

Panorama Behind Glass: Framing the Spatial and Visual Design of Highways¹

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Introduction

My current research project on emerging screen technologies and practices ranges from early cinema to hand-held game consoles. In this project, *mobility* is a central topic, both concretely and as a conceptual metaphor. Mobility figures as a recurring trope of self-reflection throughout the history of modern visual media. Visions of mobility, I argue, reflect, and stimulate thought concerning the virtual mobility that the particular screen technology mediating these visions enables. Mobility concerns re-configurations between spatial and physical dimensions. These may reflect on, mirror, or counter the particular spatial and physical aspects of the screen as part of a viewing arrangement, a *dispositif*. Instances of the renewal, innovation, and emergence of new technologies show a particular emphasis on mobility, so as to underscore, explain, and exploit the possibilities of the new screen.

My most recent case in this respect is the touch screen: the various implementations of touch screen technology in different types of screens, specifically mobile screens.² Here, again, the trope of mobility plays a multiple part. On the one hand the mobility of the user is joined with the mobility of the screen, and countered, or enlarged by the content of the screen. The applications – such as games and navigation devices – engage the viewer/user in a form of virtual mobility. In line with Anne Friedberg's recent work on the window metaphor for the screen (2006), one could argue that, in addition to this concrete meaning, this virtual mobility of the screen

¹ This is a more comprehensive version of my contribution to *Snelwegpanorama's in Nederland*, co-authored by Maarten Piek, Marnix Breedijk, Willemieke Hornis, Manon van Middelkoop, Niels Sorel and Nanna Verhoeff (2007) which will also be published electronically on <http://www.rpb.nl/en-gb/>.

² For a preliminary exploration of this topic, see Verhoeff (2005).

also has a conceptual meaning: it compensates for a loss of transparency of the window. And the window is the traditional metaphorical counterpart of the screen.

The mobility of the touch screen itself and the particular physical engagement of the user in the case of mobile touch screens, complicates some observations made by earlier scholars. For example, Friedberg, Erkki Huhtamo, Lauren Rabinovitz and others working on virtual travel, the topic of mobility and screen media, have noted that the (cinematic) screen immobilizes the spectator physically while mobilizing him/her virtually by the moving images. The mobile touch screen changes this paradigmatic set-up or arrangement between screen and spectator, by both re-activating and mobilizing the user/spectator.

My interest in mobility as a metaphor for mediality, and vice versa, has led me to investigate the crossover terrain between these two domains of mediality and mobility. Coming from a background of media theory and media history, I find myself engaging the discussions of urban studies, travel and tourism studies, architecture and spatial design, digital and interactive media studies, and their investment in the exploration of environmental design and mediascapes. This is because I am interested in spatial perception and its similarities as well as differences with the perception of screen media.

The history of looking both ways – comparing spatial perception and spatial constructions, with the perception of and through media – goes back a longer way than the more recent interest in mobility within the field of media studies alone. In 1964, for example, the well-known urban planner Kevin Lynch, famous for his book about perception of the city, *The Image of the City* (1960) co-authored *The View From the Road*, a study based on extensive photographic documentation. The authors used motion picture cells and interviews, about the visual experience of driving. Looking at later references to this project, we can now say it paved the way for an aesthetic approach, attention for a view *on* and *from* the highway. The authors' reference to different media and arts when they write about the constant succession of movement and space, is significant:

The sense of spatial sequence is like that of *large-scale architecture*; the continuity and insistent temporal flow are akin to *music and cinema*. The kinesthetic sensations are like those of the *dance or the amusement park*, although rarely so violent.³

The authors realize this multi-mediality of their approach, as well as the centrality of movement that binds the media together, but also the difficulty these aspects entail for design:

The problem of designing for vision in motion is everywhere fundamentally the same, but characteristic solutions will be greatly affected by the speed and mode of movement. The experience of a city is basically a moving view, and this is the view we must understand if we wish to reform the look of our cities. (63)⁴

A more recent example of the attention to the perspective of the car driver can be found in the intriguing project *The Interactive Road* by the Mobility Studio of the Interactive Institute in Stockholm, Sweden, that addresses very creative questions about possibilities for enhancing the experience of road use. The project explores the car as an interface for different purposes: work station, arena for entertainment, site of fiction, or as soundscape.⁵

These two very different approaches to car mobility resonate with media archeological studies about the development, theories and practices of screen media, in the sense that they both approach mobility as a perceptual and media shaped experience. Influential for these media historical studies has been Wolfgang Schivelbush's work (1986) on wrote the impact of train travel on the experience of time and space. Similarly, other cultural historians have focused on the shifts in experience of 19th century modernity and the place of both technologies of transport and of vision. In line of this reasoning a new generation of scholarship on emerging cinema has made important contributions to this "modernity thesis" about the reciprocal

³ Donald Appleyard, Kevin Lynch, and John R. Myer (1964), quoted in <http://www.tii.se/mobility/projects.htm>, (emphasis added).

⁴ Ibidem, quoted in Krystallia Kamvasinou (2000)

⁵ <http://www.tii.se/mobility/projects.htm> See also Oskar Juhlin (2005).

relationship between media and mobility. For me, the combination of discourses on media and mobility, on perception and space, and the sometimes highly philosophical discussions about these topics within the fields of architecture and spatial design, raise fundamental questions about the paradoxical relationship between materiality and the physical on the one hand, and the experience of virtuality on the other. For the reflection on highway landscaping that underlies the collective project of which this paper is a part, the question is how to move beyond mere analogy. I seek to understand, that is, how apparent similarities between aspects of media and mobility, between real space and the virtual, can provide insights in both domains that characterize contemporary culture “really.”

Building Visions

In light of these questions I want to present the research project led by the Netherlands Institute for Spatial Research in which I was invited to participate. Over the past year, the Institute has conducted research about what has been labeled the highway panorama. As a media theorist and media historian my contribution consisted of the development of a conceptual grasp on the phenomenon of mobilized and panoramic viewing and to find a (media) historical grounding of this conception. The project resulted in the publication of *Snelwegpanorama's in Nederland*, co-authored by Maarten Piek, Marnix Breedijk, Willemieke Hornis, Manon van Middelkoop, Niels Sorel and myself (2007) and is intended to provide tools for the design and direction of the highway panorama. I was interested in this opportunity to collaborate with policy makers because it helped me to test, precisely, the insights as based on and offering prospects for a socio-cultural situation of some import outside the academy.⁶

Traditionally, in the Netherlands space, development, and environmental issues are topics of often-heated public debate. Because of

⁶ The Institute – in their own words – “promotes a more informed *public debate* on spatial planning, is an *independent* centre of expertise on spatial development, serving the Government, Parliament and regional and local authorities in the Netherlands.” See <http://www.rpb.nl/en-gb/> (emphasis added).

the enormously high density in population, infrastructure, and mobility networks, the ever-increasing congestion of the roads, constructions of so-called corridor roads, and diminishing “green strips” are reasons for concern about the quantity and quality of the environment and landscape in the country. This concern about the decrease of “open spaces” meets concerns, not only of health and the environment, but also of the cultural-historical value that is attached to landscapes: a concern for the disappearance of the Dutch “views.”

In 1999, in a provocative speech for the minister of Transport Public Works and Water Management (VROM), Francien Houben, architect and professor of architecture and mobility aesthetics at the Technological University of Delft, pleaded for what she calls an aesthetic rather than an exclusively functional approach to the design and direction of the road network and other spatial concerns related to mobility. Houben introduced the concept of *aesthetic of mobility* as a new principle for spatial planning. In the project *Holland Avenue* Houben and colleagues made an inventory of the highway situation for the Government, using moving images to visualize the highway network from the perspective of the driver. The so-called software in this project was the visual record of the view on the road, shot by four cameras from a driving car. The first outcome of this inventory was the important suggestion for spatial design to develop routes rather than strips or corridors, for which they provided typologies. Perhaps more fundamental, however, was the formulation of principles guiding design. These included the notion that the road is part of public space, hence, the mobile perspective of the driver/user of the road has to be taken into account when designing highway spaces. Interestingly, we hear echoes of the words of Kevin Lynch and his colleagues when Houben’s project announced that:

[w]e need instruments to realize this aesthetics of mobility. The existing practice of planning fails to do this. The aesthetics of mobility is an aesthetics of movement, of the state your in when being mobile. It is all about variation. With the alternation of different landscape

elements you want to create an aesthetic effect, like the rhythm in a piece of music.⁷

Again, a different medium is invoked for the aesthetic approach. This points to the properly synaesthetic nature of the issue. A heightened interest in the panorama – the perspective from the road on open landscape – was the result. But, in addition to the argument for open space, and the panoramic as having something to do with this openness, it was not clear, really, what panoramas are, and how the design and preservation of panoramic space should be approached. This question led to my participation in the current project.

Terms and Starting Points

In its simplest form, the highway panorama can be defined as a series of alternating views as seen by the driver from behind the car windshield: a moving and framed perspective from the highway on the passing scenery. The construction, design and preservation of highway panoramas places a set of related issues on the agenda concerning *mobility*, *perception* and the *experience* of these.

The first, most general issue is the role of *mobility* in contemporary society. Technology concerned with mobility and the infrastructure it entailed have developed spectacularly in the last century, from the first steam-trains, subways and streetcars, and the automobile, to the high-speed rail and international airline networks, a development that has accelerated in the last decade. In part due to the exponential growth of communication technologies, from the cellular phone to the Internet, it is possible to travel distances in far less time as well as to maintain contacts all over the world. The contemporary world is not only reliant on mobility and communication in a social, economic and cultural respect, but also spatially arranged so as to consider different modes of transport and mobility. We increasingly reside in

⁷ Francien Houben (1999) See for a presentation of the project Francien Houben and Luisa Maria Calabrese (2003).

places such as stations, highways, airports, but also in virtual meeting points on the Internet.

The role of *visuality* in today's culture is connected to the role of mobility – corporeal by means of travel, and virtual through media and communication. In general it is an accepted view that the screen has played an increasingly large role in visual culture. This increase is not only visible in the development and ubiquity of mass media such as cinema, television, and more recently the Internet, and the acceptance of multimedia advertising in public space. But also, the value attached to *visual experiences* has a historical tradition as well. In order to understand *visuality* in our contemporary moment it is useful to examine this as a historic cultural phenomenon. For the analysis of this phenomenon the following terms will be central. With visual perception, or simply perception I understand the brain's registration of the visible dimension of the world through the visual faculty. This sounds more unbiased than it is. What we see is in fact present, but in looking we select and taint. Additionally seeing should not to be seen as separate from other types of perception facilitated through our other senses. This explains the synaesthetic, rather than a merely aesthetic perspective that pops up in these discussions. In this article, however, I will discuss perception primary as seeing, without assuming or identifying an absolute distinction between the different forms of perception. The conditions by which we can see I categorize through the term *visuality*. This encompasses the historically changing conceptions related to seeing, as well as the visible world and about the technologies that facilitate viewing, but also make it specific or give it shape.⁸

Visuality restricts and determines both what we see and how we see. The reaction of the individual subject – in this case the car driver – is corporeal and psychic in nature. The concept of *experience* that I use, here, does not make a distinction between these two domains. In the experience the “act of looking” (an analogy of *speech act*) and the response to this,

⁸ The American art historian Hal Foster says pithily: “how we see, how we are able, allowed, or made to see, and how we see this seeing or the unseen therein.” (1988: ix)

unite. Eventually the organization of the highway landscape is dependent on the experience of the road-user. This can only be influenced to a certain extent, from the outside, and to all. The experience that is discussed in this essay is therefore a speculative generalization, but one on which the country-, province- and city boards can focus their decisions when considering its organization.

An interest in the (aesthetic) experience of landscape has a long history in the Netherlands. It is, after all, the land of the Ruysdaels (Jacob and Isaac), Philips Koonick, and other painters who have acclaimed world-fame for their depictions of the Dutch landscapes. The Dutch painters from the seventeenth century are admired for their fascinating landscapes, fascinating because they did not paint from a detached and objective point of view, but an embodied one. The primary attraction of these paintings is the illusion of depth, which suggests that one is pulled from under the branches of a tree, to a lower point in a forest, or that one looks from an imaginary dune top to a flat landscape with a low horizon. These paintings are marked by a specific use of perspective that constructs a vantage point for the viewer as if s/he is in fact present in the woods or on top of the dune. Instead of mere observing the viewer is invited to the fiction of being present, of being part of the scene that is depicted: of immersion.

In continuity with this tradition, yet, as a radical shift, a change occurs when the viewer is no longer placed at a embodied vantage point – when s/he is no longer fixated, that is, to his/her place within the arrangement that is configured within the lines of perspective created on the canvas, between the borders of the painting that is marked by its frame. When the viewer is allowed to, or is forced to move around in order to be able to behold, to capture the scene that is presented, the panorama is born.

Different semi-controllable factors determine the viewing experience, and determine the change brought about by the panorama. I address a few of these factors, in particular those that in the tradition of the panorama, are often held in high esteem. As such the panorama involves more than just a different kind of *view*, reformulating that which from a fixed position within

the space can be seen at a glance. More profoundly, panoramas are experiments of the possibility to transform view into experience.

The three key terms in this consideration – mobility, perception and experience – find their nexus in the moving image. The significance of movement to visuality can therefore effectively be regarded as a *cinematographic perspective*, from which the design of public space can be examined. Such an entry point brings up questions related to design and perception, but also concerning aesthetic and cultural norms. It seems to me that the perspective of cinematography in part motivates the contemporary concern for the highway panorama. It therefore seems useful to approach the difficulties related to the highway panorama from such a position first. Media are pre-eminently relevant benchmarks, and therefore, a media-scientific reflection as part of the way that we think about spatial design and the view from the highway, is relevant. In other words, through a comparison between the different types of experiences of and by media, perspective cinematography is relevant when conceptualizing the panoramic experience of driving. In the remainder of this paper I offer an attempt at such a comparative conceptualization.

Panoramic Desire

What is the significance of the panoramic experience, why is it something to invest in? The French anthropologist Marc Augé in his influential *Nonlieux: introduction à une anthropologie de la surmodernité* (1992) wrote that we live in a culture where we invest in the spatial arrangement of non-defined places, places where people pass *through*. He calls this culture “supermodern”. According to Augé, the world is increasingly composed of these “non-places” (*nonlieux*): public places of passage, or knots in a network, places without history or identity that signify mobility, communication and consumption. Residing at these places, but also residing on the road, in the car, train or other mode of transport, we increasingly value how we spend our time on earth. This in part explains the perpetually

rising interest in the quality of experiences at these places of passage during transportation.

The value attributed to the time spent traveling foregrounds the way a landscape is not only a natural, but also a historical area. The design of such a historical, hence, changing place is based on cultural norms. Terms such as historical appreciation, nostalgia, cultural history and landscape conservation, play a decisive role in this bond between history and cultural normativity. It is therefore not surprising that in this project particular attention is suggested for the guidelines of the design related to the view from the highway of local landscape identities, defined by means of a cultural-historical landscape analysis. In an attempt to address local specificity as well as uniqueness, a search is conducted for the typical, irreplaceable qualities of certain locations. The objective of this search is to make the norms underlying such qualifications explicit in the panoramas within the region. The view allows for a relation to be drawn between the highway as indefinable non-places, a temporary residence of passage, and the local landscape as a place with an identity, where the quality of the place and the aesthetic experience of the people traversing it can be brought together. In short: the view is transformed to a panorama – fulfilling the desire to transform the non-lieux into a place, into an experience.

The desire to (visually) simulate reality through art and technology is maintained by diverse, but co-extending ambitions. On the one hand we are driven by the (unattainable) desire to perfect the reality illusion from a scientific ambition to draw out the world, to comprehend, to understand. Because the operation of human perception is perceived as a direct portal to knowledge, it is important to understand how this works.⁹

On the other hand, we are fascinated by the spectacular of immersion, an overwhelming *experience*, which is brought about by reality simulation. The portrayal of the world from a desire to make an authentic duplicate has a long history, from cave paintings to Disney World, from trompe-l'oeil

⁹ The cultural historic role of “machines of the visible” is discussed, for example, by Jonathan Crary (1990) and Martin Jay (1988). For a discussion of the meanings and discussions on visibility of art history and media studies, see Anne Friedberg (2006).

paintings to digital animation, from the panoramic painting to the Holodeck in Star Trek. However, the way in which this desire is fuelled by an ambition for an overwhelming, spectacular visual experience is specifically characteristic of the modernity of the late nineteenth and twentieth century. In that period, a specifically panoramic desire took shape.¹⁰

Inventing the Panorama

The term panorama is used in describing different phenomena. At first instance "panorama" refers to a view or vista. However, this does not imply that the view surrounds the spectator. In addition to this visual experience the term panorama is also used for media installations and technologies that facilitate realism and emphasize the spectacular nature of the experience of "looking around." Looking at media trends over the past 200 years that have been referred to as panorama, it is striking to note the high level of contradiction found in the primary assumptions on what should be considered fundamental to the panorama in regard to its *visual effect*.

The neologism "panorama" is a combination of the Greek words *pan* (everything) and *horama* (sight, that which is visible). The term was first used in 1791 in an advertisement for a large cylinder painting where a natural environment was depicted. Panorama was in fact the second name of an invention that was patented earlier by Robert Barker under the name "La nature à coup d'oeil" (nature at a glance) in 1787. Following this new name of a specific medium of circular panoramic paintings, the name panorama was subsequently used for other media and genres, from widescreen photography to cinematographic *pans* –horizontal as well as vertical – in-depth shots, and the IMAX widescreen cinema, to interactive digital simulation on the Internet and Virtual Reality surroundings. Within the media domain the term refers to both the realistic and to the impressive,

¹⁰ For the role of (visual) sensation and spectacles within modernization and the advent of mass culture, see for instance Vanessa Schwartz (1998).

spectacular effect of immersion, in other words, to the visual experience facilitated by these media.¹¹

The main reason why the term is used to describe different phenomena is that panorama in fact denotes a form of abstraction. To be precise, the term panorama is primarily used to refer to specific characteristics related to vision: the experience of the limitless visual perception. It refers to an omnipotent visual dominance where the feature of screen encirclement, and in the extension of this the fact that the spectator can choose the direction he/she looks in, are perceived as central facts. In the patent applied for by Barker we find these two characteristics defined. For this reason I cite from the text at some length:

Now know ye, that by my invention, called La Nature à Coup d' OEil, is intended, by drawing and painting, and a proper disposition of the whole, to perfect *an entire view* of any country or situation, as it appears to an observer *turning quite round*; to produce which *effect*, the painter or drawer must *fix his station*, and delineate correctly and connectedly every object which presents itself to his view *as he turns round*, concluding his drawing by a connection with where he began. He must observe the lights and shadows, how they fall, and perfect his piece to the best of his abilities. There must be a circular building or framing erected, on which this drawing or painting may be performed; or the same may be done on canvas, or other materials, and fixed or suspended on the same building or framing, to answer the purpose complete. It must be lighted entirely from the top, either by a glazed dome or otherwise, as the artist may think proper. [...] The entrance to the inner inclosure must be from below a proper building or framing being erected for that purpose, so that no door or other interruption may disturb the circle on which the view is to be represented. And there should be, below the painting or drawing, proper ventilators fixed, so as to render a current circulation of air through the whole; and the inner inclosure may be elevated, at the will of an artist, *so as to make observers, on whatever situation he may wish they should imagine themselves, feel as if really on the very Spot.*¹²

¹¹ For an elaborate study on the Panorama, see Stephan Oettermann (1997). In his very thorough discussion on the history of the moving panorama, Erkki Huhtamo (2004) clearly establishes how the first use of the term "panorama" is dated differently in studies on the history of panoramic paintings.

¹² A facsimile of the original patent can be found at The Edingburgh Virtual Environment Centre, <http://www.edvec.ed.ac.uk/html/projects/panorama/barker.html>, and the website Adventures in Cybersound on <http://www.acmi.net.au/AIC/PANORAMA.html>. For a

The terms in italics reveal the departure points: Barker does not only address *entire view* and *quite round*, but names the *effect*. The sum of the perception it thus not inherent in that which is visible, but is brought forward by the direction of the gaze of the painter, and thereby the spectators, who themselves are situated at a fixed point (*fix his station*). At the end of the text great emphasis is placed on the illusion, the reality effect of sensation (*feel it as if really*).

Barker is compelled to offer an extensive description as he explains something very sophisticated and to a certain extent “unnatural”. The relation between all seeing and an individual who determines the duration and direction of the view, for instance, is contradictory. Both are ideals, found also in the descriptions of other media inventions and appliances. It is an ambition, a desire for visual dominance, which has to compensate for the limitations in the field of vision.¹³

When we look at the different phenomena since Barker’s invention that have also been termed panorama it becomes apparent how different medial features are being used in different versions of the “panoramic” exploration and the mapping of space. It is determined that in the panorama painting the top and bottom boundaries – the borders of the canvas that mark and reveal the framing of the image – are carefully eliminated. At the top this happened by the elimination of the field of vision, below by the so-called *faux-terrain*, a (three-dimensional) foreground that seems to flow over seamlessly into the canvas, to ensure the illusion of unlimited sight.¹⁴

reproduction see also Laurent Mannoni, Donata Presenti Campagnoni, David Robinson (1995: 157- 158). It is striking how the text almost only addresses the manner of disposition where great concern is reserved for the illusion and attaining the effect of immersion.

¹³ In this context William Uricchio (forthcoming) refers to the reoccurring ideal of immersion against the “partiality of the gaze” which goes back to the traditional panoramic paintings and the consequential panoramas. In my perspective, the latter is a restriction of view, which may have consequences for the inherently limiting characteristic of freedom of movement which interactivity brings with it.

¹⁴ Eliminating the frame is explicitly emphasized in the patent applied for by Barker, when he writes that it is necessary: “to prevent an observer seeing above the drawing or painting” en “to prevent the observer from seeing below the bottom of the painting or drawing, by means of which interception nothing can be seen on the

Setting up a huge circular screen creates a 360° field of vision which can only be viewed entirely by means of the spectator rotating. This contradicts the promise of "nature at a glance". As Uricchio states:

Despite the name [...] the circular format by definition precluded any all-encompassing glance, requiring instead a series of glances and a mobilized spectator (1999: 126).

The last point of the "mobilized spectator" will prove to be crucial in our understanding of the highway panorama.

Movement in the Panorama

Because the panoramic painting fulfilled such a clear desire it followed that further development of the medium was to be expected. Part of these developments incorporated movement of and within the panorama. In the 19th century different variations were developed, as a reaction to the popularity of the panorama, such as the horizontally moving panorama and the diorama created by Daguerre.

These types of moving panoramas developed from the criticism of the limits of reproducing the illusion of reality in the immense, circular panoramas, as Stephan Oettermann writes (1997:63). The size of the canvas evoked an expectation of movement, but in fact emphasized the images' motionless state. The images of vehicles, animals, and people made it increasingly apparent that these stood still. This was seen as a huge constraint, taxing the panoramic desire. The genre apparently supposes a reality illusion that can function in two ways: by movement of the image, or by moving the gaze.

The horizontally moving panorama was composed of a long image that was rolled open from left to right (or perhaps the other way round) as the spectator looked. Through this device an illusion of movement was established. However, what actually moved in this imitation was a

outer circle, but the drawing or painting intended to represent nature." This goes to show that the borders of the screen are considered a representation.

simulation: the movement that was simulated was that of the look of the spectator themselves, not the "view". The spectators' view seemed to be brought in motion because the object of vision – the depiction of the view – was revealed. This can be compared to the moving perspective of the voyager who, though immobile in her car, makes her way through a static landscape.

The movement of the screen itself, the literal unrolling of the panorama before the eyes of the spectator, can be regarded as a theatrical performance. The duration of the performance, in this instance, coincides with the duration of viewing. This is in sharp contrast to the temporal liberty the spectator of the circular panorama possesses. The unrolling variant of the panorama has its roots in the stage decorations of the theater. At the beginning of the nineteenth century these painted rolls, be it temporarily, formed an independent source of entertainment. For this purpose I find it useful to refer to this kind of moving panorama (horizontal) as theatrical panorama.¹⁵

The diorama by Daguerre, a semi-circular panorama with many visual effects that simulate motion, is based on other principles. This type is also theatrical, it too stems from a tradition of performance culture. However, the term diorama has been established so firmly that I feel compelled to treat it as a different genre. The diorama is composed of two screens painted on both sides. Through lighting an illusion of motion in the image is created, such as a sunset or wreath of smoke from a chimney. Additionally the stage, centrally positioned in relation to a seated audience, would rotate approximately 73°. This rotation facilitated interchanging the one screen for the other. A noticeable difference with the theatrical panorama is that the diorama specifically visualized the lapse of time. It was not the sense of spectator movement that was being simulated through shifting the field of vision, but a more general sense of time passing that lies at the fundamentals of a different experience of movement. This experience arises from the

¹⁵ Angela Miller (1996) compares the stationary and moving panoramas and traces the characteristic of the medium of film in both traditions.

transition from one scene to another, or from a natural temporal dynamic symbolized in the sunrise and sunset.¹⁶

Another genre within the panoramic culture with a paradoxical relation to time is panoramic photography. In a strict sense the photographic image offers no movement, but rather a fixation with (the illusion of) reality. Photographic realism, founded in the indexical characteristic of the photochemical image – the literal imprint on sensitive film of light at a specific moment – offers an anchoring in time and place that in our culture is considered to guarantee authenticity. Despite the fact that the indexical characteristic of the photograph fixes authenticity in time – the moment at which the photo was taken has actually passed – movement is not necessary. In contrast to circular panoramic paintings, panoramic photography emphasizes the horizon of the image, just as do the horizontal moving panoramas.

The size and the circumference of the large-scale painted panorama that invites observation in a horizontal fashion is reduced, and flattened in panoramic photography. Reading the image happens either from left to right, or vice versa. This can be compared to experiments in cartography where the sphere of the earth is flattened out, translated to a two-dimensional image. Digital photography adds to this the possibility for individual authority: the spectator can move around “in” a digital panorama. The mouse, joystick, or touchpad cannot only navigate horizontally, vertically and diagonally, but also in or out of depth. As such you do not view panoramic photos at a glance, but you *scan*, however zooming in and out of the image does not occur. The space of the spectator engaged with the panoramic painting is

¹⁶ For a comparison between the panorama and the diorama, see Anne Friedberg (1993): 25-29. The effects of the diorama are also described in van Eekelen (1996): 19. The technology and formation of the diorama are described with great precision and with illustrations and the original patent in the online version of the article of “The Diorama in Great Britain in the 1820s” by R. Derek Wood (1993) at: http://www.midleykent.fsnet.co.uk/diorama/Diorama_Wood_1_1.htm.

simulated but may be enhanced since the depth of field of the image can be manipulated.¹⁷

The aspect of movement, inherent to exploring space, from and within the panoramic image itself is characteristic of panoramic cinematography. In contrast to the panoramas mentioned earlier, where movement is reliant on the spectator (panoramic paintings) or the user (digital panorama), the movement of the gaze in panoramic cinematography has been previously recorded, registered, and also fixed by the eye of the camera. In the beginning of film the term panorama was used to describe different film experiments. As Uricchio (1999) has pointed out, it was not only the most frequently used genre label in film titles prior to 1915, but the term was a way of categorizing a large range of films: from train films, to stationary total shots, to images shot from high buildings or hot air balloons. The most striking similarity between these films is their dynamic exploration of the depth of the images, in contrast to the horizontal orientation of the two-dimensional panoramic paintings and panoramic photography. Cinematography added not only a temporal element to the static image when the moving image had yet to be discovered, but this movement also offers the ability to explore the dimension of depth in the image.¹⁸

A panorama concerned with both movement and depth frequently crystallized into the so-called phantom rides. These are films shot from a moving train, subway, boat, car or even air balloon, where in most cases visual references to the mode of transportation are avoided as to ensure that the spectator is transported through the screen as a ghost. This film archetype is still very popular and takes on different forms. Consider, for example, the excess of car chase scenes on television and in films such as *SPEED* (Jan De Bont, 1994) or *THE FAST AND THE FURIOUS* (Rob Cohen, 2001). The attraction of these images is the result of a combination between

¹⁷ For a clear explanation as to the technical aspects of the panoramic photo and the consequences this has for perspective, see Ton Rombout (2006).

¹⁸ Here the panoramic film can also to be perceived as the successor of the stereo photography. This was, in the 19th century, the basis of popular entertainment of the 3-dimension photography. Huhtamo (1995) compares the stereoscope with the virtual traveler.

the spectacle, evoked by the sensation of a visual rollercoaster, and the stimulating urge the spectator shares with the main character.¹⁹

A panoramic desire is conspicuous in all these inventions and panoramic genres. Whether it concerns simulating circular vision through panoramic paintings, in this extension, the moving view offered in panoramic theaters, fixating movement by film, or the interactivity in digital panorama, this desire consistently fuels such inventions and their popular success. The aspiration that is fundamental to the continuing cultural desire for panorama is fed, satisfied and further clarified by such visual inventions and technological experiments. Therefore a panorama in all its manifestations is best considered a (theatrical) performance: a performance based on a script, music sheets, or concept.²⁰

Modes of Viewing

But such a term presents its obligations. What remains, then, is the crucial question, to what extent is the spectator part of, a participant in the panoramic performance? Within art and media sciences there is a lot of discussion about visual perception, the construction of perspective and the role movement and mobility have in this.²¹ First of all, within this theoretical debate, the mode of viewing where the spectator is left out of the equation is separated from a more dialogic, engaged way of looking. This first form we can call monologic; it is also sometimes referred to as colonizing. Linear perspective is based on this. In a strict sense the spectator stands at the

¹⁹ For a comprehensive discussion of the early phantom rides, and how the film "archetype" was connected to other visual spectacles and cultural practices such as travel and tourism, see Verhoeff (2006: 282-295). Giulliana Bruno (1997) discusses at great length the way in which visual transport of these panoramic films offer a way in which urban space should be visually designed. For an example of the deployment and probing of phantom rides in contemporary art, see Stan Douglas' installation *Ouverture* from 1986.

²⁰ Performance is not the same as performativity. The first term is derived from theater, the second from the philosophy of language. Performance refers to the stage of a public setting. Performativity refers to the notion that acts (of language) bring about effects that are not reducible to meaning. For a discussion of the distinction as well as the similarities between performance and performativity, see Mieke Bal (2002) and Marvin Carlson (2004)

²¹ A useful overview of the discussion can be found in Sturken and Cartright (2002).

boundary of the field of vision, but crucially, outside of it. A partial circle encompasses this field of vision, creating a horizon and a vanishing point. The principle is directly applicable to driving on the highway, but than this is the only similarity that can be established. The perspectival spectator is motionless. He represses – to use a psychoanalytical term – the participation of his own body in the viewing process, and embraces the field of vision without participating in it.²²

In the extension of this perspectival view stands another form of monologic viewing, namely voyeurism. Here the spectator is also left out of the scene altogether. Instead of optically falling beyond the field of vision, the spectator, who is utterly object-oriented, closes himself off, by staying behind a curtain or otherwise staying invisible. Here, however, a crucial distinction must be made, which impacts on the cultural appreciation of this mode of looking. The object of the voyeuristic eye is not a segment of the world, but in fact a person. The erotic arousal this stirs is dependant on the invisibility of the spectator. As such it remains a monologic way of viewing. Despite the fact that there is a similarity of principle between perspective and voyeuristic viewing, the effort necessitated by the voyeur in order to stay clear of the spectacle seems to suggest that the assumptions central to perspective viewing are incorrect. Not a single spectator actually manages to stay out of the scene of looking. The exhilaration, fundamental to voyeurism, takes place within the body of the spectator – hence, this body is implicated.

The panoptic gaze, made prominent by Michel Foucault, is another variety of monologic viewing that implies appropriation. Here, with regard to the corporeal, the spectator remains less bodily engaged than in voyeurism. However this gaze demands – just as with panoramic painting – a mobility of the body (turning around), albeit not for the looker's own exhilaration (as with voyeurism) but to exercise a restrictive power over the objects seen. In summary, these three types of monologic viewing, that is to say perspective,

²² The French philosopher and art historian Hubert Damisch has analyzed the theory and practice of linear perspective in great detail (1991).

voyeuristic and panoptic gaze, are based on one-way traffic. Therefore they carry with them a tendency to self-appropriation.

On the other end of the spectrum are the modes of viewing based on dialogue, on mutual relations and engagement. Here the spectators are thoroughly aware of the implications viewing has on them and their bodily experience. This can be a physical sensation, or a form of physiological effect, such as aggression, repulsion, or attraction. Because of the acknowledgment of response, this mode of looking can be termed dialogic. Here the one being looked at is able to return the gaze. The spectator is not only the subject but also the object of the gaze. Such viewing is emphatically anchored in time. This is where we find a similarity to the experience of the motorist.²³

This experience bears comparison with all the modes of looking outlined above. As with the perspectival spectator the car driver has an overview. This view is limited, by either the horizon or by roads, bridges, industrial terrain and residential areas. But, just as is the case with the dialogical spectator the driver is influenced by what s/he sees. S/he is not protected, as is the voyeur is, and has no fixed position, as the spectator of the panoramic painting has. As a consequence of a combination of these gazes it is possible to discuss a unique highway aesthetic. Unlike the panoptic gaze of the prison guard, the driver is unable to turn around at will in order to facilitate an overview. The experience of viewing and driving – from moving with and sitting still inside a car – is dialogic in the sense that it may evoke aggression, repulsion and attraction or amusement, as well as arouse such responses in the driver himself. The realization that the position in the car is not one of separation, as with the perspectival spectator, is important for the driver. After all, the illusion of such exclusion would lead to security hazards!

²³ The American art historian Jonathan Crary discusses this in relation to stereoscopic viewing (1990). See also Silverman (1996) who discusses Crary at great length. Silverman herself develops the forms of dialogic viewing in greater depth, with the purpose of articulating what she calls an "ethics of viewing".

The Gaze in Motion

To attain a more precise understanding of the gaze of the driver, it is necessary to bring the notion of the gaze in relation to movement and mobility. This is precisely what Anne Friedberg (1993) does in her study of the role of film in what is often termed a postmodern experience. She terms her synthesis, which is relevant here, *mobilized gaze*. "Mobilized" can mean two things. First, it means a "mobile" gaze - one put into motion. However, mobilized also means "summoned" (for military duty, for instance). I wish to emphasize and activate this second meaning of mobilization. The gaze is put in motion, made mobile, but also steered, put forward, and shaken up- even exposed to danger, like the mobilized soldier. From this perspective it is possible to discuss a mobilized gaze. Friedberg seeks to put emphasis on the way in which 19th century modern man makes use of different technologies through which the world can be admired in motion. Examples of these are the bicycle, the tram, the train and later the automobile and airplane, but also the elevator and the escalator. In addition to those means of transport, "wandering" within typical urban architectural environments such as shopping malls, museums, city parks, is a novel and modern phenomenon. As is well known, in the twenties and thirties of last century cultural philosopher Walter Benjamin in his work *Das Passagenwerk* (published posthumously), devoted research to the topic of the nineteenth-century predecessor of urban shopping malls. Composed of separate fragments this book offers in its (lack of) structure its readers a chance to wander on their own account (Benjamin 1999; see also Susan Buck-Morss 1989).

Friedberg establishes a relation between the literally "mobilized" gaze as a preoccupation in contemporary society, with the development of media technology that enable the virtual gaze. She defines the latter as follows: "The *virtual gaze* is not a direct perception but a *received* perception mediated through representation" (1993: 2; emphasis in text). This formulation allows me to discern the causal relation between mobility and

virtuality: transport and mobility nourish a desire to simulate this (and vice versa) – nourish a desire to the secondary experience of looking *by means of* media technologies. This is also relevant when considering the view of the highway panorama. After all, the driver too can choose his/her own path – s/he wanders. And here as well, in fact, the perpetually changing view offers a representation. Trees and buildings flash by, the horizon is constantly changing, the structures bridges and waterways appear, transforming as a kaleidoscope, then vanish.

The panoramic painting, the theatrically moving panoramas and the (stereo) photography transport the audience/spectator in a virtual fashion. The moving image, of film, television, and video, but also later the more interactive technologies such as Virtual Reality, can be regarded as developments in which the virtual gaze – already familiar from paintings and photography – is mobilized again. This re-mobilized virtual gaze stems from two traditions within modern visuality: the mobilizing of the gaze and the virtualizing of the gaze. These come together in the highway panoramas which are real and stable – think of the roads, bridges and residential areas – but also virtual, because the movement of the panorama itself is a perceptual effect of the mobile gaze. This effect is of great significance to the wellbeing of the motorist. He experiences the mobilization in a physical, sensory and psychic fashion.²⁴

Through the combination of mobility with virtuality – the nineteenth century visual revolution – a paradox is made explicit. The movement of viewing, supported and enhanced by the moving image, has become dependant on the immobility of the spectator. Only the gaze is moving, virtually through media or literally through modes of transportation – if the spectator is sitting in the chair of the cinema, behind the computer, in the train, or in the car. But sitting (still) is the starting position from which the moving image can be experienced. According to Friedberg this paradoxical fact stems from the principle of “compensation”:

²⁴ Friedberg (2006) suggests to replace the panoptic model with this mobilized and virtual visual regime. Within media studies the integration of mobility and virtuality is an important adjustment for the conceptualization of the visual perception.

The [cinematic] spectator is not really moving – his/her head and body remain relatively immobile. The visuality here is compensatory, in line with the paradox that I have emphasized elsewhere: as the mobilized gaze became more virtual, it grew to involve less physical mobility, and became located within the confines of a frame. (2006: 162)

The added value of sitting still while watching comes from the desire to have an overview and to optimally experience the sequence – in other words the sequential (and re-edited) shots, as a series of glances. Hence, the image seen is that of the *single-shot*, a recording of a single fluid (camera) movement. According to Wolfgang Schivelbusch, the desire for such a visual experience is, especially in place in the experience of transport by technology, such as with the train (1986). An appreciation of Schivelbusch's theory enables a better understanding of how the highway panorama stands, in continuity and disparity, in relation to the phenomenon I have recognized above as constitutive of the visual revolution of the nineteenth century.

Schivelbusch not only pays attention to the consequence of traveling and tourism in modern society and of cultural expression such as literature and painting. His primary concern is the way in which the experience of modern, technological modes of transport brings forward a fundamental transformation in our experience of time and space. A comparison with the way in which media technologies, such as machines for virtual travel, have rigorously changed the experience of time and space, is inevitable. Consider for instance the impact of the Internet and cellular phones on the acceleration and globalization of the world.

A development that can never be overestimated is the radical acceleration of travel due to the train. Specifically this acceleration facilitated by technology in certain modes of transport has had great implications on the relation between the traveler and the landscape. The establishment of a particular way of viewing has emerged, as a result of such velocity and the associated distance between the traveler and the environment. Schivelbusch calls this panoramic viewing. The panoramic gaze is fast, *scanning* almost, superficial and focused on the depth of the image. That which is close

disappears – literally the objects in close proximity of the moving window are deemed invisible by the speed of motion – and that which lies far away slows time and is visible for a longer period. The panoramic gaze is static and restricted: the window frames the field of vision, and the railway track makes the train projectile. The traveler does not feel the ground; rather, s/he can be said to glide through the landscape. In such a line of reasoning the highway panorama is in fact a prolongation of the panoramic experiences such as mediation and mobilization – to use these terms again – by panoramic painting, circular and immobile, theatrical and mobile, and by photographic, filmic and digital panoramas. And like traveling in a train, the body of the driver remains immobile, regardless of traveling speed. But what s/he sees does in fact have effect, and it should. This makes the performance (in the theatrical sense) of the panorama also performative (in the speech-act sense) so that it becomes generative of a “solicitation effect” in the recipient; the mobile gaze is also mobilizing.

A Panoramic Complex

At this point it becomes possible to have a closer look at the aspects of the panorama that stem from the desire and complex relation between mobility, perception and experience. To do this I introduce the term “panoramic complex”.

To see “everything” – the “pan” in panorama – a view is necessary. It requires a spatial, but immaterial fact: void space. This void gives depth and length to the lines of vision when looking. Here scale is also of importance, the relative proportions of the objects in the visible landscape through which man moves. But this space is also necessary to act as a borderline and accommodate the objects that can be seen. Borders and objects are the (material) elements within the spatial void of depth. Remarkably, the term panorama is used in particular to mark those sites from where the view “begins”: the look-out points from where an the spatial arena is viewed. The panorama perceived of as *location* affords visual access to the arena of the gaze, the field of vision, or scopic terrain.

These different points of departure, from shifting attention from the scopic terrain, of the visual field itself, to the vehicle or medium that transports the gaze, and across this field, to the concrete framing of the spatial and material specific objects within the field, can be seen as fundamental to the panoramic complex. The panorama understood as a complex, encompasses the total spatial-visual arrangement of the following: the point of view (the point of departure of the gaze, in other words: the position of the spectator), the field of vision (the full width and height of the scopic terrain that encompasses the gaze) and the lines of vision (the lines of movement of the gaze), as “eye catchers” – the material elements of that which can be seen within this field.

A panorama can thus be regarded as both a view and *mise-en-scene*. A staged scene is more than a view. It is a picture that can be seen in a glance, while its unreeling occurs in time. It may require a specific amount of time to “happen”, to unroll. A scene also appeals to its experience, of its temporality for example, and in terms of aesthetic experience. It is the arrangement of the frame in which objects and people are found, and events can take place. The scene suggests that all that occurs within the frame belongs together; that it forms a unity. From this perspective, architects can arrange these elements. When we assume that the spectator perceives the frame as a unit, then their activity can be seen as staging. Staging implies directing experience. In light of this, staging can be thought of as composing, arranging, the elements focused on the aesthetic effect.²⁵

This aspect of staging also demonstrates that the elements that are put on display have an aspect of attraction: the elements within the arrangement have an aesthetic and attractive function. The view can thus be regarded as the (aesthetic) effect of a staging of elements that is seen with a panoramic gaze, facilitated, enhanced, restricted or influenced by a medium.

As has been demonstrated in the previous paragraph, aside from the (void) space that it requires, the panoramic gaze is also supported by

²⁵ This aesthetic effect of staging is thus different from a dramatic effect of staging that we are familiar with from theater and performance culture.

mobility. Without movement, without the mobility of the gaze, the space is not seen in its entirety. The panorama is never just a static visual experience, it is an experience based on movement. This movement is plural and diverse: it is in the movement of the eye and the alternating focus on different points in the field of vision – zooming in- and out, scanning over the territory. But it is also in the movement of the entire body, assisted as it may be by a means of transportation or a technology of movement. In this movement the corporeal fixation of the gaze is an essential component of the panoramic complex. This has consequences for the experience: by means of varied roles of movement, the panoramic gaze is inseparable from the temporal dimension of the panorama. The panoramic gaze is best understood as viewing in a dynamic fashion, a visual relation between the spectator or subject, space, and time.

The Windshield as Screen

In the preceding I addressed the characteristics that are fundamental to the panoramic experience, namely the integration of movement and perception. When we look at the panorama as a spatial concept, as something, which can be shaped, designed, matters become increasingly complex. The panorama is not restricted to a spatial and material conception, but it is rather a dynamic combination of spatial aspects (the scopic field, the material elements, the staging of the arrangement), temporal aspects (movement, rhythm, dynamic) and *subjective* viewing (viewing that leads to experience).

In conclusion, in the example of the highway panorama we should consider the unique viewing position of the driver: the gaze from behind the glass of the windshield. I proposed that a cinematographic understanding of the panorama is useful for a understanding of panoramic viewing in terms of space, time and experience. But also, the other way around: the specific feature of the windshield as a window to the highway panorama offers apparent similarities to the film image. In the first place, in both cases the view is framed: the film screen offers access to, but also limits the field of vision, just like the windshield the window is transparent but restricts. Here

another similarity with the canvas of a painting or the confines of the photo is apparent. Secondly, the screen and the windshield are similar to one another because they both function as access, portals or gateways to the moving image.

The window can literally and figuratively be opened, and the spectator can gain visual as well as virtual access to the world that lies beyond. Within media sciences the window is used as a metaphor and functions as an expedient to better understand the relation between the spectator/subject and the image that is viewed. In the instance of the highway panorama from behind the windshield we are in fact dealing with the inverse situation. A comparison to the film spectator could help us understand how viewing from an automobile works, what considerations we should make when designing the space that is being viewed. This makes the region along the highway an aesthetic object of the (mobile) gaze of the passer-by. With this we go back to the space: virtual travel (through media) becomes genuine travel yet again.

The velocity at which people move through a landscape determines how people see and experience the scenes that pass before their eyes. Combined, these scenes, in the order of their perception, create a sequence. It is no coincidence that this term can be traced back to cinematography. But in contrast to highway traffic, the film spectators themselves remain immobile. The driver, however, cannot alone determine the velocity him- or herself. The other vehicles that pass through the landscape at the same time – by the guidelines and laws that establish speed, but also according to traffic – demonstrate the restrictions of individual choice. Every driver is part of an ensemble, of a time- and place-determined set of drivers.

This situation invokes the need for yet another concept: *flow*. Road-users are the combined participants of a flow, from which they view and see the landscape. With the term flow I refer to a combination of a series of factors, which transforms scenes into a smooth consecutive sequence: scenes, velocity, scale and experience together structure the flow. The comparison to the film spectator explicitly implies that a visual experience of

the driver can be interpreted as a sequence, a flow or current of scenes that are sequential, just like the filmstrip that passes through the projector.²⁶

The view of individual panoramas is embedded in a long stream, a panoramic stream if you like. This should be taken into consideration in the design and preservation of the panoramas: despite the fact that certain locations can be termed panorama from a pragmatic consideration where broken down spatial areas should be given a destination, the highway panorama is best understood as a long stretched-out panorama. Not only rhythm and variation *within* a panorama, but also variations of the sequence between a series of diverse panoramas along certain routes, must be included in the strategies for design in the regions that intersect the highway. From this perspective a proposition for a route design should, at the very least, be placed next to a regional design.

Comparing the windshield with the image or film screen particularly emphasizes the aesthetic experience that is central in the design. Aesthetic and cultural values therefore play a large role in the design aspects and principles, but may also collide. That which from a cultural historic perspective is deemed valuable or useless is not always granted sufficient appreciation. In addition, there are also panoramas that, despite having been well designed, are simply tedious or unattractive.

It is impossible to address these issues by drawing up general guidelines and from this starting point. Every region should be addressed in their individual cultural historic characteristics and scenery. But in the case of the panorama, the old panoramic paintings as well as panoramic film, it becomes clear that what counts is not the elements within the panorama. It is the combination between the experience of mobility and the dynamics of viewing that matters. Designing a moving image is a cinematographic design of the view from the highway. We should therefore consider that the

²⁶ Lauren Rabinovitz uses the term flow to describe the visual impression of movement in phantom rides: "The continuous flow of motion delineated the visual and temporal information within the frame as that of objects rushing toward the camera." (1998: 140)

aesthetic qualities of the moving image – which can be perceived of as both possibilities and restrictions– of great significance.

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