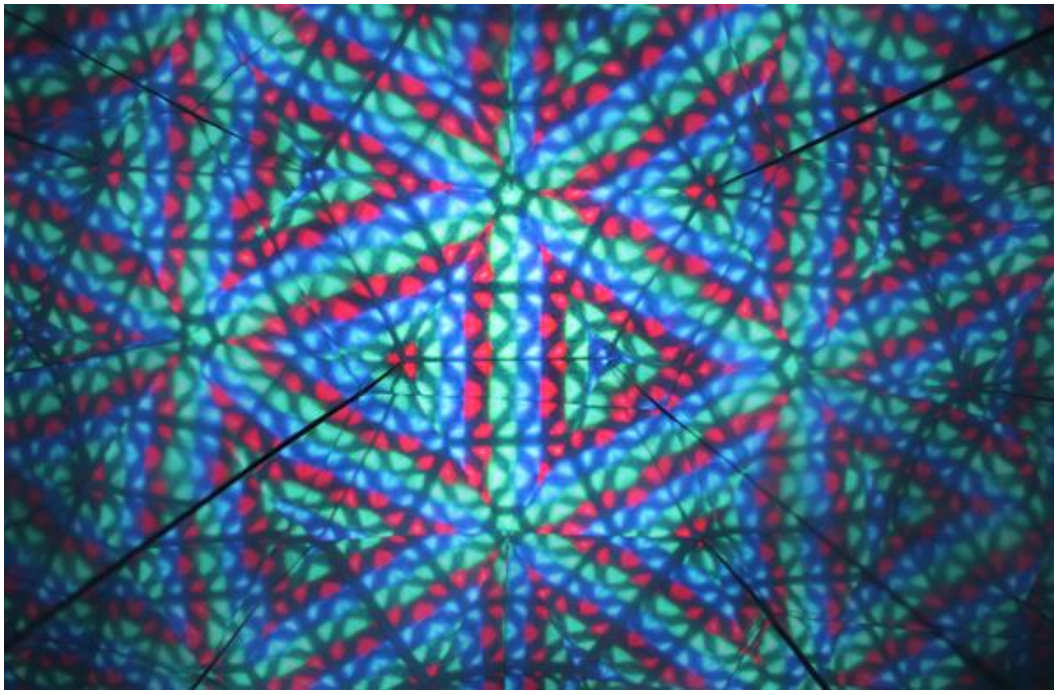
CHRISTOPHER HANDRAN // *THE CURVE OF SENSATIONS*
15 February – 4 March 2017, Exhibition Program, Metro Arts



Lumière, Méliès and Christopher Handran's *The Curve of Sensations*: A Playground of Effects

By Kyle Weise

Let me begin with a diversion, a detour. It will, eventually, lead us to *Curve of Sensations*. It is a detour inspired by the detours that define the exhibition, in which Christopher Handran plots hypothetical paths through alternative media histories; where media apparatuses from across centuries playfully collide and mutate, forging unexpected alliances and aberrant convergences. The title of the exhibition was inspired by Louis and Auguste Lumière's experiments with stereoscopic imagery, and the language of their patent describing the 'curve of visibility.' And the Lumière brothers, so tied to beginnings, are the ideal beginning to our detour.

In 1895, at the inaugural public screenings of their Cinématographe, the first commercially viable celluloid motion-picture device, the Lumières included their 50 second film *Arrival of a Train at La Ciotat*. The film, true to its title, showed a train arriving at a station, moving diagonally across the screen at 16 frames per second. The movement of this cinematic train 'towards' the audience sent viewers into a panic, fleeing the café at which it was shown. Or, so the story goes: in fact the film wasn't included in the Lumière's first screenings, nor is there any evidence of audience panic.[1] It is an interesting story though. An image of a train seems an ideal start for cinema, implicating this entrertainment in the regulation of temporality that the train timetable exemplified, while the account of the fear it incited, significantly, emphasises the *observer* rather than the specificity of the content of the screened image.[2]

Fast forward 116 years and Martin Scorsese's mega-budget 3D extravaganza *Hugo* (2011) set in the 1930s, re-enacts this founding myth of cinema. The film presents a dynamic visual recreation of *Arrival of a Train*, and its panicked audience, as two characters read about it in a film history book. Later, *Hugo* offers a dazzling speculative re-imagining of *Arrival of a Train*, via a dream sequence. Here, an out-of-control train bursts off the tracks, in full 3D towards the viewer of *Hugo*, sending the

filmic characters fleeing and the viewer reeling. Simultaneously, this scene also re-enacts a historical event: the train derailment at Montparnasse station in 1895.[3] With this spectacular effects-laden sequence, Scorsese reconceives both this historical source, and the Lumière 'actuality' seen earlier, in the style of a Georges Méliès film, that is, as a 'trick film': a dazzling cinema of magical effects that aims to evoke bodily reactions of awe, excitement and, potentially, terror. *Hugo* is a paean to Méliès, who is celebrated as the source of the contemporary effects film, and the film extra-dietetically doubles the films plot, which traces the restoration of Méliès's historical significance.[4]

The Lumières, with their 'actualities' (short documentary slices of life) are often opposed to the spectacular cinema of Méliès. In some senses *Hugo* cedes to this dichotomy, presenting Lumière/ Méliès as a division of documentary/fiction,[5] but Scorsese also brings them together by (re)staging each as producers of spectacular technological displays. André Bazin has noted that Méliès's *A Trip to the Moon* (which figures prominently in *Hugo*) and the Lumière's *Arrival of a Train*, were mutually dependent because the effect of each relied on the realism of the cinema: "the one is inconceivable without the other."[6] Bazin here reproduces a principle concept of the myth of the panicked audience: that the film technology is invisible, with the audience seeing a train, rather than a photographic image on a screen. Yet the more interesting connection, apparent in *Hugo*, is that made by Tom Gunning, who argues that both the cinema of Méliès and the Lumières are part of a 'cinema of attractions': a cinema defined by its exhibitionism, inviting the audience to marvel at the illusory power of the technology before them, rather than inducing narrative engagement. As Gunning writes, audiences of Méliès went to see a series of displays of magical attractions, and audiences of the Cinématograph went to see "machines of wonder" in action, not to see specific films or narratives.[7] Martin Loiperdinger similarly suggests that the attraction of the Lumière films was not their relation to reality, but their fantastical nature: "images of reality, which were different from reality."[8]

Over the years, Scorsese's films have shown an overt interest in 'effects' not integrated into the narrative, as in *Goodfellas* (1990) when Joe Pesci's character shoots a gun directly at the camera/audience. This 'shot' is an overt reference to a similar shot in *The Great Train Robbery* (Edwin S. Porter, 1903), which, as Gunning notes, is a film that sits at an historical crossroad between both narrative and attraction.[9] Sandra Annett suggests that *Hugo*, as part of a more general resurgence of interest in early cinema, nostalgically reimagines Méliès, not in order to mourn a lost past but as a revitalisation of this tradition, an affective remediation of Méliès and the trick film.[10] Yet, in this revitalisation, and it's almost obsessive temporal displacements and cataloguing of various technologies of spectatorship, *Hugo* eventually subsumes the cinema of attractions under the rubric of contemporary narrative and representational norms. The precise, almost algorithmic, *narrative* machinations of the film form a puzzle worthy of the endless cogs and automatons that cram its mise-en-scène, and it is a narrative that quickly circumvents the overt *display* of the technology. As such, *Hugo* defines an inevitable, almost teleological, path from the cinema of attractions to contemporary Hollywood narrative cinema. Hugo draws attention to alternative conceptions of engagement with cinematic technology, via its past, only to eventually negate these, placing narrative over the examination of the technical apparatuses that defined the cinema of Méliès and the Lumières.

Handran's work, like *Hugo* is based around the temporal displacement of technologies of spectatorship, but instead uses this encounter to suggest alternative media trajectories rather than resign to contemporary norms. *Curve of Sensations* revisits media technology and crafts 'lo-fi' conjunctions of media to offer alternative ways of viewing that draw us back to the *apparatus*, rather than the images they transmit. Just as Handran draws inspiration from proto-cinematic toys and the spirit of invention and ad hoc assemblages that they embody, his work delves into the display of the technology *itself*, as does the work of Méliès and the Lumières. Handran's work does this in the

context of contemporary Hollywood cinema that harks back to early and pre-cinematic devices, as evident in its current 3D infatuation, while emptying the experimental potential of this in favour of its subsumption by existing strategies of audience engagement (narrative structure, continuity editing and so on).

Let's return for a moment to the historical context of Méliès, and the Lumière brothers, as it draws us further into the components animating *Curve of Sensations*. Cynthia Baron argues that, while the trick films of Méliès revelled in the machine age and its fragmentation of the body, the Lumière actualities attempted to ground the body and to return a sense of control to an audience increasingly bombarded by the modern world's ever-expanding array of kinaesthetic experiences. With human figures who rarely address the camera, and based in activities typical of daily modern life, the actualities allowed a familiar, comfortable and distanced viewing of the human mediated by the machine.[11] Baron, similarly, refers to Georges Seurat's *A Sunday on the Grand Jatte* (1884-1886), and optical toys that animated figures, as concurrent examples of the representation of human bodies as mechanised and stilted.[12] Baron's observations are compelling, yet their focus on the 'content' of the actualities, Seurat's painting and optical toys, neglects the most significant relationship that all three had to the emerging human-machine assemblages: that of their construction of their *observer*.

As Jonathan Crary famously argues, in the early nineteenth century the human senses began to be understood, not as the interiorised reception of an external world, but as having particular biological properties that *produced* the world in a specific ways. Optical toys that exploited the unique properties of the human eye, the stereoscope for example, typified this new understanding, which was part of broader philosophical transformations that intertwined the human and machine, and even began to understand the human in machinic terms.[13] By the late nineteenth century this understanding of a sensory observer rooted in the human body, and manipulable by machinic assemblages, became tied to the construction and management of 'attention'. As Crary argues, modern media distractions manipulated and directed the senses, harnessing human attention for the requirements of capital.[14] Cinema's illusion of movement, Seurat's paintings and optical toys did not simply 'represent' automation, they engage the *observer* of the image as an automaton, with automatic and potentially manipulable sensory responses.

Seurat's work, quite overtly, and self-consciously, manipulates the human eye via the colour fields of the pointillist technique. If the observer is too close the 'image' of his paintings is overwhelmed by 'noise', which only resolves into an image at certain definable proximities. His paintings are defined by this oscillation, as Crary notes, Seurat's paintings suggest that, "fusion is a provisional event, dependent on the physiological makeup and physical mobility of the spectator, [and] poses both attention and perceptual organization as fluid and reversible."[15] As Crary goes on to argue, if Seurat's work seems to include the possibility for perceptual freedom, he eventually crystallises the modern subject of his paintings as increasingly immobile, with their perception managed and directed by the "industrialisation of contemplation."[16]

Handran's *Liquid Crystal Displaced* draws a connection between the fusion of pointillism and modern screen resolutions. If, as Crary argues, television is the "most pervasive and efficient system for the management of attention"[17], then it is appropriate that Handran uses a television broadcast in this work's construction of colour fields. In *Liquid Crystal Displaced* a microscope focused on an LCD television is transmitted to another screen inside a kaleidoscope that has been constructed by Handran. The magnified image abstracts the televisual image into the red, green and blue sources that inhabit each pixel on the screen. If physical proximity to modern screens can reveal the image abstracted into pixels, Handran takes this further by abstracting each pixel into its RGB components. This initial abstraction is then further accentuated by the mirrors of the kaleidoscope. This diffusion of the screen image reveals the technical construction of the medium.

That this ‘reveal’ of the technology is achieved by further layers of mediation (microscope, secondary screen, kaleidoscope) emphasises our total imbrication in the apparatus. Similarly, it is noteworthy that the televisual image under the microscope is pre-recorded, alluding to the bureaucratisation of attention to which Crary refers, as television viewing is subject not just to spontaneous viewing, but to continual organisation and management via recording, timetables, serialisation and so on.

Montreal’s Expo 67, remarkable for its large number of innovative moving image experiments, included a pavilion titled, rather appropriately, *Kaleidoscope*, which was a type of building-size kaleidoscope with three architectural chambers containing cinematic moving images and mirrors that surrounded the viewer.[18] Akin to *Liquid Crystal Displaced*, this pavilion similarly began with accessible moving images of daily life, which formed the basis of the initial images presented to the viewer, before developing from these images into an overwhelming stream of colour and movement. Beyond *Kaleidoscope*, Handrans’s work can be aligned generally with the attempt of many of the pavilions at Expo 67 to plot unique directions for media engagement outside of the prevailing norms. Both *Kaleidoscope* and *Liquid Crystal Displaced* use a combination of old and new technologies to present disorientating experiences that draw attention to media technologies, while simultaneously taking pleasure in their abstract and playful display of light and colour.[19] Both works introduce an *excess* of attention to their technologies, amplifying them in a way that exceeds and supplants the rational, attentive spectator who would form the ideal subject of their respective media.

The transformation of human experience via media technology, with psychedelic undertones, finds one of its most famous realisations the year after Expo 67, with the release of *2001: A Space Odyssey* (Stanley Kubrick, 1968). In the spectacular penultimate ‘Stargate’ sequence, astronaut David Bowman begins his role in the next evolutionary stage of humanity, via a vortex that compresses time and space, represented cinematically by psychedelic special effects.[20] For most of the sequence the audience ostensibly shares Bowman’s point of view, and the transformative evolutionary experience he undergoes suggests that the ‘human’ is not just a distant and neutral ‘observer’, but is physically altered by this spectacular display of special effects technology he moves through. Derided by many critics at the time, for its lack of narrative, *2001* is understood today as a key moment in a return of the cinema of sensation.[21] Paul Monaco notes that the film’s positive reception was potentially connected to the historically parallel resurgence of mind altering drugs.[22] This is a suggestion that also points towards idea that the film’s ‘attractions’ promote an excess of attention that is not instrumentalised.

If *2001* was originally produced for an ideal viewing condition in which audiences would be engulfed by its massive 70mm cinematic image, its consumption over the decades has invariably been filtered through other media. The basis of Handran’s *Cosmic Background* is a television broadcast of *2001* that has been recorded to VHS tape. In this particular broadcast, the television station chose to include the ‘Intermission’ sequence of *2001*, consisting of a blank black screen, accompanied by music composed by György Ligeti. This ‘imageless’ sequence, forming the content of *Cosmic Background* has, however, been given an ‘image’ by the properties of the mediums through which it has been filtered: static from interference in the television broadcast signal and VHS artefacts from its recording. The resulting patterns give the initially blank image the appearance of a (grainy) video of space. Curiously, a small part of television static can be attributed to radiation emanating from space. Thus, rather remarkably and humorously, *Cosmic Background* produces an image composed entirely of media artefacts, which reflects both an element of the material source of these artefacts (radiation) as well as the content of *2001*, perhaps most influential cinematic portrayal of space, despite being sourced from the film’s blank intermission screen. In *Liquid Crystal Displaced*, a magnification of the technical basis of media technology is used to turn an image into noise. *Cosmic Background* inverts this, as an emphasis on the noisy artefacts of media are resolved back into a pictorial image.

Cosmic Background is particularly reminiscent of the fuzzy, almost impenetrable, images that are so often used in the press to 'reveal' the latest astronomical discovery. Such images invariably require overlaid graphics and 'enhancement' to become legible to a non-specialised audience, and so emphasise the mediated condition that is inherent to *all* images of space, which arrive filtered through atmospheric conditions or instrument lenses. Gazing into the telescope fashioned by Handran for his work *The Universe and You*, we are greeted by a galaxy: a Samsung Galaxy™. Layers of mediation accumulate, as the small screen of this phone, reflected through various mirrors and lenses, presents a series of stills from space-themed educational films from the 1950s and 1960s, all of which have a magenta hue due to the deterioration of the slides over time.

If the smartphone contains, for many, their 'universe', the conjunction here of such devices with these disintegrating photographic slides points to the cycles of obsolescence that define contemporary media. For Crary, this incessant consumption of successive media and devices requires the constant remaking of attention. It is an occupation of attention, as each successive 'essential' device captures our attention, colonises our time and embroils us in the attentive maintenance of the device and the development of habitual interaction with it.[23] That this accumulation of technologies in *The Universe and You* occurs within a telescope designed for a singular viewer emphasises the increasing individuation and withdrawal that seems to accompany each new device.

If stereoscopy in *Hugo* is subsumed by the narrative, Handran, throughout *Curve of Sensations*, returns us to the 'effect' of technology and the physicality and necessarily *bodily* engagement with the apparatus. As portable devices begin to incorporate stereoscopic functionality, the pairing of increasingly alienated immersion with accelerated obsolescence is particularly apparent, with people encased in the virtual worlds of Oculus Rift, Samsung Gear VR or PlayStation VR. The images of water and scuba goggles in *Oculus Drift*, Handran's purposefully clunky DIY stereoscopic work, mocks the refined, sleek modernity implied by the metaphors of 'fluidity' and 'immersion' so often invoked in discourses of portable digital devices.

Just like space, images of underwater also invariably require mediation through glass, lenses and so on. The underwater porthole has been evoked throughout cinema history as a 'magic window' into new worlds, acting as a metaphorical double for the film screen itself.[24] Indeed, underwater views have been a constant and significant form of visual entertainment, used to advertise technological and optical advances. This is evident from the manufactured glass in nineteenth century aquariums, displayed like paintings, through to the special effects of early 'underwater' science fiction films (such as Méliès's, *Kingdom of the Fairies*, as seen in *Hugo*), to the technical ingenuity of the mid-twentieth century films of Jacques Cousteau, to the advances in digital effects pioneered in the underwater sequences of *The Abyss* (James Cameron, 1989), and through to the animated 'screensavers' that have demonstrated the graphical capabilities of successive waves of computers.[25] *Oculus Drift* repurposes this trope, using it to playfully connect the latest VR headsets to their nineteenth century foundation in the construction of the modern observer, imbricated in, and attentive to, successive waves of consumer entertainment.

While Handran's playful optical constructions seem a long way from the design associated with Bauhaus figure László Moholy-Nagy, the two artists share in their work a playful experimentation with artificial light and movement. More significantly, Handran shares in Moholy-Nagy's critique of cultures of obsolescence.[26] One of Moholy-Nagy's strategies to subvert this, evident in Handran's work, can be found in his encouragement of the artist to adopt the engineer's spirit of technical invention and experimentation, and a refusal to be beholden to a belief in specialisation, that would leave, experimentation with optical instruments, for example, to science.[27] If Handran is not quite as didactic as Moholy-Nagy's concern with the "propaganda machine" dulling the sensibility of the masses, in its own mischievous and humorous way, *Curve of Sensations* shares in Moholy-Nagy's

rally against a situation in which “specialists in entertainment provide for a passive recreation” and where “people are taught that the best way of living is to use other people's energy, other people's results.”[28]

For Moholy-Nagy, “vision in motion” refers not to the perpetual acceleration of vision,[29] but to a refusal of the fixed perspective in favour of a vision that has “a flexible approach, by seeing matters as a constantly changing field of relationships.”[30] Moholy-Nagy, specifies the ‘composite’ vision of Cézanne as a key part of the development of this potential vision.[31] The decline of singular Renaissance perspective, amongst the dizzying panoply of machines, media and attractions that emerged in the nineteenth century, constructed an observer unmoored from certainty, suspended between freedom and capture. Crary similarly finds this tension in the work of Cézanne, which he sees as a play of evolving relationships rather than a frozen vision: “Cézanne’s late work attempts repeatedly to apprehend and achieve a liquid groundless space, filled with forces and intensities rather than objects, even as a related malleable space would become subject to endless forms of external re-structuring, manipulation, and numbing standardization throughout the twentieth century.”[32] Handran’s work takes these machines of standardization as its starting point, but in its delirious, and purposely ad hoc manner that moves across both obsolete and contemporary technologies, he reaches back to the spirit of Cézanne and suggests that we can plot new points on the curve of sensations, to strike paths of sensation not yet colonised by industrial media technology.

LIST OF WORKS IN THE EXHIBITION

Cosmic Background, 2016, digital video projection

The Universe and You, 2015-6, digital video, mobile phone, mirrors, lenses, mailing tube, tripod

Liquid Crystal Displaced, 2016, digital video, LCD screen, mirrors, cardboard, tripod

Oculus Drift, 2012-2016, digital video, media player, plastic, water, swimming goggles

Image: *Liquid Crystal Displaced,* 2016, digital video, LCD screen, mirrors, cardboard, tripod

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[1] Martin Loiperdinger. “Lumière’s Arrival of the Train: Cinema's Founding Myth.” *The Moving Image* 4.1 (2004): 89-118. Loiperdinger’s extensive historical research suggests that the film was not even shot until 1897 (p.103). The reciting of the story continues, however, it is just too irresistible. For a recent example see, Wheeler Winston Dixon and Gwendolyn Audrey Foster. *A Short History of Film*. New Brunswick, NJ: Rutgers University Press, 2008. p.5.

[2] The train is stationary for half of the film and only moves ‘towards’ the viewer for a few seconds.

[3] Ray Zone suggests that, given its historical proximity, this event might have inspired fear in the viewers of the Lumière film. See: “A Note on ‘Cinema's Founding Myth’” *The Moving Image* 5.2 (2005): 146-147. Though Zone erroneously refers to it as the “Montmartre” station train disaster.

[4] Ben Grossmann, a visual effects supervisor in the production of *Hugo*, notes that in creating a homage to Méliès, they utilised basically every cinematic special-effects technique available, from those of Méliès’s time to contemporary effects (cited in, Barbara Robertson, “Magic Man.” *Computer Graphics World* December 2011/January 2012: 20-24). For a detailed analysis of the special-effects in *Hugo*, including this specific sequence, see: Joe Fordham. “Man in the Moon.” *Cinefex* 128 (2012). This article quotes the principle effects supervisor for *Hugo,* Robert Legato, who marvels at the inventive effects pioneered by Méliès, and the difficulty of creating, them, even today.

[5] The film even presents them as having had a personal antagonism, as the Méliès character notes that the Lumière’s would not sell him a camera so he made his own from spare parts. This details also serves to align Méliès with the resourceful title character, the child Hugo, who takes care of the clocks at Montparnasse station and relies on scavenged spare parts. Méliès is cast here as the maverick artist against the corporate strategies of the

Lumières. Sean Cubitt notes that the Lumière brothers had transformed their father's small factory into a major European centre of a high-tech industry (photographic plates) on the cusp of enormous global growth (see: *The Cinema Effect*. Cambridge, MA: MIT Press, 2004. p.20). Victoria Duckett provides a detailed analysis of the representation of the films of both Méliès and the Lumières in *Hugo*. Duckett suggests that while *Hugo* presents an apparent reproduction of the typical "Lumière/Méliès dichotomy" and its associated myths, it also subtly undermines this by fusing elements of both filmmakers into its broader style of performance, choreography and humour ("Unwinding the Film Spool: Hugo, Méliès, and our return to early film." *Studies in Documentary Film* 8.1 (2014): 33-42).

[6] André Bazin. "The Life and Death of Superimposition." 1946. *Film-Philosophy* 6.1 (2002). http://film-philosophy.com/index.php/f-p/article/view/665/578

[7] Tom Gunning. "The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde." Early Cinema: Space Frame Narrative. Ed. Thomas Elsaesser and Adam Barker. London: BFI, 1990. 56-62.

[8] Loiperdinger, p.102.

[9] Gunning, p.61.

[10] Sandra Annett. "The nostalgic remediation of cinema in *Hugo* and *Paprika*." *Journal of Adaptation in Film & Performanc*e. 7.2 (2014): 169-180.

[11] Cynthia Baron. "The Cybernetic Logic of the Lumière Actualities, 1895–1897." *Quarterly Review of Film and Video.* 18.2 (2001): 169-189. Baron notes that audiences were prepared for the quotidian scenes of the Lumière films, from their daily life, but also by their mimicry of existing circulated imagery (such as postcards), and that the films projected a rational, stable world amidst colonial conflict. Baron also notes that the Lumiere films were carefully choreographed, as is especially evident in the lack of the subjects acknowledging the camera. Loiperdinger similarly, and in some detail, discusses the Lumière's choreography of the 'documentary image' of *Arrival of a Train* (p.107-110).

[12] Baron, p.177.

[13] Jonathan Crary. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. October. Cambridge, MA: MIT P, 1992.

[14] Jonathan Crary. *Suspensions of Perception: Attention, Spectacle, and the Modern Observer*. Cambridge, MA: MIT Press, 1999. That this separation of the senses from both external reality and an interior self also contained the possibility for the radical *diversion* of attention, its non-productive unravelling, is a tension considered throughout Crary's text (eg. p.12-13, 45-51, 77, 148, 361).

[15] Crary, *Suspensions* p.160. See also p. 176. While *Grand Jette* is only remarked upon briefly by Crary in his long discussion of Seurat, he does note that one could see in it "a statistical distribution of isolated and categorized units" (p.179), resonating with Baron's analysis.

[16] Crary, *Suspensions* p.278.

[17] Crary, *Suspensions* p.71. See also Jonathan Crary. *24/7: Late Capitalism and the Ends of Sleep*. London: Verso, 2013. p.79-86.

[18] For detailed information on *Kaleidoscope,* see: *Reimaging Cinema: Film at Expo 67*. Ed. Monika Kim Gagnon and Janine Marchessault. Montreal: McGill-Queen's University Press, 2014. p.54-77.

[19] On the combination of technologies in *Kaleidoscope* and the loss of intelligibility of the images, see: Johanne Sloan. "Kaleidoscope." in *Reimaging Cinema*, esp p.67. Viewers were so disorientated they regularly fell over, and the exhibit was modified to contain this to some degree. See: George Soulis. "George Soulis Reflects on Kaleidoscope: Interview with Janine Marchessault, February 2012." *Reimagining Cinema*, p.69-71.

[20] On the various effects used to realise the Stargate sequence, and their origin in avant-garde filmmaking, see: Don Shay and Jody Duncan. "2001: A Time Capsule." *Cinefex* 85 (2001): 73-117. esp. p.110-13

[21] Paul Monaco. *The Sixties: 1960-1969*. History of the American Cinema. Volume 8. New York: Charles Scribner's Sons, 2001. p.194-96.

[22] Ibid, p.196.

[23] Crary, *24/7* p.33-53. Crary, *Suspensions* p.12-13, 37, 74-78.

[24] Stephan E. Hauser. "The Sub-aquatic Picture Cosmos: A Brief History of the Aquarium and Underwater Film from 1890 to the Present Day." *Under Water Above Water: From the Aquarium to the Video Image*. Ed. Viola Weigel. Wilhelmshaven: Kunsthalle Wilhelmshaven; Bielefeld: Kerber, 2009. 18-35. On the inevitable mediation of underwater views, see Natascha Adamowsky's essay in the same volume (" Approaches to an Aesthetics of the Mysterious: With Reference to Marine Research of the 19th Century" p.8-17).

[25] Hauser traces some of this history, though his discussion of cinema does not extend beyond the 1960s.

[26] László Moholy-Nagy. *Vision in Motion*. 1947. Chicago: Paul Theobold and Company, 1969. See p.34, 42 and 62.

[27] Ibid., p.15, 31, 168.

[28] Ibid, p.20.

[29] As explored in the work of Paul Virilio.

[30] Moholy-Nagy, p.114.

[31] Ibid, p.113-18.

[32] Crary, *Suspensions* p.359.