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Into The Belly of the Image:

HistoricalAspects of Virtual Reality

Today, Virtual Reality is seen by many as an entirely new phenomenon. However, the idea of transposing the audience into an enclosed, illusionary visual space was not born with the invention of computer-based Virtual Reality. VR revives a central idea about the connection between man and picture, and is a constant phenomenon which can be traced back to Antiquity.

Illusionary Spaces of J60

Virtual Reality can mean, for example, an area of ritual action, a private, artificial paradise or a public sphere of politically suggestive power, important aspects of the idea can be explained by focusing on historical examples - a visual history, the symptom of which is totality.

Already in late republican Rome, in the second Pompeian style, there were wall-paintings which extend the room by an apparent opening of the wall representing actual views into other spaces. A particularly forceful example is shown in one of the most famous frescoes of antiquity in the *Casa de Mysteriat* Pompei, dating from 60 B.C. [Figs. 1&2]



Figure 1

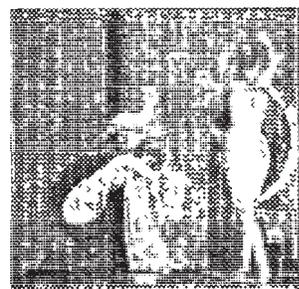


Figure 2

The audience finds itself amidst a series of life-sized, highly realistic figures. Some appeal directly to the recipient, others communicate with each other, from wall to wall, across the real space. The borders between visual and actual space seem to dissolve, the figures move apparently in real space. Visitors to this room are trapped in the gaze of the figures which hit from all sides and don't let go. The illusionary space surrounds the spectators entirely, 360°, fixing them all into the same place and time.

This is the initiation or cult room of a Dionysian community in the visual presence of Ariadne and Dionysos a mystical consecration is being prepared: women, filled with divine presence, make sacrifices, servants unveil an erected phallus, the *liknon*. A female initiator, expectant and frightened by the Epiphany and a dancing Bacchant covered only with a veil are represented. At the centre of the bacchanalian rites are *ek-stasis* and *en-thusiasm*s; physical and psychological frontiers are torn down and filled with the divine in order to dive into a precivilisatory world.

The frieze bears witness to a Virtual Reality which was meant to encourage the audience towards attaining an emotional, ecstatic participation, through the use of suggestive visual means, such as the totality of the representation, the choice of colour and the dramatic gestures, thus creating a fusion of audience and image in cult.

In the Renaissance illusionistic spaces were in great demand: the *Villa Barbaro* in Maser or the virtual pilgrimage at the *Sacra Monte* near Varallo are just outstanding examples. Remarkable is the *Sala delle Prospettive*, [Fig. 3] created between 1516-18 by Baldassare Peruzzi, on behalf of Agostino Chigi in the *Villa Farnesina* in Rome. Chigi was a *nouveau riche* desperate to secure his reputation and name largely by obsessive patronage. Peruzzi encircled the audience with the fresco of a virtual columned hall, painted in perspective, which offered illusionistic views of Rome and its surrounding countryside. A panoramic-effect was produced, one so impressive that it was admired by Serlio, and according to Vasari, Titian was unwilling to believe that this was a painting.



figure 3

The view of the landscape contrasts with the monumentality of the illusionistic temple hall. The splendid isolation of this architecture creates a feeling of the sublime, only matched by the view from the top of a mountain; Chigi's poet Marcantonio Casanova compared the Farnesina, which he said was destined by Chigi to be the residence of the Gods, with the Olympian palace. This vision of Antique grandeur, represents Chigi's earthly longing for eternal divinity.

The decorative ceilings of Baroque architecture, for instance at *San Ignazio* in Rome, create illusionistic spaces [image 4] and during the 17th and 18th century in the palaces and country houses of the aristocracy hundreds of illusionary spaces were created.



Figure 4

The Panorama

At the time of the Industrial Revolution in England, the new image-machine, the Panorama, achieved hitherto unknown dimensions of the illusionary effect [Fig. 5]. The audience is immediately surrounded on all sides by a three-dimensional interior, the *Faux Terrain*. This is imperceptibly connected with the two-dimensional, visual action, and it often makes the visual frontier untraceable. Especially because of the "magical" luminosity of the images, which comes from a hidden source of light, the visual space itself appears to be the source of reality. This representation of nature gave the vision

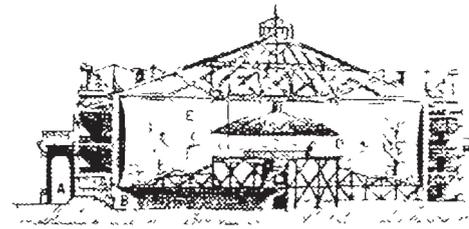


Figure 5

totality and allowed journeys through space and time - a complete universe of illusion. The Panorama spread successfully with at least 100 million people visiting this mass media making it a focal point of the picture in the industrial era.

Similar to modern fears of the simulator sickness, the Panorama was criticised mainly for psychological reasons. It was argued that the Illusion could result in an inability to perceive reality. Both the military leaders of France and England, Napoleon and Lord Nelson, soon realized its potential as a medium for propaganda. In Germany it was much later, after the 1870/71 war with France, that it was first used for political propaganda. A paradigmatic representative was the *Panorama of the Battle of Sedan*, opened in 1883 in Berlin [Fig. 6].



Figure 6

The monumental picture - the screen measured more than 1725 m² - transported the "military birth of the Empire" into the very centre of urban Berlin. For the opening ceremony the Emperor Wilhelm and the most powerful figures of the German Empire were demonstratively present. The picture gave an almost photo-realistic portrayal of the action: on the three-dimensional battlefield, bushes, stones and entrenchment, real weapons and cardboard soldiers could be seen.

Today, our eyes are used to following an increasing acceleration; thus we can hardly appreciate the effect which a steady panorama picture had at that time. Many witnesses attest that for the first few moments the deception was so strong that the luminous scenery was experienced as a real battle. The press headlines spread this news all over the country. The picture was not experienced as a self-contained object, because everything was picture. It is as if one were standing amidst the awful battle. With the calculated precision of illusionism the picture and the 3D-interior concentrate and fix on the onlooker. He/She is devoured by the image. If its prodigious, pseudo-religious experience was meant to implant an unforgettable collective memory.

The artist Anton von Werner always proclaimed the truthfulness of the panorama, which, he said, was based on a careful scientific reconstruction. The state was mainly interested in sanctioning a pictorial truth and Wilhelm's patronage implied the sincerity of a *Veritas Icon*, although neither he nor Werner had witnessed the actual events. However, this apparent authenticity was pre-arranged and aimed at glorifying the Prussian soldiers. The Prussian aggressor is shown so to speak *Wilhelminian politically correct*, as a defender.

Interestingly enough, since the 1980s, dictatorships (for example, in North Korea, China, Iraq, the former USSR, and Egypt, have increasingly revived the battle-panorama, as a means to enhance national unity.

Virtual Reality

Since I discovered some years ago this unresearched image-tradition, I realized that the total images of VR are no intellectual novelty. The history of VR can be traced in all art-historical epochs and media. From the Wagnerian concept of the *Gesamtkunstwerk* to Monet's impressionistic-immersive panorama of waterlilies, Prampolini's futuristic theatre-concepts, Eisenstein's theories about the multisensual 3D-Movie to Yoniblood's *expanded cinema* of the 1960s. Technologically the development continued with the *Stereoscope*, *Gnorama*, *Gnerama*, *Stereoscopic Television*, *Sensorama* and the *Circular Gneramas* of the fun fairs. All had the same aim - to transpose the onlooker into the image.

With the military invention of the HMD and the *Dataglove* for the first time in its history the image could be *entered*. Constant recalculations make the computer-image transformable: they create the option that the pictorial action could answer the action of the user only limited by the restrictions of

the programme - the interaction.

VR marks the rrrking for an Interface in which ideally all senses are appealed to and occupies immediately and physiologically-imperceptibly as possible, as if it were a real experience. The current renaissance of the dassicall alliance of art and technology in the postindustrial societies has developed the profile of a few artists who work in this transcultural global scene. The first glimpses of this noillusionistic genre are the pioneering works *Osmose* by Char Davies, and *A-Valve2* by Christa Sommerer and Laurent Mignonneau, which represents a new level of interaction.

Osmose [Fig. 7] represents a visually powerful simulation of a dozen nature - and tertspaces. Weightless and solitarly like a diver the observer glides through opaque fog banks, abyssmal-oceanic depths, glinting dew, translucent swarms of insects the thickets of dark woods and eventually into the microcosm of an oak leaf shimmering like an opal...



Figure 7

The transitions between the worlds are soft and fluent as if seen through a soft-focusing lens, with phosphorescent light points glimmering in the dark opening up richly-faceted associations. *Osmose* is a sphere mineraly-hanl yet fluidly intangible, a non-cartesian space.

Despite being a technically illusionary picture, *Osmose* suggests an optical poetic atmosphere. Nevertheless, the artist doesn't aim at replacing nature: Her vegetable representations neither brush the chimaera of digital realism, nor do they appear abstract.

Above all, Davies's desire to develop a *natural interface* must be considered explosive. Immersants control their navigation through the dataspace with a chesthugging leather vest containing sensory devices sensitive to the body's breathing. With filled lungs, just as in diving, one rises. A concentrated, even breathing results in the impression of balanced motion.

The result of this finely-tuned and body-intimate symthesis of technology and onganics is a strong feeling of bodily presence causing a corresponding emotional mood. Many participants speak of an often contemplative tranquility, and a mild security. I had the impression that some participants even testify to a trancelike condition. This vocabulary, bordering on the esoteric, does however testify to a central effect of virtual reality: that suggestive presence in a total picture - the cocooning-effect as Joseph Nechvatal has called it - causes in *Osmose* a mental, a meditative immersion. This notion of virtual reality is the strength of this work.

The Enlivening Effect

The effect of presence in *Osmose* is intensified by what lleeter called *soda/presence*: when agems in the virtual space act like individuals. The higher the degree of correspondence between perceived actions and probable phenomena, the more likely it is that what is seen, as in the Panoranna, will be taken for real. VR-research follows this belief into every banal detail.

A-Valve by Sommerer and Mignonneau [Fig. 8] presents for the first time an opportunity to create virtual beings and to interact with them in realtime.

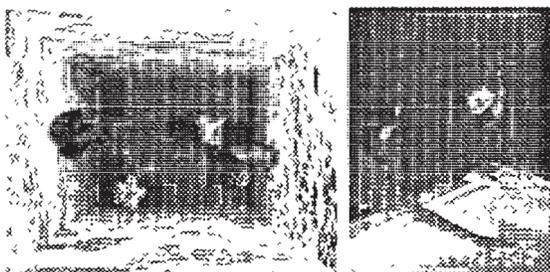


Figure 8

The guiding principle is the *survival of the fittest*. Certain creations swim faster, are better able to

assert themselves against others and are able to pass on their genetic make-up, including any mutations, to their descendants

The onlookers can "play God: creating new beings or bringing the simulated biotype under their influence: By slightly stroking the water - a natural interface as well - the creatures can be attracted, trapped, manipulated or even killed. Through an identification with the creatures, A-Vo/ve reduces the distance between life and A-life.

A-Valve's evolution is founded on genetic algorithms. The procedural principles of evolution, such as selection, crossover and mutation are applied innovatively and efficiently to develop a homogenous and uniform optimum in the creatures adaptation

Evolution creates pictures of an unpredictable, transitory and unique nature and its impact on the system of art emerges: the variety in forms that might evolve during these processes is theoretically unlimited. The more complex the accidentally grown structures are, the more intensely the pictures seem to "live" - not finally terminated, but changeable, adaptable, even able to "learn" under cumulative methods of selection.

In earlier papers I described the consequences of interaction:3 Wrth evolution the suggestive potential of the picture has to be defined on a hitherto unknown level. A dialectic relationship with the machine seems possible. Here, interaction is not only about a freedom of choice for the player, as Flusser noted, but about unexpected change, where the user must react to the change. Finally, the implementation of evolutionary models into a virtual culture supports the illusion of life. Evolution removes conceptual control from the artists, making them passive witnesses to random changes, which the user can select like a breeder.

But it has been argued that the audience becomes emotionally involved when a balance is created between the freedom of interaction with interesting characters and the dramatic plot, which has to be followed. Thus, the system can manipulate the interactor even without him becoming aware of it. Psychobiological tests show that the higher the involvement, the less the ability to differentiate between the calculated world and personal experience. It is the distribution of endorphine that causes a *technical high*.

Whatever one might think about scenarios of this nature, it seems clear that virtual culture will not experience its most intense thrust in the direction of illusion by handworking ardent enginem calculating each and every detail but by combinatory processes generating unforeseeable forms

Interfaces

The "living" virtual picture space, which is the aim of current research is better experienced the more real and the more natural the connecting interface is. The more bodily-intimate the interfaces nestle into the senses, the more distinct not only the danger, that the *technological iceberg* remains sealed to the user but the more intense the illusionary dispersal with the total dataspace, the immersion. Virtual Reality has at its core the complete disconnection of human senses with nature and matter and is so far, the strongest challenge of illusionism. Everything becomes image. The increasing processor-capacity raises the suggestive potential, which just by the ideology of a *natural intrface* unfolds its complete psychologically manipulative effect. Seen on the background of illusionism, the intended abolition of the interface becomes a highly political question. In the animated virtual environments a very fragile centre of art is put into question: the gesture of distance by the recipient, which allows critical reflection in the first place. The further the illusionary symbiosis between work and onlooker makes progress, the weaker the psychological distance. Without distance the work cannot be perceived as an autonomous, aesthetic object. It was Ernst Cassirer as later Aby Warburg in his *Mnemosyne Atlas*, who stressed the intellectually productive, awareness-raising power of distance: Adorno, Gehlen and Foucault develop this aesthetic paradigm. As much as the subject might crave to overcome the barriers and abandon itself, subject-forming depends on distance. Traditionally, as Serres writes, the onlooker mentally activates the elements offixed artworks, VR and evolution however, turn this concept on its head, moving first the objects and thus the onlooker.

More and more people receive machine-made illusionary spaces, the function of which have a historic continuity stretching from Pompeii to the present. VR reveals itself as the technically-developed heir to illusionism as it made itself felt in its paradigmatic representative, the Panorama. Although the audience can exert its creative powers over the image, this is opposed to the highly suggestive powers of the image itself. Maybe we are regaining a relation to the image that reaches far back into its pre-civilisatory history: a power of the image that supports a psychical as much as a physical lack of boundaries and lets us regress, leading to an ecstatic symbiosis of onlooker and vivid image.

- 1) O. Grau: Vom Zen des Tauchens, DIE ZEIT, of 19697, pp.62.
- 2) O. Grau. Künstler fur fünf Minuten, c't: magazin fur computertechnik, June 1997, pp. 104-108.
- 3) O. Grau: Hingabe an das Nichts, Medien Kunst/Passagen., 4, 1994, pp. 17-30.