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The magic of projection : augmentation and immersion in media art
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Citation

Ernst, S. J. G. (2016, December 8). *The magic of projection : augmentation and immersion in media art*. Retrieved from <https://hdl.handle.net/1887/44801>

Version: Not Applicable (or Unknown)

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Title: The magic of projection : augmentation and immersion in media art

Issue Date: 2016-12-08

3. Conditions of Illusion

Performing or Staging Projections

Image 45: Vision rays thrown at a flying dragon. Johannes Zahn illustrates the misconceived concept. Zahn (1685) p. 215.

*"[I]t [the fear of the invisible world] can bribe us into a voluntary submission of our better knowledge, into suspension of all our judgment derived from constant experience, and enable us to peruse with the liveliest interest the wildest tales of ghosts, wizards, genii, and secret talismans."*²²⁷

S. T. Coleridge, 1817

.....
227 Coleridge (1817) p. 261.



It is said that the 16th century sculptor Benvenuto Cellini was a *braggadocio*.²²⁸ Cellini liked to brag. He also liked a good fight, sex, and suspense and his autobiography is a document of that. One story that includes all of it is actually a description of a magic lantern performance. The background of the story is that Cellini was after a beautiful Sicilian girl and to get his prize he sought the help of a magician-priest. Accompanied by some friends and a virgin-boy from his workshop they watched the priest call up major demons at the Colosseum to make a deal with the devil concerning the girl. When the Colosseum filled up with hundreds of demons even

the necromancer-priest got scared. Cellini was hiding his own fear, which did not lessen the mortal agony of the shop-boy: "... [T]he boy ... cried out in terror that there were a million tremendously fierce-looking men and they were threatening us; then he added that four enormous giants had appeared and that they were all armed and advancing as if to break in on us."²²⁹ Cellini describes the boy crouching on the ground head down. "The boy had struck his head between his knees and was crying: 'I will die like this – we're all going to die!' At this, I said to him: 'These creatures are only our slaves; all you can see is only smoke and shadow. So come on, look up!'" Some devils' dung (*asafoetida*) was thrown on the fire to make the demons go away. Eventually the story ends quite to Cellini's satisfaction; running from the law after killing a man in a street-brawl he meets his girl by chance and spends the night with her.²³⁰

In this chapter I will address the role of the screen in delivering an illusion. I argue that a virtual image can be performed or staged. As an artist, I place and integrate a projection into a (social) context. One aspect of how the projected image is understood by a viewer depends on the role the artist assigns to the screen. Is it the locus where the virtual image is staged – like the invisible cinematic screen? Or is the viewer confronted with the screen as a distinct object – with the projection (the virtual image) as additional but not separate information?

228 Cellini (1848) p. 277.

229 Cellini (1956) p. 115.

230 Cellini (1956) p. 115, 117.

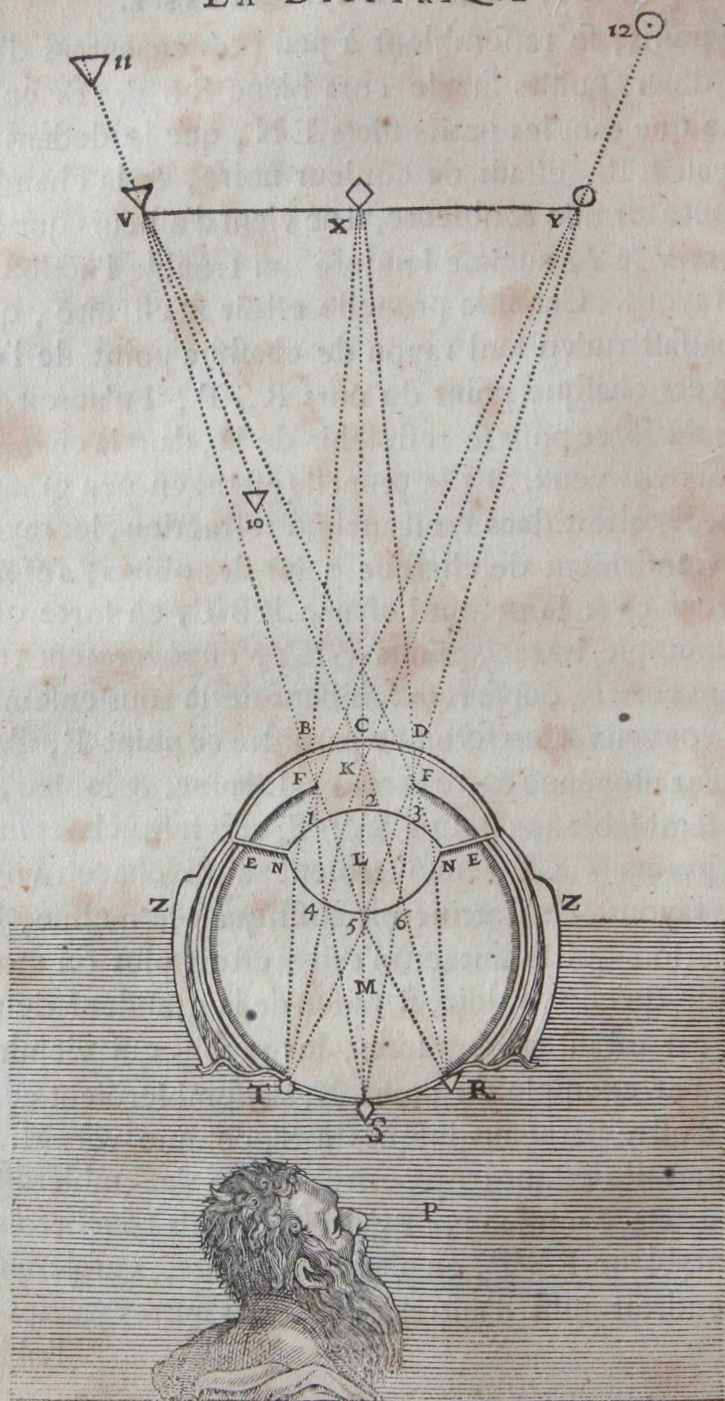
In 2001 media theorist Lev Manovich described how computer based media did not only introduce new ways of seeing, they equally changed older cultural forms like cinema or photography, and the way we understand and represent ourselves.²³¹ The early modern period also saw a media revolution that changed the way of representation. One aspect of this revolution was the development of optical media. From the 17th century onward the nights lit up and the moon and stars were coming closer. Magnifying glasses could probe far and deep, technical possibilities may have seemed endless. Spherical looking-glasses (magic lantern projectors) appeared to make remote objects, like ghosts and phantoms, visible.²³² Communicating with souls and spirits may have seemed something that should be possible in the near future. Enlightened scientists exposed the illusions of the *Fantasmagorie* as “pure charlatanism” that is not “advancing by a single step or making any progress in the pursuit of the sciences, serve only to capture the admiration ... of the public”.²³³ The ‘science expert’ who wrote this verdict failed to recognize the visionary investigations the illusionists made into our sense of space and imagination.

Illusionists’ claims of seeing beyond this world may have been preposterous, nonetheless it is possible to look at the theatrical seances as experiments in layering space with projections and attempts of finding alternative ways to represent ourselves. Our experience of reality, however changing, layers elements of material, physical, imaginary and symbolic space. The question is how do we understand the ‘reality’ of the projected image? Our understanding of an illusion relies on

231 Manovich speaks of a media revolution: “the computer media revolution affects all stages of communication, including acquisition, manipulation, storage and distribution; it also affects all types of media – text, still images, moving images, sound and spatial contructions.” He lists five categories of consequences to the new status of media, namely “numerical representation, modularity, automation, variability, and cultural transcoding.” Manovich (2001) p. 19-20.

232 Charles Patin, a Frenchman traveling around Germany in the 1670s writes “Some mention has been already made ... of that Spherical Looking-glass, which receives the several Species [appearances] of remote Objects thro’ a small Thread of light, and which rolling about in the dark, imprints ‘em on it, and causes ‘em to follow its Motion; so that real Phantoms and Ghosts are now no longer sensible of the other World.” Mannoni (2000) p. 60.

233 Phantasmagoria was called Fantasmagorie by Étienne-Gaspard Robertson, the most prominent projectionist (or Fantasmagore). In 1800 Robertson fought one of his competitors in a court case. Robertson had patented his fantoscope. The science experts Pierre Jamin and Jean François Richer were called in to evaluate the originality of the ‘invention’ and they concluded that it was a reworking of the magic lantern also used by the showman Paul Philidor. Philidor performed illusion lantern shows during the early 1790’s, the middle of the ‘First Terror’ of the French Revolution. Philidor had left France shortly after projecting some politically unwise cartoons (Robespierre, Marat or Danton projected with claws and horns). The performances were still fresh in the memory of Parisians. The Report by Jamin and Richter from 17 July 1800 is in the Archives de Paris. Compare: Mannoni (2000) p. 171.



the structure of our optical system, expectations and media competence. As artist, knowingly or not, I use these factors of a viewer's perception. Optics, studies of perception, media studies, and more recently neuroscience are large fields that deal with how and what we see. These studies are beyond the scope of this text, but I do want point at a few aspects of perception that I might give consideration in my use of projection.

Every day when we look into a mirror we look into a virtual space. We experience the space in the mirror as actual physical space, until we see our reflection and recognize the mirror (Pepper's Ghost or any of illusionists David Copperfield's disappearance acts look 'real' because we do not recognize the mirror). This is true for all kinds of projections; as long as we do not know the material

reality (i.e., as long as we do not recognize the mirror as mirror, the projected image as projection) we probably expect a projected space to be a physical space. Is this simply because of how our eyes are wired? Although there is more at play than simple optics when seeing, the following illustration by René Descartes gives the basic physical structure of our optical system.

Descartes draws a parallel between our vision and projection and likens our eye to a camera obscura. Points of a triangle VXY are projected onto the retina as an equally shaped triangle TSR (see image on the left). In his *Discours de la méthode* (1637), Descartes gives instructions to his reader to repeat the dioptric experiment. An eye is cut open (if a human eye is not at hand, a cow's eye will work equally well) and placed on a small hole in front of a dark chamber. This way the eye becomes the aperture and the back wall of the room replaces the retina. The illustration to Descartes' text shows a bearded man looking at what must have been a giant's eye.²³⁴ Descartes' cosmic observer sees the projected image reverted, as an image would be projected onto our retina. The visual space is created in our brain, even if we are not conscious of the reversion that happens in our brain when light enters the iris.



Image 47: Natural eye, figure #17, Descartes (1637) p. 42.
Image 48: Duck Soup, dir. Leo McCarey, (USA: Paramount Pictures, 1933).

234 Descartes (1637), compare: Friedberg (2006) p. 51.

The wiring of retinal imaging has taken millions of years to develop. How does the brain translate reflections in a mirror into a space behind the mirror? Umberto Eco suggests that possibly the mirror has been around for too short a time for our brains to rewire and rethink reflections “at the level of conceptual consideration”.²³⁵ Our brain, according to Umberto Eco, “cannot quite clearly differentiate between the physical phenomenon and the deceptive illusion it encourages, in a sort of spread between perception and judgment. So we use the mirror image correctly, yet speak of it wrongly, as if it did what we ourselves are doing with it (that is, reversing it).”²³⁶ The interpretation of reflection – how people understand and handle virtual images – changes over time and space. This becomes clear when we look at the widespread ritual to cover mirrors during bereavement, originating from a belief connecting reflection to the afterlife. Buddhist philosophers may assign an equal amount of agency to the reflection of an object as to the object itself, as, in Buddhist thinking, neither the object nor the reflection is real.²³⁷ They are both figments of our imagination.

In a sense, the imaginary is based on social conventions. Artistic representations rely on several relationships, most importantly on the relationship of the artist, the art work and spectator. The artist can create an expectation which will heighten the anticipation of a viewer. Gombrich gives as example an image that is incomplete or blurry which invites the viewer to fill in and continue the representation. Equally suggestive is a painting in which some of the action takes place outside of the frame. Or Baroque church ceilings, where the boundary between architecture and painting is purposefully blurred and the light that falls through the church window appears to continue in the painting, creating an illusion of continuity. As Gombrich puts it, “All representation relies to some extent on what we have called ‘guided projections.’”²³⁸ The image becomes suggestive to a viewer’s imagination.

Gombrich describes the importance of prior knowledge of the viewer in the process of identification. Or as W.J.T. Mitchell interprets Gombrich; “vision ...

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235 Eco (1984) p. 206.

236 Eco (1984) p. 206.

237 Westerhoff (2010) p. 162.

238 Gombrich (1986) p. 170.

is a product of experience and acculturation”.²³⁹ Gombrich points at the mechanisms in our brain reaching simple interpretations of a form out of a biological necessity.²⁴⁰ Fetish and cult images of early cultures were believed to have human like agency.²⁴¹ Since then, so Gombrich says, illusion requires an expectation to turn into deception.²⁴² We have to suspend our disbelief to enter into the illusion. An image-maker relies on the empathy and identification of her spectators as well as their education in pictorial conventions. To involve the audience in a game of suspension of disbelief she applies psychology of vision.

Up to now I have looked at the anatomy and the neurological wiring of the eye, as well as the psychology and social conventions of seeing. Illusion has also technical component and what we see may also depend on our media-literacy, i.e., the understanding of the projection technology. Rather than literacy Grau refers to media competence. He explains how ‘unconscious’ illusions become ‘conscious’ after some time: “The connection between innovations in technologically produced illusion and putting the inner ability to distance oneself under pressure, may, for a period of time ... render conscious illusion unconscious and confer the effect of something real on that which is merely appearance... this gap narrows again with increasing exposure.”²⁴³

.....
239 Mitchell furthermore argued for a “rigorous relativism that regards knowledge as a social product, a matter of dialogue between different versions of the world, including different languages, ideologies, and modes of representation.” Mitchell (1984) p. 525. “There is no “pure” visuality, or, as Gombrich pointed out long ago, “[T]he innocent eye is blind.” And innocent here means, quite precisely, untouched.” Mitchell (2008) p. 13.

240 Gombrich (1986) p. 172-174. It may be worth noting here that since the 1980’s Gombrich’s approach (as well as Panofsky’s) to art history has seen a good amount of criticism for the lack of social context, as well as an absence of a post-colonial or feminist awareness. This criticism has come from for instance the New Art Historians. Manghani, Piper, and Simons (2006) p. 84. Art historian James Elkins points out in an essay on Gombrich’s marginal role in current art historical debates, that Gombrich’s central interest included the psychology of art and studies on perception. Elkins asserts that “[o]utside of art history, [Gombrich’s] *Art and Illusion* (1960) has had a measurable impact on aesthetics and studies of perception”. Elkins (2009) p. 305-306. Since 1960 vast developments in theories of vision have taken place, some of the scientific theories Gombrich referred to (e.g. Gestaltism) have “not stood the test of time”. Mitrović (2013) p. 71-90.

241 It is questionable that magical thinking is a ‘primitive’ attitude. Gombrich locates this ‘primitive magical thinking’ in a distant past. In his writing he appears to make a distinction between primitive and modern cultures. Among other cultures Catholics today will dress sculptures, take them for a walk and witness them weep or speak. This attitude towards a primitive other (in past or present) has been a point of critique on Gombrich’s work. See Araeen (1987) p. 6-25, Errington (1998) p. 53, Gall (2014) p. 9.

242 Gombrich (1986) p. 172-174.

243 Grau (2003) p.152.

At the same time, when we unconsciously see a mirror reflection as an extension of space, that illusion does not go away even once we recognize the mirror as object. So, understanding how an illusion is brought about does not mean being unable to enter into an illusion, if only under another premise.

I myself rarely stop and think about the anatomy of the eye, neurological facts, or social conventions of seeing when I assemble an installation or project an image. Yet, I play with my viewer's perception when I layer images into space. I anticipate expectations and answer or frustrate them. Artists (and magicians) work with the imperfections of perception in mind. Not only is our vision imperfect, our sense of space is complex. Projections in space add to that complexity.

Projection makes objects that are absent visible in space. Projected images are virtual, although they *appear* to have all properties of material space. Projections seem to dislocate space and time. How space itself appears to us is not as rational as Descartes' diagram of retinal reflection might suggest.²⁴⁴ The phenomenology of space has been a subject in many different fields of study, from geography and art history to psychology – we need not go into such depth here. I only want to stress the complexity and layered nature of our experience of space. Let me turn to art historian Erwin Panofsky for a definition of perceived space, because he distinguished between an *aesthetic space* and a *theoretical space*.

Perceived space, he said, is represented either as *logical form* (geometrical space) or *visually symbolized* (symbolic space).²⁴⁵ How space is represented stands in relation to how it is *theoretically conceived* and, according to Panofsky, Renaissance use of perspective resulted in an *objectification of the subjective*. "The result was a translation of psychophysiological space into mathematical space."²⁴⁶ Perspectivist representation of space is homogenous, i.e., an abstraction. psychophysiological space, however, the space of our experience, is not homogenous.

The sense of space, or *Raumgefühl* as Theodor Adorno calls it, "is not a pure, abstract essence, not a sense of spatiality itself, since space is only conceivable

244 Panofsky (2002) p. 31.

245 See Panofsky (2002) p. 45. "Panofsky's use of the symbol stems from Cassirer's *Philosophy of the Symbolic Form*. "[Cassirer] defines the symbol "in which something 'sensuous' (ein Sinnliches) is represented as a particular embodiment of 'sense' (Bedeutung, meaning)." Neher (2005) p. 360.

246 Panofsky (1927/ 2002) p. 66/ p. 31. On psychophysiological space Panofsky quotes a lengthy segment from Cassirer where Cassirer explains that "[v]isual space and tactical space [Tastraum] are both anisotropic and unhomogeneous in contrast to the metric space of Euclidean geometry." Panofsky (2002) p. 30.

as concrete space, within specific dimensions.” Space is in no way neutral and, as Adorno continues, “History has accumulated in them [forms and material], and spirit permeates them.”²⁴⁷ Our sense of space is interconnected, complex and layered, furthermore it is impacted by psychological projection. This complexity is important in order to understand the augmentation of space and to use it artistically.

With the above in mind, let me look again at Cellini’s description of floating demons at the Colosseum. The location of the séance organised by the magician-priest may not have been of small importance. The violent history of the rundown amphitheatre would have been an aspect informing the sense of space, and encountering ghosts and spirits (of slain Christians) may have not at all been unthinkable to Cellini and his companions. They may have interpreted the space they saw before their eyes according to their expectations; they saw what they wanted to see. Yet, what psychological projections were at play? Did Cellini and his friends give the apparitions primary belief or did they suspend their disbelief? Were they familiar with projection technology? We can only speculate. In whatever way Cellini interpreted the event, virtual demons augmented the space of the Colosseum. The projections added a dimension to the experience of the amphitheatre. I think it is possible to conclude from Cellini’s description that he knew the images of ghosts and demons were a play of projected light. Did he not say to the shop-boy: “all you can see is only smoke and shadow”?²⁴⁸

Construction of screen space

The shadow and smoke Cellini mentioned might refer to the materials of the illusion, i.e., projections of shadows onto a screen of smoke. Whether we are directly aware of the screen or not, projected images need a surface to materialise. According to media historian Anne Friedberg, this surface “is the locus of lost dimensions of space and technological transformation of time.”²⁴⁹ Friedberg cites philosopher Paul Virilio, who described the screen as the site of “the passage from something material to something that is not.”²⁵⁰ In her book on the virtual window Friedberg illustrates this dematerialisation of the interface with a photograph

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247 Adorno (2005) p. 12-13.

248 Cellini (1956) p. 115.

249 Friedberg (2006) p.184.

250 Ibid.

by Hiroshi Sugimoto. (ill. *Cinerama Dome, Hollywood*, 1993) Sugimoto's long exposures of cinema screens render the screen as a gaping emptiness. Another artist who has persistently addressed the ambivalent materiality of the interface is



Anna Anders. In works like *TV Cleaner* (2002) the interface appears as a material barrier that is cleaned. Works like *Pleasure Bath* (2000) cancel out the screen by the image of the projection – sand projected onto sand, water onto water. Another work called *Video Guards* (1993-2005) obscures the interface and directly addresses museum visitors. In chance encounters of the *Video Guards* with the museum audience, Anders creates a moment of insecurity in the viewer regarding the reality of the virtual image.

The screen is an 'ideal space' that can become an anywhere; however, in its gaping emptiness it is first a no-where. Grau has shown how all-encompassing virtual spaces are geared to take the viewer into another world. The projected image approaches us "as the source of the real".²⁵¹ The rendition of an imaginary screen space relies on a separation of one visual order from another into two parallel

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251 Grau (2003) p.13.

realities, on-screen and off-screen. Quite tellingly, in the cinema a curtain used to be drawn when the projection light extinguishes, hiding the interface between magic and reality. The function of the screen is a technical necessity. When we look at a cinema screen, we don't see the material object of the screen as much as we see the projections staged on the screens. How does this compare to the screen of an augmentation that overlays projections onto the material world?

In the case of augmentation, screen and projection are fully integrated, and of equal importance. The relationship between the screen and the projection differs from immersive cinematic projections. We look at a screen in a mobile phone yet operate the object. The projection does not cancel out the materiality of its screen like the cinema does. The information of both screen and projection is experienced



at the same time. The screen as object is augmented by the projection and the viewer is invited to use the object and the projected interface. A cinema screen mounts or 'stages' a projection; the screen when augmented is carrying out or 'performing' the projection. The nature of a screen as either immersive or augmented space is not specific to new-media. Let me illustrate this with examples from painting.

Two prominent examples of mirror-reflection in painting are the *Arnolfini portrait* (1434) by Jan van Eyck and *Las Meninas* (1656) by Diego Velázquez. Both works have foregrounded the subjects of the portrait. In either of them, the source of light is coming from a window which is situated on the edge of the canvas. The wood and stone of the window frame is barely visible, we get no more than a hint of a continuing space. What makes these two paintings so exciting to look at is

Image 50: Anna Anders, *Video Guards*, 1993, video installation. Image courtesy of the artist.



the immersive yet self-referential arrangement of space.²⁵² Both artists have placed a small mirror on the wall which closes the space of their painterly illusion. That mirror appears to reflect what is in front of the canvas. Space is seemingly extended from virtual space into the viewer's material space. The viewer is drawn into the image space towards the mirror, to be reminded of the construction of the canvas as illusionary space. The frame, window, mirror (and canvas in case of *Las Meninas*) make the viewer aware of the painterly illusion as just that.

In both the van Eyck and Velázquez paintings, the painter is, according to some interpretations, present as 'metteur en scène'. Although Velázquez's presence as creator of the scene is visually more prominent than van Eyck, the role of the artist as witness, in Panofsky's terms, appears clearly defined in both.²⁵³ Above the mirror in the Arnolfini portrait the painter wrote 'Jan van Eyck has been here'. As viewers, we take part in a historic moment reflected in the eyes of the artist. The representation staged in *Las Meninas* is just as complex. Michel Foucault points out how the focus of the painting is as much on what is represented as on what necessarily is invisible. The mirror is pivotal. "For the function of that reflection is to draw into the interior of the picture what is intimately foreign to it: the gaze which has organized it and the gaze for which it is displayed."²⁵⁴

A very different example of linking virtual with material space beyond the interface of the canvas is a painting by Michelangelo Merisi da Caravaggio, the *Medusa* (1597). The painting is a convex shield. Caravaggio depicted the decapitated head of Medusa screaming and bleeding profusely.



252 Bolter and Grusin mention Velázquez's reference to the medium, the painting as such, in *Las Meninas*. They refer in this context to the term hypermediacy. Bolter and Grusin (2000) p. 37.

253 The red figure in the mirror could possibly be van Eyck, however van Eyck is not portraying the act of creating the scene. Panofsky (1953) p. 437. It is Panofsky's opinion that van Eyck performed the role of the witness and the painting was an 'artistic marriage certificate'. "[W]e can understand the original idea of a picture which was a memorial portrait and a document at the same time, and in which a well-known gentleman-painter signed his name both as artist and as witness." Panofsky (1934) p. 124.

254 Foucault (2000) p. 411.

She appears to just have lowered her gaze in mortal agony. In Caravaggio's painting, the canvas *becomes* the polished shield of Perseus – we, as Perseus in the myth, can safely look at the reflection of the Gorgon. The mirror image breaks the lethal impact of the direct look of Medusa. Art historian Genevieve Warwick reads the Medusa as a metaphor for the “stupefying power of pictorial illusion”.²⁵⁵ Interestingly, Caravaggio is giving the illusion a material presence in space. The canvas, stretched onto a shield, is representing Perseus's shield.²⁵⁶ Caravaggio appears to have intended a different relationship between himself (the creator), the representation, and its audience. He created the mirror as an object and on it he painted a mirror image – the momentarily reflection on the shield of Perseus, the unique perspective of Medusa's own gaze. By fixing the reflection of Medusa onto an object, Caravaggio appears to have made the subjective view of Medusa into an objective viewpoint. As viewer I take the position of Medusa in front of the mirror. In this relationship Caravaggio is necessarily invisible as the creator of the illusion of objectivity.²⁵⁷ Thus, the boundaries between object and representation blur.

Van Eyck, Velázquez, and Caravaggio use the illusionistic presence of the mirror in their paintings. According to Warwick, the difference is that van Eyck and Velázquez, in the tradition of the Renaissance, *stage* the ‘mirror space’ whereas Caravaggio has his painting *perform* a mirror.²⁵⁸ To extend my earlier argument I suggest to replace ‘staging’ and ‘performing’ with the concepts of immersion and augmentation. Caravaggio's canvas is not “the locus of lost dimensions of space”²⁵⁹ in the sense of immersing us in an alternative pictorial space, rather, I would argue, the image is layered onto the material reality of the shield as an extension of that object. While the object with van Eyck and Velázquez is a piece of cloth/wood, for Caravaggio it is a wooden shield covered by canvas representing a polished metal shield. When Caravaggio created the shield of Perseus he may have intended an illusionary object, taking painterly illusion a step further, the effect he speculated on creating is that of a genuine shiny shield with its reflection; this could be called an augmentation.

255 Warwick (2006) p. 18.

256 Bal (1999) p. 135.

257 Even though art historians have concluded that Caravaggio painted himself as Medusa. This does not reveal itself, unless we know the likeness of the painter. It does add an interesting angle to the whole equation of what is reflected to whom. See Friedlaender (1955) p. 87.

258 Warwick (2006) p. 13-22.

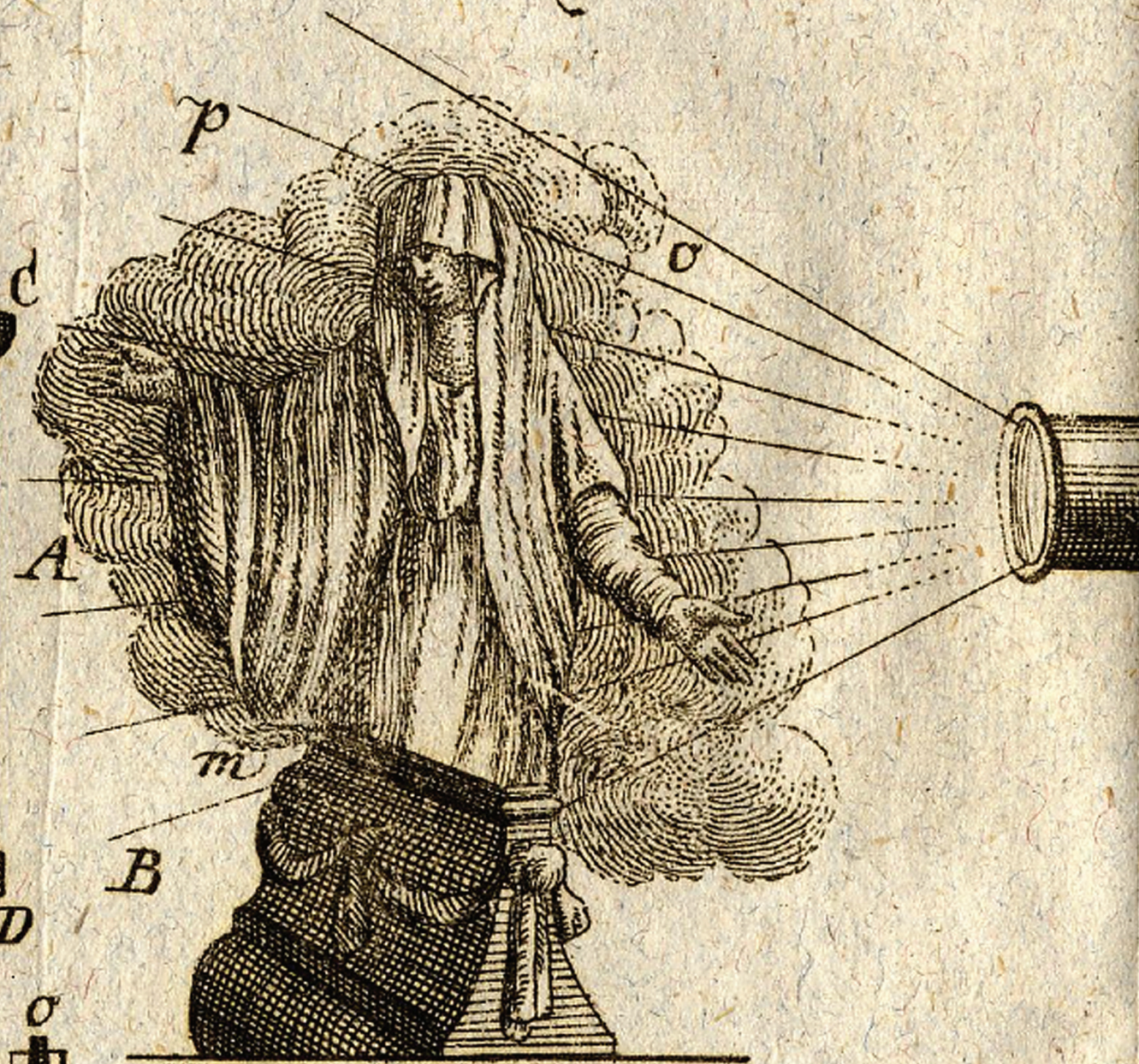
259 Virilio writes the screen serves as the locus of lost dimensions of space. Friedberg (2006) p.184.



Our sense of space is less informed by what is materially there, than by what we know and what we expect, as is argued by for example Gombrich. When trying to understand what happens when we see an immersive or an augmenting projection, the key question is how we perceive 'reality' in the first place. The studies referred to in this chapter do not use the terminology of immersion or augmentation; however they describe the conditions required to engage with virtual images.

As an artist, I want to engage the imaginative faculties of a viewer. I apply psychology of vision, I try to shape a spectator's experience and the context in which she is viewing a projection. Immersions offer an exclusive alternative to material reality; a virtual image is staged on a screen, and we look past the screen to see a projected other world. An augmentation, on the other hand, tries to create a tight coupling of a projected reality and the material world. In this instance the screen might be an object we interact with on a similar level of reality as the projected augmentation that is mapped onto it, Expanded Cinema described in the previous chapter being a case in point. Let me restate: immersive projection and augmentations are set apart by their distinct use of the screen; I argue that immersive projection stage and augmentations perform a virtual image to an audience.

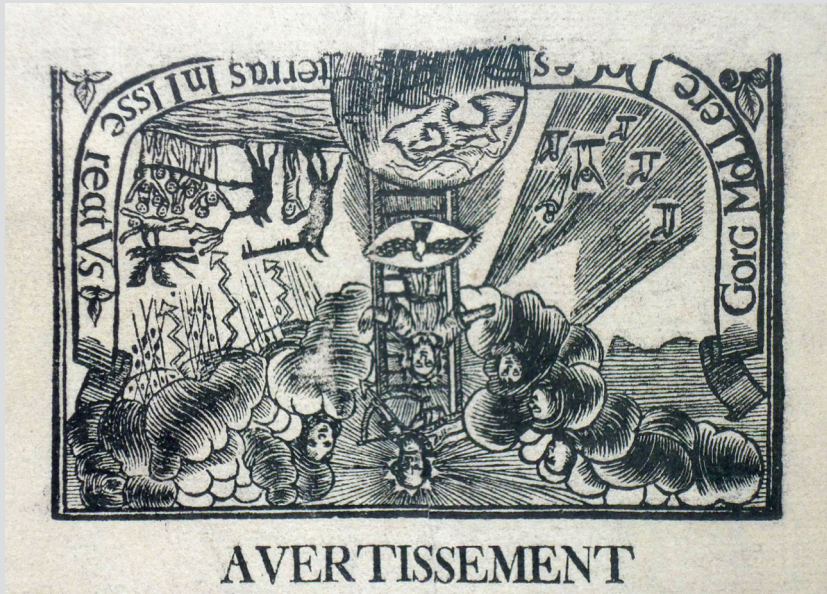
What we know and what we know to expect depends largely on social and cultural conventions. As we have seen in chapter 2 these conventions are continuously questioned and changing. In the next chapter I look at developments of viewing conventions during the early history of projection technology. The image projector became a workable tool during early modern times. How projections should be read was not yet clearly established. Five hundred years of technological development created a medium that can almost perfectly simulate reality. My fascination with this part of the history of projection is how, before the cinema screen became the norm, the projector was performing different roles in warfare or military reconnaissance, magic, interior design and stage entertainment.



E 3044 C

Phantasmagoric SCREEN:

Philadelphia, Philidor and Robertson



"For all lovers of supernatural physics is hereby made known that a few days ago the world famous magician Philadelphia, who Cardanus already mentioned in his book '*De natura supernaturali*', calling him 'envied by heaven and hell', has arrived here by ordinary coach, though it would have been easy for him to come through the air.'²⁶⁰ These are the first lines of an 'ADVERTISEMENT' announcing the arrival of Jacob Philadelphia in Göttingen in 1777; it was a spoof by local professor for experimental physics Georg Christoph Lichtenberg. The illusionist Philadelphia had acquired fame touring Europe with a magic act. His shows included projections on smoke, which were banned during his performance in Vienna because they appeared too real. The mock advertisement was posted all over town and ridiculed the magic show as irrational humbug and thievery. To Lichtenberg the performance was a big hoax. Quite obviously the professor did not believe in plays on imagination devoted to 'pleasure and pastime'.²⁶¹

260 Translation S.E. Lichtenberg (2004).

261 More on Jacob Philadelphia see Jütte (2011), (2007).

Theatrical projectionists who came after Philadelphia took care to denounce any superstitious enchantments: “I will not show you ghosts, because there are no such things; but I will produce before you enactments and images, which are imagined to be ghosts, in the dreams of the imagination or in the falsehoods of charlatans. ... I do not wish to deceive you; but I will astonish you.”²⁶² With these words Paul Philidor, also known as Paul de Philipsthal, opened his *Phantasmagoria* show. The Parisian showman Étienne-Gaspard Robertson is most associated with the *Phantasmagoria*. He performed his ghost-shows in order to enlighten his audiences about the machination of the *Schröpfersche Geisterbeschwörungen*.²⁶³ However, good showmanship required keeping the sources of projection-magic ambiguously hidden. The performers relied on stage props and installation techniques to bring their viewers into the right mood. Eckartshausen wrote “the viewers’ imagination has to be heated up to the extend that they improve on the imperfections of the matter”.²⁶⁴ Even if your audience knows your show is a trick, it is crucial to divert their attention and have them look elsewhere at the right moment.

The key ingredient of the *Geisterbeschwörung* or ghost apparitions was a projection screen of smoke. At the time several books on natural magic gave detailed instructions on how to create the right amount of smoke out of pitch, how to adjust the smoke and direct the projection.²⁶⁵ The biggest difficulty was to contain the smoke, because once the room is filled with smoke (and stench of pitch I assume) the image disintegrated; besides the spectators can endure a smoke-filled atmosphere only for a few minutes.²⁶⁶ Projections onto amorphous surfaces have a limited readability; I imagine, slides used on smoke would have

262 Mannoni (2000) p. 144.

263 Smoke projections named after the necromancer Johann Georg Schröpfer (1730/1738-1774) who fell into ill-repute and subsequently committed suicide.

264 Translation S.E. Eckartshausen (1788) p. 135.

265 See Guyot (Year 7 of the French Republic) p. 254-255, Funke (1783) and Krünitz (1773-1858) Bnd. 65 p. 508, 514, 154.

266 “The smoke will spread in the room, which the eyes of the viewers will barely stand longer than 5 to 8 minutes. The apparition soon disappears because when the eyes of the audience is surrounded by smoke, the billow of smoke rising from the bowl will not stand out. Like a ray of sunlight in a darkened room, along with all the things hovering in the air, will be distinguishable, which does not happen if the whole room is illuminated by the sun.” Translation S.E. Funke (1783) p. 154.



been distinct images, mainly human figures or faces.²⁶⁷ A sales catalogue of 1803 advertised ghost machines called 'magic graves' (*Zaubergrab*) as elaborate ready-for-use machines. The glass slides had figures painted onto a black opaque background "through which the figures appear exceptionally clearly, and in which the circle of light which surrounds most glass slides is absent".²⁶⁸ There would have been no halo of light or round frame, which would give the image away as a slide projection. Robertson improved the lantern projector by placing it on wheels. This way the image projection would slowly increase and, as film historian Laurent Mannoni points out, "[f]ar from being a harmless detail, this innovation undermined the frame, the perspective and the scenic space of the projection."²⁶⁹ With figures floating in space and moving, projected devils, ghosts,

267 The most recognisable mark is a face: two black dots and some lines are sufficient for humans to see humanlike features: :-). Some suggestive talk by a magician and an audience can recognize any specific person in the mark: :o). Some experiments with projection on amorphous surfaces confirm this. Eckartshausen tried to create ghosts according to Guyot and Funk descriptions, yet found it difficult to make the smoke 'receptive' to projections. Eckartshausen (1788) p. 123.

268 Wälde (2008) p. 70.

269 Mannoni (1996) p. 393.

and skeletons appeared extremely lifelike – almost material bodies hovering in mid-air – charging at their audiences.

Philidor would end his shows “by evoking the devil ... he makes this distinguished gentleman appear sometimes with the face of [Philippe] Égalité, sometimes with that of Robespierre or Marat or Danton, but always with claws, horns and a long tail.”²⁷⁰ At the time some of these men were still alive and in power. Philidor was arrested for his provocative shows and in 1793, after his release, moved to London. A few years later Robertson also used the fresh memories of the revolution, however by that time political tensions probably had calmed down. He staged his *Phantasmagorie* in a former convent, leading his audience past a graveyard through a room full of scientific mysteriously sparking machinery into what looked like a chapel. Memories of the reign of terror were still fresh. The Capucine convent was located in the *section des Piques* named after the bloody pikes of 1792.²⁷¹ It was in the heightened climate of terror that the horror projections celebrated their biggest successes. After 4 years the show at the cloister closed.

Robertson may have been one of few lanternists who made some lasting wealth for himself. Philadelphia’s career had stagnated after the debacle at Göttingen. The libel of Lichtenberg had spread far and wide. Philadelphia returned to his native town Wulfen and became the *parnas*, the trustee, of the local Jewish congregation.²⁷² He lived on in illusionists who followed and took his name. Philidor celebrated a period of great successes at the London West End, yet by the end of the first decade of the 19th century smoke projections had lost their pull. The lantern became parlour room entertainment, and Philidor was again a struggling traveling showman.

All three showmen Philadelphia, Philidor and Robertson projected onto invisible screens. Philadelphia still presented a magical science, Robertson claimed to expose magic with the help of science. The sense of reality had shifted from belief to suspension of disbelief. In a timespan of less than 50 years the art of projection went from magic to exposing the trickery of ‘so called magic’.

270 Mannoni (1996) p. 396.

271 Annwn (2008) p. 63.

272 Jütte (2007) p. 41.



