

PETRAN KOCKELKOREN    What role can an artist play in a media culture? The tone for answering this question was already set in 1936 by Walter Benjamin in his essay *The Work of Art in the Age of Mechanical Reproduction* (Benjamin 1969 [1936]). Printing and casting techniques have made works of art endlessly reproducible. In the preface to his famous essay, Benjamin already pointed out that the contemporary means of production of art render outmoded a number of traditional concepts, such as genius and eternal value. Irrespective of whether we should regret or rejoice at the demise of the cult of the artist as genius and the supposed eternal value of the work of art, Benjamin advances a thesis on a historical rift in the social position and function of the arts. He puts forward the requisite arguments to support this position, which I shall presently evaluate, but I would like to begin by stating that this critical voice has not yet become muted; on the contrary, it is gaining in strength.

Art as research ?

A collection of essays by leading museum directors, art critics and others involved in the art circuit was published in 2003 under the title *Kunst in Crisis* [Art in Crisis] (Wolfson, ed., 2003). Although the crisis that they identify is interpreted in a wide variety of different ways, the complaints are pretty much in unison. The difference between museum art and the visual language of the street is becoming blurred. Art is falling prey to massification and dumbing down. On the one hand, museums surround their collections with a mass of trivia to promote merchandising, while on the other hand graffiti, fashion, video clips and computer game graphics enjoy an unprecedented popularity and even find their way into the museum. Blockbusters are all the rage. In the meantime, individual artists invest in an image that can be exploited commercially, or disappear in artists' collectives that inevitably emerge in the vicinity of media laboratories because of the complexity of the equipment required. There is hardly any consensus as yet on quality criteria. To cope with the flood of images, calls are issued for a new craftsmanship or a new engagement on the part of the artist. Seen in this light, the gloomiest of Benjamin's prophecies is being fulfilled seventy years after their publication. However, there is an alternative to craftsmanship and engagement as the only responses to massification and commercialisation: art as research. This is a fairly new slogan, but it has already led to a number of conferences involving mainly academics. The fact that this is the level at which the debate is being conducted in the Netherlands is due to practical reasons. The Dutch educational system was recently reorganised along Anglo-Saxon lines.

The gap between the art academy and the university has been reduced, and bridges are being built on both sides. One of the new issues is that of whether a Ph.D. in the arts is an option. This is already common practice in the UK and in Scandinavia, but usually in the form of a double assignment: the work of art is accompanied by text and commentary. But can art itself be practised as research, instead of having to duplicate the artistic research verbally as a form of self-legitimation? And if so, what should such research focus on? Remarkably enough, Walter Benjamin was the first to indicate this possibility in the essay mentioned above.

For a long time Benjamin's text on the work of art was mainly cited by cultural critics with an aversion to technology. The concept of alienation played a key role in the philosophy of technology from the beginning of the twentieth century. Technology, it was argued, would lead to cultural uprootedness and levelling, consumerism and superficiality. That is the diagnosis with which Benjamin's text begins too. He laments the loss of the aura of the unique work of art. I shall pass over the discussion of the aura, as I am more interested in what Benjamin posits in its place. After all, he begins his text by asking not what is lost, but which new possibilities are opened up by the new technologies of the time, such as photography and film. What audiovisual impact do the media make on culture? How do the new images help people to cope amid unprecedented experiences, such as the accelerated tempo and mass movements? Benjamin tried to understand cultural change in terms of its material technological conditions, and assigned a pioneering role to art in that process. That first attempt points the way to a more precise qualification of the social role of art as research.

We live in a technological culture. Our experiences and sensations are completely mediated by language, art and technology. The first philosophers of technology – from Marx to Heidegger – developed their theories of alienation under the influence of the technologies of their time, among which assembly line mass production was the most striking. It is hardly surprising that they referred to technology in the singular. Benjamin witnessed the dawn of a new era. He inquired into the effects of different kinds of technologies in the plural. He was no longer solely concerned with cultural loss, but investigated cultural genesis and cultural transformation too.

The analysis of the media – I shall not confine my remarks to the media of communication such as newspapers and television – expanded in the second half of the twentieth century to become a philosophy of technological mediation. Philosophers like Don Ihde, Bruno Latour and Régis Debray developed the necessary conceptual tools.

The so-called new media – forming a part of the recent digital revolution – have triggered a spate of reflections, such as the book (Re)mediation edited by Bolter and Grusin (2000). I would like to set Benjamin as a pioneer in that tradition. However, I am not concerned with explaining or rehabilitating Benjamin or any other big name. On the contrary, by following this line of thinkers, I would like to ask what art and artists contribute on their own terms to the development and diagnosis of culture.

Starting with Benjamin, I first elaborate the theory of technological mediation before analysing works of art in that light as artists' research projects. The emphasis is on an inventory of best practices in this field, mainly drawing on the work of Dutch artists. In the space available it will be impossible for me to do full justice to all of the artists mentioned, but this preliminary survey still provides all that is necessary in order to compose a profile of art as research.

## CULTURAL DIAGNOSIS

The changing function that the work of art acquires through its reproducibility has consequences for the appreciation and justification of artists. The new relations 'brush aside a number of outmoded concepts, such as creativity and genius, eternal value and mystery' (Benjamin 1969, p. 218). The distraction offered by photography and film replaced serious contemplation among the public. Because of these statements, Benjamin has often been regarded, in spite of himself, as a conservative cultural critic who regretted the disenchantment or secularisation of the work of art and put the blame for this on technology. This, however, is a misrepresentation of Benjamin's position. After all, Benjamin's essay continues by investigating which new relations are instigated by art forms that distract. 'But the instant the criterion of authenticity ceases to be applicable to artistic production, the total function of art is reversed. Instead of being based on ritual, it begins to be based on another practice – politics' (p. 224). And in connection with his penetrating analysis of film, he arrives at the conclusion: 'In the decline of middle-class society, contemplation became a school for asocial behaviour; it was countered by distraction as a variant of social conduct' (p. 238). Benjamin is here writing as a Neo-Marxist critic who comments on society explicitly in terms of its material conditions of production. The new media of his day lead to experiences of a different kind that enable people to adjust to the 'profound changes in the apperceptive apparatus – changes that are experienced [...] on a historical scale by every present-day citizen' (p. 250). That is nothing new in itself, but is a recurring process: 'During long periods of history, the mode of human sense perception changes with humanity's entire mode of existence' (p. 222).

According to Benjamin, the present era is characterised by unprecedented massification and accelerated tempi. Reproductive technology and mass society are closely intertwined and are condemned to one another. Still, Benjamin's position requires some qualification. Although he claims that a radical historical break has taken place, caused by mechanical reproducibility, it is rather the reverse: old works of art appear in a new light when seen from the mediated experiences offered by contemporary media art. This establishes a new continuity, not in a direct line leading from the past (Benjamin is right about that), but rather the reverse: retrospectively setting out from today's discovery of what art has always brought about. For art contributes to the mediation of perception, which is variable in cultural history, and to the related disciplining of the senses.

With regard to their working methods and effects on society, there is little difference between a painter and a contemporary media artist, although it is easier for the latter to make the mediatory character of their work explicit – that is called hypermediation. Artists can explore, criticise and change the cultural disciplining of perception in their day; in fact, they have always done so. By placing so much emphasis on the loss of the aura of the unique work of art, Benjamin unnecessarily exposes himself to the charge of harbouring nostalgia for a more 'natural' or more 'metaphysical' view of the role of the

arts. Nevertheless, he concludes by stressing the political dimension of artistic practice, and he demonstrates the ensuing need for a cultural case history (or critical act of recall) that retrospectively diagnoses cultural expressions. That is the path I would like to explore further.

There is no need to start from scratch, because several studies have already appeared that can be read at least as cultural case studies of this kind. Elsewhere – in *Technology, Art, Fairground and Theatre* (Kockelkoren 2003) – I have described and commented on this route. Without claiming to offer a full survey, I shall briefly outline three historical transitions. These sketches will then help to situate the work of contemporary artists within a tradition of previous mediations and their artistic expressions.

Already in 1927 – well before Benjamin's essay and before his premature death in 1940 – the art historian Erwin Panofsky published his famous study on the origin of linear or central perspective in the Renaissance (Panofsky 1991 [1927]). Panofsky claimed that linear perspective is not just a device to formalise a 'natural' way of looking. People perceived in a different way in the Middle Ages, as the composition of their paintings shows, in which distance was suggested by vertical stacking, while the format of the people and objects depicted barely decreased in relation to their distance. Central perspective, on the other hand, called for a completely different arrangement of the gaze. A new regime of perception put an end to the medieval variant. The main characteristic of the new regime that was introduced is that the central perspective defines and imposes an observation point. A painting done in central perspective is composed from a single, in fact monocular point, and that is how it is to be viewed too. Panofsky even went so far as to derive the philosophy of Descartes, in which the autonomous subject occupies the central position in the perception of the world, from the activities of the painters who preceded him. That thesis is fairly controversial, but his account of the cultural transformation of perception is not. His argument that the point of view of the spectator is the hub of the modern world view that was emerging at that time has met with widespread support, not only among art critics but also among philosophers and in cultural studies to date.

Panofsky pinpoints the cultural change in perception that marks the transition from the Middle Ages to the Renaissance, but he pays little attention to the material conditions that made such a transition possible. An analyst who does concentrate on the material conditions of the genesis of the subject, however, is Jonathan Crary, whose *Techniques of the Observer* shows that the construction of the spectator's standpoint depends on all kinds of mediatory techniques, in particular the camera obscura (Crary, 1992). The standard account of the history of photography sees the camera as the successor to the camera obscura, and consequently takes the camera to have automated the production of the indifferent spectator down to the present. Crary, however, refutes the claim that the creation of the spectator's point of view, which was subsequently proclaimed to be the autonomous

subject by Descartes, was actually decisive throughout the entire modern period. New observational devices were introduced at the beginning of the nineteenth century and became very popular, such as the kaleidoscope, stereoscope and zoetrope. All these devices, which rapidly became playthings of the bourgeoisie, require physically involved forms of perception and thus certainly do not establish an indifferent spectator. It is in this period, on the contrary, that Crary notes the genesis of the scientific, empirical observer and his bourgeois counterpart, the amateur researcher. In his view, then, it is not the case that the camera has continued to produce the autonomous subject without interruption. Contemporary observers, on the other hand, are exposed to several rival mediations with their characteristic ways of producing the subject.

Today's subject is the result of heterogeneous forms of disciplining and is produced in cultural clashes. A revealing example of a clash of this kind is provided by Schivelbusch in his book *The Railway Journey* (Schivelbusch 1986). Schivelbusch describes the crisis of perception that occurred when people first travelled by train. A fast means of transport calls for an adjustment to the way of perceiving what passes by. Objects that are near flash by; the eye searches for anchor-points in the distance, but there too stage sets seem to shift in relation to one another and attention continuously jumps from one to another. Moreover, the synaesthesia of the senses collapses: what you hear is not what you see or smell. The senses only converge after an effort has been made, namely the incorporation of the train as a medium of perception. Artists played a leading role in this process. The Futurists in particular rapidly defined a visual idiom to depict speed. We read it today without thinking about it, but it is still an arbitrary cultural codification of perception.

Schivelbusch refers to new terms that were coined to explain the initial complaints, such as psychosomatics and cultural pathology. It is not that a previous, 'more natural' way of perceiving was contested and replaced by a technologically caused artificial gaze. What happened in this transition was that a Renaissance conditioning, namely the freezing of the image through the application of central perspective, clashed with the gaze of the moving subject. Material mediation, though of a different kind, was equally operative in both cases. The gaze in motion is an achievement that still does service in competition with different and earlier visual arrangements.

Although a more complete history of perception in terms of its material mediations is certainly called for, and many more initiatives and monographic studies await integration, I shall leave it like this and return to the question of the role of the artist in the three processes that I have outlined, though a few critical comments are called for.

First, it is naturally not the case that the emergence of the autonomous subject can be directly attributed to the painters who used perspective. The world is too complicated to be explained in terms of a one-way causal chain.

Different cultural factors must have co-evolved, and the importance of a history that takes the material mediations which conditioned that process into account should be emphasised.

Second, even my brief sketch enables one to conclude that cultures are always involved in processes of destabilisation and restabilisation in which the human body is the plaything. Artists are just as implicated in the cultural disciplining and redisciplining of the senses as other mortals are. While writers and philosophers deal with such processes, and may even criticise them, in words, artists do the same pictorially. New technologies and instruments often open up new registers of perception. Artists explore them and on the basis of their findings they come up with a new visual idiom to make the experiences in question accessible for others to experience and interpret. Later still, the new images are popularised, nowadays by means of their endless reproducibility.

Bearing these two provisos in mind, and using the historical transitions outlined above as illustrations, I shall now proceed to the presentation of contemporary works of art and artists, most of them from the Netherlands. They relate more or less explicitly to the cultural conditioning of perception, and propose alternatives that are just as materially mediated.

Willy-nilly, artists are accomplices to new forms of cultural conditioning. But they can just as easily adopt a critical attitude towards entrenched habits of revealing reality through technology and set out in different directions from those indicated in the manual supplied. Artists' research can bear on either line of approach. They can explore new mediatory technologies and provide them with an appropriate visual and auditory idiom, or their work may be a hypermediation of the cultural conditionings in which they are inevitably involved. In both cases they conduct original visual research that is different from both research in the natural sciences that can be replicated and tested, on the one hand, and research in the cultural sciences that deploys primarily verbal means, on the other hand. Though only provisionally for the time being, I distinguish five forms of artistic research on cultural mediations of the senses: recursion (reopening perspective); remediation (reopening media); conversion (the switch from one sense to another, both mediated); translation (translations of scientific visualisations to the popular experience and imagination); and reorientation (providing new ways of interpreting the space around us).

THE ARTIST AS RESEARCHER  
1 / RECURSION  
(REOPENING PERSPECTIVE)

The work of Panofsky was pioneering in so far as an art critic ventured on the terrain of cultural philosophy and freed philosophy from its discursive presumption. Philosophy is supposed to proceed from text to text. Philosophers write books in response to one another's books. And Panofsky condescended to admit that philosophy is probably no more than a consolidatory response to material forces that threaten to disrupt the

cultural balance. That has far-reaching consequences. Descartes upgraded the spectator, assisted by the perspective painters, and declared him an autonomous subject and the touchstone of the truth about perceptible reality. But, seen from the new perspective, the validity or shelf life of philosophical concepts may be as short or long as the mediatory technologies on which these concepts are grafted. With the disappearance of the camera obscura and the appearance of the train, the position of the autonomous subject was undermined. The camera offered it a temporary refuge, but even there it remained under fire. I introduce two artists who use photography to contest and undermine the position of the spectator, thereby giving shape to philosophy with other means.

Gerco de Ruijter creates a stir with photographs taken by a camera that flies attached to a kite. The camera is operated from the ground. The photographs are of the Dutch landscape: polders, river forelands, dykes, industrial sites, fields, cattle grazing in meadows. The standpoint of the camera is arbitrary, the position of the spectator is unmanned, the horizon of the photograph is an arbitrary selection without deliberate composition. Gerco de Ruijter is in dialogue with the Renaissance tradition of rendering landscape.

That tradition is by no means so uniform. Svetlana Alpers wrote a famous book, *The Art of Description* (Alpers 1983), in which she contrasts the Dutch tradition of landscape painting with the ideas of the Italians. The latter were masters of central perspective and viewed the world on the ground with their eyes screwed up. The Dutch artists, on the other hand, were experts in the bird's-eye view, as seen diagonally from the air. Moreover, they read the world like a map. They did not subject it to a mathematical construction as the Italians did, but assigned priority to the legibility of the texture, the expression of the material. In this respect they were closer to the empirical tradition of Francis Bacon than to the equally constructive tradition of Descartes.

Vermeer is Alpers' champion of the Northern Renaissance. It is obvious that Gerco de Ruijter is closer to Vermeer than to the Italian school, but even so he still contests the bird's-eye view. There is no privileged point of view in his work. There is no arbiter of perception at kite level. The subject position is empty. These photographs are in line with the postmodern notion of the death of the subject, as announced by Roland Barthes and Michel Foucault. All the same, they reveal to us an extremely sensorial world of legible planes and colours, contours and shadows.

The world bears witness to itself in a similar way in the night photography of Wouter Hooijmans, in which he uses exposures lasting several hours. The earliest known photograph in the history of photography is that by Niépce, taken in 1826 from his studio in Maison du Gras, with an exposure time of more than eight hours. It shows buildings with their roofs, and in the distance the contours of a tree. The next mile-stone is the photograph that Daguerre took in 1839 from his studio, entitled *View of the Boulevard du Temple*. By now the exposure time had been reduced to a number of minutes. Daguerre was surprised at the precision of the rendering of the stationary details, but there

was no trace of the people and vehicles in motion, except for the man who had stood at the corner of the street to have his shoes polished. He is immortalised standing on one leg. Everything that passed rapidly in front of the lens was effaced by light coming in all the time. The miracle of the exposure lasting hours is explored afresh by Wouter Hooijmans, with astonishing results. He left his camera with the aperture open for hours in a wood in France, on a moonless night. The only light came from the stars. The night photographs are crystal clear and convey information about properties of the world that cannot be detected in any other way. The leaves of the trees and bushes moved constantly in the night breeze, but none of that can be seen in the photographs. The leaves have a clear-cut profile. Apparently they move arbitrarily in the wind, but oscillate around their centre so often that in the long term the fluctuations are averaged out in a sculptured moment. The same principle yielded even more surprising results when the photographer placed his camera at the edge of a wood on a completely dark night and focused on a pool. When the photograph was developed and printed, the ripples in the water, surrounded by darkness, proved to be as solid as if they had been cast in plaster. There is a gaze that no one has, in which the world stands still amid its movements. Moreover, photographs taken by the light of the sun or moon indicate shadows, which betray the passing of time, but photographs taken by the light of the stars have no shadows. Because the sky rotates at an even, slow pace, the tree trunks are illuminated equally on all sides. If we follow Nietzsche in assuming God to be dead, Hooijmans' night photography nevertheless offers us a timeless view of the world. That is what the world looks like when you are no longer there, or in your disembodied presence after your death.

Both artists move in the tradition of the medium of photography, that is categorised philosophically as the automation of the camera obscura and thereby of the ongoing production of the autonomous subject. Nevertheless, they sabotage this production precisely by their use of the same media, and in doing so they give the lie to the accompanying philosophy. Recursively, they undermine the artistic tradition to which they belong. They turn it against itself and to counter a historical one-sidedness, they bring to life a world of perception that would have to remain hidden without their research.

THE ARTIST AS RESEARCHER  
2/ REMEDIATION  
(REOPENING OF MEDIA)

A history of technological mediations and their cultural embeddings would not follow the dead straight line of a relay race. There are always several rival developmental trajectories being followed at the same time, and besides previous mediations never go completely out of fashion, even when more recent apparatus with more possibilities becomes popular and eclipses older technologies. Bolter and Grusin speak of remediation: the newer media absorb the older ones by integrating them in more complex equipment with more functions. The camera obscura was overshadowed by the camera, but was absorbed and remediated in film, video, streaming video on the PC, etc.

However, in many cases remediation cancels out properties of the earlier media. The magic lantern has a different enchantment from the slide projector. When an old celluloid film is remediated by digitising it, burning it on DVD, and projecting it with a beamer, the intimate atmosphere of the rattling film projector with its evocation of flickering time is lost. Older video works were sometimes explicitly designed to be shown on a TV screen. For instance, you see a man pressing his nose flat against the glass in an attempt to escape from the television set. Projection onto the wall via a beamer does not produce the same effect.

Media are just like the shifts of paradigm in scientific theories as described by Kuhn: it is not a question of subsuming older theories in new ones without a trace. Instead, the new theories are about something else, they define a different universe populated, by different entities. The worlds are incommensurable, but the new theories still fulfil a large number of functions that were also fulfilled by the earlier ones. Nevertheless, something is lost as well. The same is true of the historical replacement of media. There is no overarching theoretical framework that guarantees their comparability in advance. Technological devices are never just two applications of the same idea. A comparison can only be made at the level of the different repertoires of perception that they open up. That is why museums for video art cannot be content with images that have been remediated on DVD. They have to keep the original works on tape as well as the older generations of equipment, because every device dictates to a certain extent the visual idiom that can be elicited from it. That makes it worthwhile for artists today to start working with older equipment again and to open up afresh the related world of perception. In this connection, Bolter and Grusin point out the ambiguity of remediation: taken as remedy it can also mean to repair what has been lost.

Under the name 'De Realisten' [The Realists], Jan Wierda and Carel Lanter open the velvet-lined stereoscopic box. They try to continue its interrupted development with new insights. The stereoscope was regarded as the peak of realism in the nineteenth century, as the summit of a photography that faithfully represented reality. The two artists derive their name from the camera they use: the stereo-realist from the 1950s. 'The Realists' is a self-deprecatory nickname. Going against the grain of its conformist connotations, the artists investigate the capacity of the stereoscope to open up the world and transform the boundaries of perception. They therefore have a place in a respectable tradition, for in the nineteenth century the stereoscope was at the centre of hotly disputed epistemological debates.

Stereoscopy yields a three-dimensional view of the world. This is achieved by taking two photographs at the same time; the distance between the two lenses determines the effect of depth. Optimal 'realism' is obtained when the distance between the two lenses is the same as that between a pair of human eyes. The wider the distance between the lenses, the greater the apparent increase in depth, because the larger distance makes it possible to see the

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side of an object as well as its front. It is like looking through the eyes of a giant. It was particularly landscape and cityscape photographers who experimented a lot with this giant's-eye view in the nineteenth century for popular ends. At the time the stereoscope was as common among middle-class families as the television is today. The frivolous experiment earned them a rebuke from the Christian community. If God had wanted the world to be seen in that way, he would have set our eyes further apart (Hankins and Silverman 1995). Human proportions, reduced to the width of the nose, were declared the norm and touchstone for representing the real world. What diverged from that was regarded as a distortion of reality by some, or as artistic licence by others. The controversy was settled because the stereoscope with a huge distance between the lenses acquired the status of an instrument of scientific research.

The moon is so far away from us, and the distance between our eyes is so minimal compared with it, that we can only see the moon as a flat disk. But if we could make use of two standpoints on a cosmic scale that enabled us to see both sides of the moon, we would see it as a pockmarked sphere in space. It is difficult to achieve that from the earth.

Nevertheless, there is a small oscillation in the moon called libration, as a result of which the moon shows itself to us from a slightly different angle in the interval of a few months.

If photographs are taken at the same interval of time and shown in a stereoscope, the moon suddenly appears in full three-dimensional glory, floating in space before your very eyes. This cosmic gaze was first achieved using the stereoscope by Warren de la Rue in 1858. Bearing in mind the epistemological controversy that had flared up, he defended himself with the following words: 'We may well be satisfied to possess such a means of extending our knowledge respecting the moon, by thus availing ourselves of the giant eyes of science'. With these words De la Rue appealed to Sir John Herschel, who added: 'lunar stereography entails a step out of and beyond nature' (Hankins and Silverman 1995, p. 171).

Artists prepared the way for the scientific application of the stereoscope and in the course of doing so they fell victim to a philosophical controversy. Since then we know what mediation is, for it is only thanks to the experiments with the stereoscope that the yoke of the fixed standard of reality, based on biological arguments and sanctioned metaphysically, could be shaken off. What any cultural era regards as real is inevitably mediated in some way or another. That is a part of our biological makeup. As the philosophical biologist and anthropologist Helmuth Plessner put it, 'man is artificial by nature'. Today, The Realists are once again opening the books of stereoscopy and venturing further along the road 'out of and beyond nature' as they carry out their remediation. They take stereographic photographs of the canal houses of Delft reflected in the water, but place them in reverse order in the stereoscope so that the reflection becomes a transparent, alternative reality. And they experiment with movement combined with long exposure times in the

stereoscope, so that transparent spirits appear on the staircase. One of their experiments is amazing: they place two objects or images in the stereoscope that are identical in shape, but are made of different material, so that the eyes and the brain are forced to visualise non-existent alloys. The stereoscopic art of The Realists is artistically convincing and obliges us – as involved spectators in the sense that Crary gave to the term – to ask ourselves how we perceive.

THE ARTIST AS RESEARCHER  
3/ CONVERSION  
(THE SWITCH FROM ONE  
SENSE TO ANOTHER)

For many years Felix Hess has been operating on the border between art and science. He was awarded the Witteveen and Bos Prize for Art and Technology in 2003. As far as he is concerned, the question of whether he should be classified as an artist or scientist is irrelevant. It depends on the context in which the results of his idiosyncratic research are presented. That ambivalence was already evident in his doctoral dissertation, which is in physics on the subject of the aerodynamics and movement of boomerangs. He made a stereoscopic photograph to illustrate it. He attached minuscule lights to the tips of the boomerang and threw it as night was falling. The exposure time covered the whole of the trajectory. The stereoscope shows a transparent sculpture in light. Is this just a scientific illustration, or it is already art? After his study of the boomerang, Hess moved to Australia, where he became fascinated by choirs of frogs. He subsequently managed to evoke and copy them using elementary interactive sound boxes. That is no mean feat, and even has implications for how we think about artificial intelligence, but I shall leave that aside because I want to concentrate here on his later research in audio art.

Hess realised that the windows in our home are really gigantic eardrums that register even the slightest fluctuations in air pressure. He fastened a sensor to the window of his living room and connected it via a battery-driven amplifier to a rudimentary sound box that serves as a loudspeaker. The distant rumbling of factories, trains thundering past, cars starting up their engines, the opening and closing of neighbours' doors, the distant churning of washing machines: all were suddenly converted into a pulsating universe. The level of light in a house is usually standardised and carefully maintained within fixed limits. Hess prefers to live amid 'living matter'. By connecting the pressure sensors to his light system as well his house resonates with its surroundings, in the process providing all kinds of incidental signals about atmosphere and weather. The major revelation came when he made a sound recording of five successive days and nights.

The fluctuations in air pressure that are communicated via the window panes give away the life-cycle of the neighbourhood. In the morning the first doors bang, participants in the labour process start up their cars and drive out of the street, at midday there is a brief surge of activity as the children come home from school, and in the evening the morning ritual is repeated in the

reverse order until the quiet of the night sets in. These recordings of human activity with its peaks and dips were then compressed by Hess to one 360th of their duration in real time. This reduces one day and one night to four minutes. In the same direction, the audio reach was expanded enormously, so that infrasounds became audible in frequencies that we cannot usually hear, especially in the low regions. To impart some notion of direction to the sound on this scale, the microphones were placed at a distance from one another of 360 times the distance between our ears, i.e. 64 metres apart. When you finally hear the recording being played back, you hear the cycle of the cultural world woven into the day and night rhythms of nature. That was when the big surprise came.

Depending on the weather conditions, a low buzzing sound could be heard in the background. At first it remained a puzzle. It had to be a sound wave that rose and fell over a period of days. What could it be? A visit to the Royal Dutch Meteorological Institute finally provided the answer. We are all familiar with the terminology of the weather report, which refers every day to areas of high and low pressure. An area of high pressure over the North Sea rests on the ocean like a colossal anvil and creates a vertical wave several metres high on its borders. In other words, the downward pressure creates a sounding board thousands of kilometres from the continent near Iceland. The buzzing recorded on the windows of every house is the echo of the sound waves reflected back over the water. And no human being or animal can hear it without the use of mediatory equipment.

The KNMI was delighted by the audio medium that Felix Hess had brought with him. In fact, it was nothing new to them – after all, they study the graphs of the fluctuations in pressure on a daily basis. They were visually familiar with the peaks and dips of the meters, but it was still scientific knowledge based on models. Hess's intervention enabled them to experience and to hear them. They carried out some experiments. Every type of airplane creates a pattern of disturbance of its own when it moves through the atmosphere. The meteorologists can see that in their graphs as well. But can they also distinguish the different types of aircraft in the corresponding rumblings of Hess's recording?

I call the phenomenon that Hess is investigating artistically in this project conversion. It is about the conversion from one mode of perception – visual in this case – to another – auditory. At the same time it presents an incisive criticism of a culture which since the Renaissance – thanks to the virtually exclusive installation of the spectator's point of view – has been entirely preoccupied with the visual representation of reality. Hess's conversion provides a welcome correction to that picture. He invites reality to express itself, though still in a mediated way, of course. As a result, the world is revealed to us in a new way, one which is as scientific as it is artistic, depending on the context in which it is appraised or used.

THE ARTIST AS RESEARCHER  
4/ TRANSLATION  
(THE CROSSOVER BETWEEN  
SOCIAL DOMAINS)

On the one side, the field of the arts borders on that of science and technology, with their models and devices. On the other side, the field of the arts borders on the market, where the masses are to be found. Around the market are the stalls of the showmen and quacks. Whoever wants to enter the market from the sciences will have to pass through the field of the arts as well as crossing the fairground. That is what usually happens: scientific discoveries and technological inventions are done in the laboratories, are then made available to professional practices (the army, hospitals, training courses for air pilots), percolate through the art world, where artists experiment with them, and are finally introduced to the public at large via the fairground and the theatre, fashion and advertising. The world of the arts extends like a wide strip of no-man's land between the experts, on the one hand, and the world of mass entertainment, on the other. Artists are the serious border crossers and pointsmen.

For the medical sciences, the short cuts and smuggling routes between professional practices, artists' studios and the public have been charted by Lisa Wainwright in her book *Screening the body, tracing medicine's visual culture* (Cartwright 1995). A similar exercise was conducted for the Netherlands by José van Dijck in *Het Transparante Lichaam, medische visualisering in media en cultuur* [The transparent body, medical visualisation in media and culture] (Van Dijck 2001). Both books provide entertaining illustrations, such as the popularisation of X-raying (Cartwright) - I can remember the X-ray machine in shoe shops in the 1950s, which showed you where the shoe was too tight – and fun echoscopy (Van Dijck). The border posts are explored and guarded by artists.

Annie Cattrell is an artist from Scotland who works in London. Her work is an artistic crossover between medical and meteorological imaging technologies. She is interested in the physicality of consciousness. Her work is categorised as belonging to the artistic tendency called The New Anatomists. Under the motto of *Seeing our Senses*, she used rapid prototyping technologies (three-dimensional printers) to visualise the regions and parts of the brain that are addressed by the different senses. Her meteorologically inspired work includes recordings of drip patterns in clouds (Vapours), and recordings of hours of sunshine using a sunshine recorder (Aperture).

In each case, she makes scientifically acquired knowledge available visually to a lay audience, enabling it to internalise the images in question and thereby to learn to understand itself in a new way. While medical technologies such as CT and MRI scans seem to expropriate our bodies, she returns them in a brilliant and absorbable transformation. Her sunshine recordings do something similar with meteorological observations. They consist of metal plates in which perforations have been made using laser technology corresponding to the number of hours of sunshine per day. A series of plates visualises a week. This form of stimulating recollection sometimes provokes emotional reactions on the part of individuals among the public, who, when confronted by these images, ask themselves what they were doing that day and how it

synchronises with the traces that the sun has left.

I call crossovers of this kind translations because they do not switch from one mode of perception to another, but replace familiar visualisations with unexpected new ones. Cattrell's work still has the character of an invitation with no strings attached, done in a gallery in which autonomous art is exhibited. The Dutch artist Esther Polak, on the other hand, organises the appropriation of and involvement with new mediations on the spot as an essential component of her work.

Esther Polak focuses on our orientation in the world. Operating like an anthropologist, she mingled with researchers, looked through their microscopes, and reported on what she saw (in the Dutch weekly *De Groene Amsterdammer*). She went out with bird-watchers and viewed the world through their binoculars (described in *Het lezen is de vijand van het kijken* [Reading is the enemy of looking], 2003). In 2002 she implemented the project *Amsterdam REALTIME* in the Amsterdam Municipal Archive. That project issued an arbitrarily selected number of residents of Amsterdam with a GPS (global positioning system), an instrument that uses satellite transmission to determine a precise position on the earth at any point in time, accurate to within a few metres. The routes taken by the participants through the city in their daily activities could be followed in real time on screen. They left ribbons of light behind them, and together they drew the map of Amsterdam during the day. This project achieved its apotheosis when a participant managed to retrace his steps and to draw a gigantic dove by walking through selected streets. He saw himself as the point of a pencil that he guided by changing his position as seen by the satellite.

The sequel to *Amsterdam REALTIME* was *MILK*. In this project, the GPS tracking device was tried out on milk producers in Lithuania. The idea was to follow the milk from the individual cow belonging to a small farmer in Lithuania to the churn, via the milk collection and milk transport to the milk factory, and from there through Europe, including the Netherlands, where it is sold as cheese on the market. But the preliminary trajectory of the project was already enough to change the perceptions of the participants considerably, and these were food for thought. When they were confronted with the recorded images of their own piece of the milk route, this new form of visualisation turned out to provoke emotional memories and reactions on the part of the producers. People are used to collecting photographs that present their holiday chronologically, for example. But the confrontation with a projected GPS route – where the thickness of the line indicates where they dawdled and hung around – offers a completely different mediated experience from photographs. The routine patterns and deliberately chosen detours are precisely delineated and form a legible record of the past.

The final presentation of the *MILK* project shows the filmed reactions of farmers and milk transporters, who talk about their ties to their region on the basis of the GPS images.

The MILK project is another example of translations between different forms of visualisations of experiences. Moreover, Esther Polak's researches involve a social feedback programme as part of the art project itself, enabling people to orientate themselves in the world in a new way. That is an added value that I shall explore by itself in the areas of environmental planning to bring my inventory to a close.

THE ARTIST AS RESEARCHER  
5/ REORIENTATION  
(IN ENVIRONMENTAL PLANNING)

The development and situation of the work of most of the artists whom I have presented so far take place in the familiar circuit of grants, galleries, museums, art awards. In the second half of the twentieth century a broad and diverse tendency emerged in art that abandoned the museum and hit the streets. It includes performance art (the interface with street theatre), land art (monumental interventions in the environment, often using materials found in situ), and digital media art (sometimes involving the spectator so much in the creation of the image that the unique author disappears). Following in the tracks of Walter Benjamin, I want to limit myself to the theme of cultural transformations of perceptions and their radical historicity, so I shall not go into this trajectory in detail. Nevertheless, I would like at least to point out what is going on there. It is particularly with new variations of land art that I have made an acquaintance since the 1980s.

That there are already new variations in the young history of land art is connected with the fact that the first generation of land artists, once they had got out of doors, continued to create autonomous works, treating the landscape as a large museum space. Morris' Observatory, to give just one example, is a high wall of earth within which you establish upwards contact with the firmament. It was developed for Sonsbeek Buiten de Perken [Sonsbeek Off Limits], but is now situated in the province of Flevoland. The work behaves like a Brancusi Egg: it can be dropped anywhere without having to enter into any relation with the local setting. The artists of the new generation, on the other hand, try to link their work with the genius loci, though here too one can find conservative and mediated variants. In 1996 the artist Jeroen van Westen received an invitation from the Bruggelings Foundation in Almere, which wanted to stimulate artists to create work that would help the colonists in this polder landscape to put down roots. All kinds of information were made available as working material: excavations in which the pole holes of prehistoric settlements were exposed, a map showing the points where shipwrecks were hidden here and there beneath the land. Creating a relation with the genius loci was apparently taken to be an archaising activity.

There was nothing to be seen by the naked eye on the surface of the polder, but plenty for the mediated gaze. Cartographic photographs taken from the air reveal the meanders of former rivers and creeks from their different colour in the fields of grain. And once you know it, it also becomes visible at ground

level. Where rivers once flowed, inversion ridges are now found: the former river beds that drivers experience as bumps in the road surface. Still, they have to learn to read the landscape around them via the shock absorbers of their car. The very car which has the reputation of being a technology that alienates you from a lived experience of your surroundings can thus be the instrument through which you put down roots in the history of the site. The disturbing experiences of travel by train described by Schivelbusch find a contemporary, positive application here.

Van Westen's concluding presentation of his project was a presentation in the Paviljoens in Almere of an Orientarium centred not on the so-called 'natural' experience, but on the mediated one. Laid bare in this way, the polder looks less bleak from now on. In several of his later projects Van Westen has continued in this direction, but by placing signs out of doors. The integration of a social aesthetics in the image has grown in importance in the process, as the local residents are actively involved in collecting the information, the orientation, and the resulting image. This need not be confined to rural environments. Jeroen van Westen has extended his approach to urban landscapes, complete with intersecting motorways, canals, electricity pylons and residual areas that become reintegrated in a legible fashion through artistic interventions. Socially opening up processes of mediations become the profession of the artist par excellence. This is not confined to exploring and visualising the mediation of perception, but is also expressed in guiding the process of its social embedding by means of art. Similar developments are taking place in the transitional areas between art, architecture and public space. It is no longer enough to erect a sculpture on a pedestal in the middle of a square or roundabout. In the historic cities, markets and squares were assembly and meeting places. The authorities flexed their muscles there in bronze and concrete on top of pedestals metres high. Nowadays we have network cities, with housing estates to contain car-bound commuters wedged between the infrastructural lines of traffic and transport. This calls for a new type of artistic intervention that creates space rather than occupying it.

I shall provide two examples from the work of Frank Sciarone.

The Ruischerwaard housing estate in Groningen is enclosed by roads and canals. Frank Sciarone has implemented an ambitious plan there. In a row of plots of land earmarked for housing, he has managed to reserve one plot for a monumental work of art entitled Iso, the Envelope Sculpture nr. 2. A wave as tall as a house now rises between two houses, at right angles to the façades. It is so abstract that you can also see it as the prow of a ship crossing the street at top speed. Thanks to its scale and the way in which it draws a visual line perpendicular to the estate, it connects the houses with the element that surrounds them, water. In an unexpected way it orientates the residents towards the horizon that lies beyond their fences.

His plan for the Marie Heinekenplein in Amsterdam, that will be implemented in 2005, is on the same scale. That large square for traffic to circulate within a built-up area has to be kept clear because it is also used as the emergency

landing place for the helicopters of the nearby hospital. Frank Sciarone wants to introduce a black and white drawing onto the pavement. The drawing is by the seventeenth-century engineer and cartographer Egbert Haubois. It shows a bird's-eye view of a city of that century in which you look down onto the roofs of each house separately. The section of this drawing that is transferred to the pavement in the square is legible if you walk over it, from the flats that overlook it, and even more so from an approaching helicopter. The Dutch bird's-eye perspective of Vermeer and others acclaimed by Alpers is here continued in a contemporary mediated version.

**ARTISTIC ENGAGEMENT** We live in exciting times, and artists have a special role to play. All of the examples mentioned bear witness to different forms of the culturally variable conditioning of perception. They explore this in dialogue with history, visually raise it for discussion, and make it available in all kinds of converted or translated forms. Visual philosophy is being practised as never before. The question that still has to be answered is whether Walter Benjamin, who set the tone of this exercise in 1936, would have been pleased with these elaborations of his theme.

Of course, it should be noted that there are no artists exclusively dedicated to recursion, remediation, conversion or translation. Artists are autonomous in their visual and/or auditory research. And their work is generally already characterised internally by a large degree of diversity, so that it does not always match my categories to the same extent. What makes artistic research so special is precisely the fact that it can never be presented as just an illustration of previously conceived ideas, but looks into friction between word and image on its own terms. And I try to position such enterprise in retrospect in terms of artistic research programmes. That is where the breakdown into different types of mediations comes in useful, although of course artists paint outside the ideal-type lines as they choose.

Art as representation is in its death-throes, while art as an orientating intervention is alive and kicking. Those who lament the alleged crisis in art recommend new craftsmanship and engagement as the cure. That engagement is already amply represented in the mediatory art forms, although if we are to notice it we must define exactly what we mean by engagement. Following Benjamin I like to launch a plea for a normative aesthetic, i.e. an aesthetic that thematises the grip of culture on the body and the senses. An aesthetic analysis of this kind with a normative approach can be carried out in language, but the examples cited in this article show that it can also be done in image and sound. Artistic engagement, on the other hand, is all too often assessed ethically. And ethics is only too readily reduced to discursive self-justification. However, if a plausible case can be made for the thesis that the conceptual constellation of an era is closely interconnected with its material and mediatory substratum, this has implications for ethics

too. Ethics must reflect on the mediations that have consequences for the feasibility of its conceptual framework. In that respect aesthetic engagement is even a precondition of ethical reflection.

There is no need to harangue artists about the need for aesthetic engagement. Whether they like it or not, artists are often engaged in the historically and culturally contingent mediations of perception. They explore new visual and auditory idioms and thereby help to facilitate new disciplinary arrangements. But exposed as they are to heterogeneous cultural conditioning, they can adopt a critical attitude towards them, not from an elevated standpoint – for the privileged position of the elevated spectator has been evacuated – but from a lateral position. That is the direction in which Benjamin pointed them, and we have seen how busy that road is already becoming. Artists show their reflexivity in their visual work. Through their very activity they articulate unprecedented subject positions in stereo. That is a cultural task that used to be assigned to philosophers of the stature of Descartes and Kant. That is why philosophers – no doubt with the full approval of Benjamin – should welcome artists as appreciated allies.

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