/hijinks/bbcb-hopal and www.theyesmen.org/faq/#falsehopes, 10 October 2007.

A Sublime Encounter

1 Karl Heinz Stockhausen speaking at a press conference for the Hamburg Music Festival on 16 September 2001.
2 Jean-François Lyotard, 'Presenting the Unpresentable: The Sublime', in: *Art Forum*, New York, March 1982, 64-69.
3 The infinite ability of advanced capitalism to realize should be understood, however, as constrained by the ecological reality that the earth's resources are ultimately finite.
4 Something without limits can never be a unique form in space and time.
5 Following Kant's *Kritik der Urteilskraft*.
6 See also the more extensive treatment of Marinetti's ideas in 'The Intentisfication of Time', essay in Part 2 of this book.
7 Klaus Theweleit, *Der Knall – 11. September, das Verschwinden der Realität und ein Kriegsmodell* (Frankfurt am Main/Basel: Stroemfeld Verlag, 2002), 123.
8 Edmund Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* (1757; second edition 1759), quoted here from David Womersley (ed.), *Edmund Burke, A Philosophical Enquiry into the Sublime and Beautiful, and Other Pre-Revolutionary Writings* (London: Penguin Books, 1998).
9 www.critical-art.net
10 www.newamericancentury.org
11 www.caedefensefund.org
12 Critical Art Ensemble, *The Electronic Disturbance* (Brooklyn: Autonomedia, 1994), 15-16. See: www.critical-art.net/books/ted/index.html.
13 Ibid., 17-18.
14 Ibid., 24-25.
15 Ibid., 24.
16 See for instance the webpage devoted to the ECHELON network on the website for the Federation of American Scientists: http://www.fas.org/irp/program/process/echelon.htm. This page contains reports produced by, among others, the European Parliament as well as other relevant research.
17 Also the title of CAE's second book (1995), see: www.critical-art.net/books/ecd/index.html.

The Sublime Unrepresentability of War

1 'Die Informationsbombe, Paul Virilio in conversation with Friederich Kittler', *Arte*, November 1995. (http://www.nettime.org/Lists-Archives/nettime-l-9601/msg00007.html)
2 Jean-François Lyotard and Thierry Chaput, *Les Immatériaux – Conception* (Paris: Centre Georges Pompidou, 1985).
3 Jean-François in conversation with Christine Spies (6 May 1988), 'Die Erhabenheit ist das Unkonsumierbare', in: *Kunstforum International, Kunst und Philosophie*, Cologne, 1990.
4 Jean-François in conversation with Christine Spies (6.5.1988), *Die Erhabenheit ist das Unkonsumierbare*, in: Kunstforum int., Kunst und Philosophie, Köln, 1990, pp. 355 - 356.
5 Edmund Burke, *A philosophical Inquiry into the Origin of our Ideas on the Sublime and Beautiful*, 1756.
6 Jean-François, *The Sublime and the Avant-Garde*, reprinted in: *The Inhuman – Reflections on Time* (Stanford, CA: Stanford University Press, 1991), 99.
7 William Vaughan, *Romantic Art* (London: Thames and Hudson, 1978), 33.
8 Jean-François Lyotard, *Heidegger et 'les juifs'* (Paris: Éditions de Galilée, 1988).

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