**A Legacy of Subtle Things:
Digital Invocations of Photo-Realism**

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By

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A thesis submitted to the Faculty of
Graduate Studies and Research in partial fulfillment
of the requirements for the degree of
Master of Arts
in Film Studies

Carleton University

OTTAWA, Ontario

June 20, 2011

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ISBN: 978-0-494-91591-2

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Abstract

There are certain myths that privilege the photographic image and its apparent intrinsic links to reality. These myths have been propagated by state institutions, philosophers, and even our own nostalgic love for what a photograph can remind us of. As a result, photography has come to enjoy a certain level of infallibility—photography mechanically documents reality, positioning the viewer within a certain embodied space. My thesis upsets these myths, revealing this infallibility as a simple projection made by the viewer. Photography invokes these myths through certain stylistic codes that foreground the photographic camera as a tool of objective observation. Moreover, I demonstrate a tendency in digital imaging to stylistically invoke these same myths. Computer-rendered media frequently suggest that a material camera is used to produce their images. Films such as *Wall-E* (2008) stylistically infer camera-usage by fabricating filmic artefacts such as lens flares, film grain, depth of field, hand-held camera movement, and “shotgun” zooms. This stylistic application of realism, I argue, proves that digital media is situating itself to further the legacy of photography, as a medium committed to visually representing reality.

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Acknowledgements

First and foremost, I would like to acknowledge my supervisor Prof. Marc Furstenau. Your unparalleled expertise, knowledge, frankness, and patience have been invaluable to me during the writing of this thesis. Prof. Zuzana Pick also deserves thanks for the attention that she gives to the Film Studies grad program at Carleton, and the special support that she lends to film students.

It is crucial that I express my gratitude to several TA's and instructors under whom I studied during my undergraduate years. Chris Rohde, Ben Wright, and Matt Croombs each played *very* important and unique roles in fostering my academic career.

Lastly I would like to extend a sincere thanks to several friends who supported me in various ways along the way. They include Evan Woods, David Shea, Mona Harnden Simpson, Jessica Hawkes, and Jamie Leclaire. I would also like to thank my family for their continued support in what I do.

Introduction

Sometimes it is easy to forget how intrinsic photography is to our culture. One quick look around, however, can quickly remind us that we are surrounded by pictures of things and things that take pictures.

Powerful myths surround photography. It is a technology that is, according to these myths, capable of capturing a pure document of reality with just a simple press of a button. Already this statement presents us with a problem—a problem that has been voiced time and time again. If the technology of photography, in its own uniqueness, is able to independently seize a pure moment of reality, then what consideration is made for the finger that presses the button? This finger represents the subjectivity of the photographer, who places the camera within a context before it is even used. The photograph taken must always exist not only within this context, but within the context that it is viewed. The photo-reality claim is therefore a myth, though it deeply affects the way we view images of the world.

Many cling to the photo-realism myth, especially now as digital technology moves in to replace this overly-fetishized medium. A reluctance to part with traditional forms of photography has led us to shape our digital images in their likeness. Computer-generated images frequently preserve the visual aesthetics of photography, also mimicking the flaws and nuances specific to the photographic medium. For example, it is not uncommon to see film grain and lens flares in images that were not produced using a lens or film at all. In this context, these stylistic artefacts almost cease to be aesthetic elements, becoming photographic content instead. They signify the old myths of

photography, invoking a certain believability that we once saved only for the photographic medium. This only emphasizes the ever-shifting subjective nature of representational realism. After over a century in which the photographic connoted the real, digital imagery has now taken on the role as a purveyor of visible reality.

In the first decade of the twentieth century photography was just beginning to take a firm hold in our culture's collective imagination. Before this time, photography had been an expensive and complicated endeavour, mainly reserved for scientists, explorers, inventors, and other niche professionals. The technology was still coming-of-age, and while the population was fascinated by the medium's "unique power" as a "matchless recorder of moments, of people and of place"¹ the public was still largely unable to access it.

Kodak's George Eastman changed this, playing a crucial role in the mass dissemination of photography. His developments in film and camera technology in the late nineteenth century laid the foundation for a massive amateur photography movement. By the early 1900s cameras had become simplified and affordable enough that the public could now enjoy photography as a hobby. Kodak had released its line of streamlined Brownie cameras, which were user-friendly, compact, and affordable, selling at only \$1.00 per unit.² The most popular photographic subjects at the time were quite modest however, with amateurs preferring to document every-day occurrences rather than grand spectacles and events. Amateur photographers concerned themselves less with "high

¹ *The Camera: Life Library of Photography* (New York: Time-Life Books, 1970) 18.

² "The Brownie Camera @ 100 Years: A Celebration," n.d.
<http://www.kodak.com/US/en/corp/features/brownieCam/>

aesthetic quality,” and more with assembling “documentary evidence relating to the social life of their time.”³

Since then, photography has exploded. The world has become saturated with images and profoundly reliant on photographic technology. The recorded image has become a crucial part of our most established institutions, and has fundamentally changed how we see, communicate, learn, maintain order, and create chaos.⁴

By 1970, one author claims, over four billion amateur photographs were being taken per year in the United States alone by some 60 million cameras.⁵ A 1999 study at the University of California dwarfs these statistics, placing the number of photographs in current existence at close to 900 billion, with 150 billion more to follow in the following two years.⁶ Throughout the past decade cameras have dramatically increased in portability, matching an overwhelming public demand for conveniently accessible photography. Today, cameras are *everywhere*. Cameras can now be found in our cell-phones, computers, video game consoles, vehicles, class-rooms, and work-places, proliferating throughout both our public and private spaces. Moreover, the Internet has made photographic distribution not only a common practice, but a fundamental aspect of personal identity-building. Online social networking and file-sharing have become important social acts, necessitating convenient and quick photographic distribution.

³ Jean-Claude Lemagny and André Rouillé, *A History of Photography: Social and Cultural Perspectives*, ed. Janet Lloyd (New York: Cambridge University Press, c1987) 80.

⁴ Paul Virilio, *War and Cinema: The Logistics of Perception* (London: Verso, 1989) 137. Virilio describes modern warfare as a cinematic affair, mediated by cameras to the extent that it begins to “alter our perceptual orientation in and toward the world, ourselves, and others.”

⁵ *The Camera*, 12.

⁶ Cited in Marc Furstenu, “The Ethics of Seeing: Susan Sontag and Visual Culture Studies,” *Post Script: Essays in Film and the Humanities* 26:2 (Winter/Spring 2007) 99.

The cinema, an art-form traditionally based on photographic technology, has shared equal popularity throughout the past century. The moving image has gripped audiences since its inception, exciting interest and attention in almost all the corners of the world. Most nations now support multi-billion dollar film industries designed to entertain and inform the public, disseminating culture across the globe. The movie industry has entertained, taught, provoked, and promoted—all thanks to the recording lens of the camera.

Naturally it is well beyond the scope of this project to fully detail the importance that cameras have in our culture. Instead I will look at one instance where the cultural importance of the camera has shaped the development of a separate technology. I am of course talking about digital technology. The digital code that comprises contemporary computing electronics has allowed for the transformation of the world's analog gadgets into more computer-friendly forms. These adapted technologies, which I will generalize as “digital technology,” all share a common character, functioning according to the basic logic of digital code. Lev Manovich defines digital technology, or *new media*, according to the common characteristics that it is “composed of digital code....can be described formally (mathematically)....[and] is subject to algorithmic manipulation.”⁷ Since it is easily manipulated, digital technology has been gradually replacing many familiar analog technologies. The flexible digital language has been adapted to virtually all media, and in many cases “new media objects are converted from various forms of old media.”⁸

⁷Lev Manovich, The Language of New Media (Cambridge: The MIT Press, 2001) 49.

⁸ *Ibid.*

In many cases this has seemingly caused drastic ontological change in the objects being digitized. From an academic stand-point, this subsequently poses pertinent philosophical questions about said objects. When the analog camera, for example, was transformed into a digital technology, the change was understood by many theorists as the end of photography as we had known it (indeed, in one essay, Manovich refers to the history of motion pictures as an “archaeology”).⁹ The *indexicality* of the photographic image is lost, and with it, all documentary truth-claims that photography had been licensed to make. Of course, this is an exaggeration. Digital technology did not destroy photography, it only transformed it. The camera has shaped us so crucially throughout the past century that we would never allow for it to fade into obscurity. Although digital technology now provides us with the tools to overcome photography’s flaws, subtle signs of photographic character persist in the digital images we create. Traces of photography’s analogous technological foundation are deliberately applied to digital imagery. These images are filled with hints of photo-chemical techniques, invoking the bygone style of photography. While we are no longer restricted to this flawed technology—with its grain, blur, scratches, and flares—we choose to maintain its aesthetic. This suggests a very deep cultural attachment to the original photographic technology, an attachment that has been disturbed by the emergence of digital imaging.

Despite our discomfort with this change, we continue to use digital cameras every day. By and large, our digital images continue to perform roles similar to those performed by analog photographs, providing us with documents of objects, ideas, environments, and

⁹ Lev Manovich, “What is Digital Cinema?” *Lev Manovich*, levmanovich.com. Apr. 18 2008.
<<http://www.manovich.net/TEXT/digital-cinema.html>>

general *things*. Digital imagery seems to have found a comfortable place within the same visual traditions of realism set by photography. Digital images of all sorts are imitating their analog ancestors, taking on photographic style in hopes of sharing the technology's mechanical irrefutability. I have noticed this particularly in computer-animated films, as they attempt to ground themselves in a visual realism that is fundamentally "photographic."¹⁰

While some computer-animated films take advantage of their virtual make-up to produce fantastic and seemingly impossible images, other computer-animated films deliberately maintain the most traditional filmic styles, based in photographic representation. Such stylization often goes so far as to reproduce the technical artefacts of a *direct cinema* aesthetic, incorporating shaky camera movement, "shotgun" zooms, abrupt racking focus, and lens flares. These styles are traditionally the direct by-product of a camera lens, which is not required, and which could easily be dispensed with for most digital animation. Through these obvious stylistic techniques, the film makes a reflexive nod to its own "materiality," attempting to deceive the audience into believing that the images have been produced by a camera, which was, however, not present at the moment of the images' production.

¹⁰ While traditionally animated films often attempt visual realism in a similar way, for the sake of brevity I will not discuss traditional animation very much in this thesis. The fact that traditionally animated films record their images utilizing analog cameras (albeit, to a different end) unproductively complicates my argument.

As Marshall McLuhan famously proclaimed, “the medium is the message.”¹¹ That is to say, in McLuhan’s words, “the ‘content’ of any medium is always another medium.”¹² Media are constantly borrowing from, and intertextually presenting us with, signs of other mediating technology. This can be traced to the very media that compose our human bodies—the physical senses and appendages that help us navigate through the world on a daily basis, constructing our perceived reality. Each new technological medium only extends these natural media in a continuous and self-perpetuating manner. Technological media are designed to conform to our bodies, introducing a “change of scale or pace or pattern...into human affairs.”¹³ The camera, for instance, exists to “amplify or accelerate”¹⁴ human processes of vision and memory, allowing us access to greater visions of the world. Applying McLuhan’s concept, one could argue that the codes of human vision serve as the medial “content” of photography. Photography then mimics human vision, allowing us to “see” things through representation.

This thesis will extend that argument a bit further. I suggest that the photographic camera is the veritable “content” of digital cinema. By drawing on concepts laid by David Bolter and Richard Grusin (who themselves re-mediate McLuhan’s text), I will demonstrate the photographic camera’s re-mediation in digital cinema. The photographic camera, we will realize, is not necessarily fundamental to photographic truth, but is simply a construct or frame-of-mind that has become culturally associated with truth, reality, and empiricism. With Mike Jones’ and Edward Branigan’s theories to guide me, I

¹¹ Marshall McLuhan, Understanding Media: The Extensions of Man (New York: McGraw-Hill Book Company, 1967) 7.

¹² McLuhan 8.

¹³ Ibid.

¹⁴ Ibid.

will argue that the cinematic camera is merely a *concept*, used to communicate subjective perceptions and interpretations of the cinema. In Branigan's analysis, the camera is always positioned by the viewer, who naturally assumes that the film's images are derived from a material camera. This has become a vital aspect of the cinematic experience, and endures even when a material camera is absent from the film-making process. This idea will become particularly useful when I observe the camera's re-mediation in digital media, as an embodying device, and conceptual sign of realism.

It may seem strange to understand realism as an effect produced by stylistically-implied mediation. If artists wish to simulate an *immediate* experience (that is, an experience without mediation) in their art, why layer it with the signs of additional mediating devices?

The answer to this question can be answered by looking at *how* people perceive reality. As I have noted, cameras play a profound role in our lives, mediating many of our experiences. In fact, some believe that the camera has gone a touch out of control in this regard. Marc Furstenau has described a widely-held sense that, "the image seems to be running amuck,"¹⁵ summarizing the concerns of theorists such as Susan Sontag and W.J.T. Mitchell. The sheer level of image-saturation that we now experience as humans plays a profound role on how our realities are shaped. Considering the documentary status that is attributed to the photographed image, it can be argued that humanity's current "reality" is constructed by the lens of a camera. As Richard Armstrong puts it, "truth effects signify how far representations chime with our ideas of what is true about

¹⁵ Furstenau 97.

the world in a general sense.”¹⁶ If what we say is “true about the world” can be found documented within an image (or relayed from a camera), then our perception of reality can be said to stem from a photographed reality. Joel Black supports this claim, arguing that “our sense of what is real is determined, conditioned, and mediated as never before by movies and the other recording media.”¹⁷ He further argues that “today’s sophisticated effects are increasingly used to produce a heightened illusion of reality itself—of truth as visible spectacle, of reality as anything that is filmable.”¹⁸ We value truth as that which can be visually documented.¹⁹ It is no wonder then that photographic aesthetics have persisted as signifiers of reality in a medium that no longer requires photography.

So I will begin my thesis by asking a basic, but very important question: What conditions the credibility of the image? While photo-realism is often taken for granted, it is something that must be investigated if we are to understand its place in the digital age. Many believe that photo-realism is inherent to the photographic medium. Photography, after all, is usually defined by its mechanical, photo-chemical properties, and its ability to record the visual realm without human interference. These particular properties have lead theorists such as Roland Barthes and André Bazin to praise photography as an objective, unmediated technology, capable of recording the world for what it is. Theorists working within this line of thought tend to appropriate Charles Pierce’s system of signs, championing the *indexicality* of the photographic image.

¹⁶ Richard Armstrong, Understanding Realism (London: BFI Publishing, 2005) 9.

¹⁷ Joel Black, The Reality Effect: Film Culture and the Graphic Imperative (New York: Routledge, 2002) 111.

¹⁸ Black 8.

¹⁹ On a topical note, this can be verified by the scepticism surrounding Osama bin Laden’s recent assassination. Many demanded for photographic evidence that he had indeed been killed before they were to believe it.

While this position has become popular, it has also come to face stark opposition. Thomas Elsaesser articulates this opposition as a historical “critique of ‘naïve’ realism” (“‘naïve’ realism” being that of Bazin and Barthes), manifesting as an epistemic scepticism found in today’s theoretical climate.²⁰ Elsaesser finds two strong strains of criticism poised against the popular “‘naïve’ realism” position. One criticism is posed by cultural constructivism, “which holds that all representations are culturally coded: that is, they do not reflect any external, inherent, or ‘transcendent’ realities, but are contingent on convention, human perception, history and social experience.”²¹ The other criticism is a cognitive one, which holds “that cinematic representations are ultimately no different from perceptions of any other (audio)visual field, and that cognitive processes of matching, sampling, comparing, and assigning sense to raw perceptual data were what determined how we understand filmic images.”²² In Chapter 1, I will elaborate on both of these criticisms, ultimately revealing the mythical nature of photography’s supposed inherent realism.

John Tagg openly opposes Barthes, recognizing a range of cultural conditions which provide a context in which an image is viewed and interpreted. Tagg traces the idea of photo-realism to the historical conditions from which photographic technology emerged. In Europe, at the time of its invention, photography was quickly appropriated by oppressive states as a means of subject-control. Many state institutions used photography as a means of documenting, observing, and proving, all while actively

²⁰ Thomas Elsaesser, “World Cinema: Realism, Evidence, Presence,” Realism and the Audiovisual Media, ed. Lúcia Nagib and Cecília Mello (New York: Pelgrave Macmillan, 2009) 5-6.

²¹ Elsaesser 6.

²² Ibid.

enforcing the photograph's status as an objective tool of empiricism.²³ This myth would persevere, and perpetuate throughout the twentieth century, while proliferating through media institutions. By the 1950s, documentary films began to privilege the camera's ability to simply observe, championing direct cinema's non-obtrusive, observational realism. This observational realism would even seep into entertainment media, lending aesthetic truth effects to reality TV programs such as *Jersey Shore*, horror films such as *Cloverfield* (2008), and fictional comedy programming such as *Curb Your Enthusiasm*. This exploitation of the camera's "truth" value, however, only further proves that that photo-realism is a style, and not explicitly inherent to the medium.

Chapter 2 continues to challenge conceptions of medium-specificity by looking at a range of dis/embodiment theories in relation to the cinematic camera. The eye is often privileged as the foremost important sense in gathering empirical data and creating bodily experience. As a seeing-device, the camera effectively facilitates remote experiences, and strong sensations of presence. Famously, Vivian Sobchack writes of the embodying capabilities of visual media (specifically photographic, cinematic, and electronic media), which she sees as both expressive and perceptive apparatuses. To Sobchack, these media "in-form and orient our social, personal, and bodily existence,"²⁴ formed by specific material conditions to both *mediate* and *constitute* a subject's bodily figuration. As useful as this description may be, Sobchack characterises "electronic media" (namely, digital media) as disembodiment media, which disorient and detach subjects. In contrast, I will

²³ John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (London: Macmillan Education Ltd., 1988) 63.

²⁴ Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004) 136.

argue that sensations of embodiment and presence are not specific to the photographic medium, but rather tied to *how* a medium stylistically positions the spectator, specifically through the creative application of the cinematic camera.

The cinematic camera itself is a very elusive object of study, with many conflicting manifestations and definitions. The camera can be a material thing found on a movie set, a device used to position an audience within the space of the film, or even serve as the very vision of a character within a film. This chapter will acknowledge the camera as a complex conceptual object that is not tied to materiality, nor a singular definition. A camera may exist beyond the physical, as demonstrated in animation and computer-rendered cinematics. Edward Branigan helpfully sorts through the evident multiplicity of the camera, concluding that the “camera” we perceive in visual media is more a cognitive construct and less a physical object moving through space. And while the virtual camera found in computer animation is not concrete, it continues to serve the purpose of situating the viewer within the diegetic space of the film. As with the photographic cinema, camera movement in computer animation can be anthropomorphic or non-anthropomorphic, depending on how closely a camera perspective visually simulates our “real” senses of perception and movement. Regardless, these levels of embodiment are related to the cinematographic choices of filmmakers and not the medium that they choose to work with.

Chapter 1 and 2 are designed to review and question existing literature surrounding representational photo-realism and embodiment. I hope to use these chapters to dispel myths of medium-specificity surrounding photography. The “reality” and

“presence” that we may feel when looking at an image is in the end conditioned by the context in which we view it, and in many ways, the manner that we are positioned by that which we call “the camera.” It is necessary to dispel these myths in order to move forward and discuss sensations of “realism” found in digital media. Computer animation is typically seen as a very “un-realistic” medium, since it is purely derived from abstract data. I believe that this classification is unproductive, and that visual artists currently construct very powerful and effective “reality-effects” in digital cinema through the implementation of various stylistic strategies. It is important to note, though, that these effects are fundamentally no different than the effects of the photographic camera.

Chapter 3 will demonstrate this theory in practice by observing the simulation of analog photographic style within contemporary digital media. While I intend to focus specifically on computer-animated films, I must first observe a wider custom in which all media constantly borrow from each other. Exemplifying this custom, Paul Young accounts for “friendly acts of theft”²⁵ found within early sound films of the 1930s. Young illustrates the coming of sound in cinema as a time when cinema assumed many of the aesthetic styles of radio and live musical performance. This was intended to accustom audiences to the new medium of sound introduced to the cinema. Since aural media were most familiar to audiences in the form of radio and live performance, these were imitated in early sound film.

Stephen Prince recognizes this practice in contemporary cinema, highlighting certain digital procedures that apply analog photographic styles to digital cinema. Prince

²⁵ Paul Young, The Cinema Dreams its Rivals (Minneapolis: University of Minnesota Press, 2006) 74.

calls these stylistic instances *filmic artefacts*, as they often foreground signs of analog technique that are over-looked in filmic media, and not really recognized by a viewer until they are encountered in digital form (eg. film grain, film scratches). To Prince, the filmic artefact is nostalgically driven, applied to contemporary digital media in “an attempt to retain a part of the past in a present that is outdistancing it.”²⁶

What Young and Prince are describing here are cases of what has been called *re-mediation*—the refashioning of old media in the formation of new media. David Bolter and Richard Grusin identify re-mediation as a defining aspect of the digital age, with digital media explicitly borrowing the aesthetics of photography to meet the demands of a spectator’s visual expectations. Photographic media have not only come to govern the style of these media, but also serve as content as well.

Using Disney-Pixar’s *Wall-E* (2008) as a case study, I will conclude this thesis by describing its re-mediated “analog” style. The stylistic repertoire of *Wall-E* includes lens flares, “shotgun” zooms, racking focus, shallow focus, and anthropomorphic camera movement—stylistic devices seen as particularly “photo-real.” These techniques are similar in that they are exclusively products of a camera or camera lens. When displayed in a purely digital format, these “artefacts” create a paradoxical reflexivity that actually re-enforces the medium’s aesthetic realism. They draw the viewer’s attention to a conceptual camera apparatus akin to a “camera on set.” Nevertheless, these photographic codes invoke the aforementioned myths of reality supported by Barthes, Bazin, and Sobchack, associated with the photographic medium.

²⁶ Stephen Prince, “The Emergence of Filmic Artifacts,” *Film Quarterly* 57:3 (2004) 33.

The broader purpose of this thesis is to challenge a common trend in film studies to valorize photographic technology as it fades into history. This paper will consistently prove that in practice, digital imaging is every bit as capable of “representing reality” as photography. This is not through the merit of its technological foundations, but through its application. Digital imagery continues to stylistically exploit the myths of photo-realism cemented within our culture, furthering the legacy of photo-chemical photography.

Chapter 1:

Presenting Reality, With Style

Had our instruments permitted it, we might have seen the gathering trouble far back in the nineteenth century. Men like Schiaparelli watched the red planet—it is odd, by-the-bye, that for countless centuries Mars has been the star of war—but failed to interpret the fluctuating appearances of the markings they mapped so well. All that time the Martians must have been getting ready.

– H.G Wells, War of the Worlds²⁷

In May of 1905, American amateur astronomer Percival Lowell produced the first distinguishable photographic images of Mars. The images are grainy and unimpressive by today's standard, however, they managed to captivate scientific thinkers and curious on-lookers of the time. In fact, these grainy images would generate considerable controversy in the scientific community and spark the imaginations of lay people as well. Upon the mass publication of these photos, many began to perceive what appeared to be organized canal systems on the surface of Mars, inferring that sentient life inhabited the planet. Many scientific minds began to speculate what life on Mars was like, using these photos as the sole basis of their theories. Lowell, for instance, speculated from his own photos that Mars was a cool, flat planet, with a thin atmosphere,²⁸ while some scientists firmly believed that the planet shared a similar climate and geology with Southern England.²⁹

²⁷ H.G. Wells, *The War of the Worlds*, *Project Gutenberg*, 1 Oct. 2004 Web. Oct. 2010
<www.gutenberg.org/files/36/36-h/36-h.htm>

²⁸ Jennifer Tucker, *Nature Exposed: Photography as Eye-Witness in Victorian Science* (Baltimore: The John Hopkins University Press, 2005) 215.

²⁹ Tucker 211.

Lowell's own book, simply entitled Mars, documents the planet's earth-like features in great detail, and is said to have influenced H.G Wells in writing The War of the Worlds.³⁰ Wells himself describes the planet as suffering its "last stage of exhaustion," with shrunken oceans, scarce resources, and frigid temperatures.³¹ While these descriptions of Mars faced considerable resistance, they exemplify the entertaining but often erroneous assumptions that one can make when regarding a photograph as a straight-forwardly empirical document of reality.

Indeed, prior to Lowell's photos, many amateur astronomers had observed Mars on a nightly basis, sketching the planet's surface while peering through a telescope. While "canals" had been previously interpreted from these sketches, they were commonly considered artistic anomalies and were most often attributed to "poor observational technique and lazy drawing habits."³² Lowell's Mars photo provided greater credence to the canal claim by seeming to remove the possibility of human error from the recording process. Lowell himself believed that his photographs alone could prove the existence of Mars' canals, and that more photos would be enough to silence his critics. Many scientific experts shared the astronomer's enthusiasm for scientific photography, some declaring that Lowell's images provided the necessary grounds for believing in life on Mars. Astronomer Andrew Claude Crommelin would go so far as to announce that Lowell's images had instilled in him a resolute belief in the "*objective reality* of the canals."³³ And Crommelin's enthusiastic remarks were just some of many.

³⁰ John Batchelor, H.G. Wells (New York: Cambridge University Press, 1985) 23-24.

³¹ Wells

³² Tucker 211.

³³ Tucker 219. My italics

Yet the task of recording clear images of Mars had for years presented astronomers with countless obstacles and pitfalls (evidenced in the quality of the photos that had been taken, Lowell's included.) Mars' red hue required a longer exposure than other planets, a challenge only complicated by the fact that Mars is rarely seen in the night sky. On top of this, turbulence in the Earth's atmosphere made Mars difficult to hone in on with a lens for a prolonged exposure. Add poor weather conditions, unavailability of adequate equipment, and the photographer's skill-level to the long list of complications and variables, and one can see why Mars proved to be such a shy photographic subject. These difficulties only surface in the quality of Lowell's images, which are far from ideal representations. They are small, monochromatic, grainy, and blurry, which only attests to the challenging optical conditions under which they were taken. If these photos were so grainy and ineligible then what was it that made them such convincing empirical evidence of life on Mars?

Perhaps a broader question can be asked: What conditions the credibility of an image? While Lowell's images truly are *photo graphic* impressions of Mars' surface, they were nonetheless recorded and published at the cusp of a longstanding tradition of astronomical sketching, and existed within a politically charged scientific community. Surely these conditions, among many others, shaped how these images were perceived by the public. And while an early nineteenth-century observer may have found these images to be remarkable documents of "objective reality," a contemporary viewer may be unimpressed, or even distracted by their blurry, grainy, monochromatic quality.

The following chapter will survey the ever-shifting aesthetics of so-called “realism” in visual imagery. While not intended to be an exhaustive survey, it is meant to demonstrate that the perceived objectivity inherent to photography is not absolute, and inconsistent according to context. These Mars photos illustrate that the given realism of an image depends greatly on the time and context in which it is being viewed. While many critics point to the photographic medium as fundamental to a photo’s documentary-value, effects of realism rely more on complex social, cultural, and political systems, which become projected onto the image by the viewer. As John Tagg writes, “What is real is not just the material item but also the discursive system of which the image it bears is part.”³⁴ We will see that a photo’s existential “reality” is not imbued in the photo itself, but rather projected onto the photo by the viewer, according to his or her own subjective experiences and desires. Even today, though, our culture often takes photographic content as a given, despite our knowledge that a photo can “lie” through trick photography or digital doctoring.

I can understand why its medium is considered such a crucial aspect of the photographic image. The origins of photography, after all, lie in an early nineteenth-century desire to mechanically fix the optical refractions of the *camera obscura* into a material form. Before photography, this task was accomplished arduously by the painter’s hand. Photochemical impressions had been experimented with for centuries, dating as early as the Middle Ages. In the early Thirteenth Century, Albertus Magnus is said to have observed silver nitrate to colour “the human skin with a black colour very

³⁴ Tagg 4.

difficult to remove.”³⁵ While Magnus is noting silver nitrate’s reaction to light, he is ignorant of the chemical’s photochemical reaction. It was not until 1725 that Professor Johann Heinrich Schulze of the University of Altdorf discovered, by accident, that silver salts react from exposure to the sun’s rays.³⁶ Experiments would proceed throughout the next century, building on Schulze’s discovery. Most notable of these experiments were those of Thomas Wedgwood, the son of Josiah Wedgwood, who had an explicit desire to apply Schulze’s discovery in capturing and retaining the fleeting images of the *camera obscura*.³⁷ During the late Eighteenth Century, Wedgwood embarked on a number of poorly documented photographic experiments, ultimately dying before he could complete them. A quarter-century later his experiments would be fulfilled. In an attempt to compensate for his lack of artistic skill, French inventor Nicéphore Niépce conducted a number of photochemical experiments, furthering the concepts of Schulze and Wedgwood. After stumbling upon a process of light-engraving that he dubbed *heliography* (“sun-drawing”), Niépce began his more focused photographic experiments in 1816. Using paper sensitized with silver chloride, Niépce was able to capture the light of a *camera obscura* and create photographic negatives of his workshop. Not content with this achievement alone, Niépce soon aspired to photo-chemically fix an image of nature. Using light-sensitive bitumen of Judea on a pewter plate, and taking an 8-hour exposure, Niépce was finally able to permanently capture an image of the view from his window, which is now widely considered to be the world’s first photograph.

³⁵ Helmut Gernsheim, *The Origins of Photography* (London: Thames and Hudson, 1982) 19.

³⁶ Gernsheim 20.

³⁷ Gernsheim 24.

Medium materiality plays a fundamental role in this pre-history of photography. The earliest photographs depended on a reaction of light and chemicals manifesting in an analogous impression on some material receptacle (be it metal, pewter, paper, glass). This is a process that would remain more or less unchanged for over 150 years. The analogous nature of photography is held dear by many critics as a defining feature of the medium: the impressions of light recorded automatically, by a camera, in chemical, on a surface. As Roland Barthes writes, “Photography is at the intersection of two quite distinct procedures; one of a chemical order: the action of light on certain substances; the other of a physical order: the formation of the image through an optical device.”³⁸

For Barthes, in his final book, Camera Lucida, this is a critical intersection, fundamental to the “genius” of photography. While Barthes should not be considered a “naive” realist (Camera Lucida was written near the end of his career, and should not be representative of his entire body work), it has still become somewhat of a canonical text in the field of photo-realism. In Camera Lucida, Barthes describes himself as being overcome with “‘ontological’ desire” when viewing a photograph—that is, a desire to learn, know, or make contact with the subject of the photo.³⁹ To Barthes, this essence or “genius” of photography lies in the ties that a photograph holds with its referent. “A specific photograph,” describes Barthes, “is never distinguished from its referent.”⁴⁰ Photograph and referent are “glued together, limb by limb, like the condemned man and the corpse.”⁴¹ It is this existential bond which distinguishes photography from other

³⁸ Roland Barthes, Camera Lucida: Reflections on Photography (New York: Hill and Wang, 1981), 10

³⁹ Barthes 3.

⁴⁰ Barthes 5.

⁴¹ Barthes 6.

visual arts, such as painting. The photograph indicates a past existence, which for Barthes, is found present in the image. This affords the photograph an element of *truth*, or realism, which cannot be found in other visual media. Barthes declares that:

I had induced the truth of the image, the reality of its origin; I had identified truth and reality in a unique emotion, in which I henceforth placed the nature—the genius—of photography, since no painted portrait, supposing it seemed “true” to me, could compel me to believe its referent had really existed.⁴²

At the core of this “truth” and “reality” lies the actual material components of the photographic medium. These material components are what, to Barthes, elevate photography above other visual media as a truth-bearing medium. A painting may inspire interest in an object—an object that may very well have been real at one point—however it does not as clearly indicate the past existence of that object. A photograph’s bond with the referent “was made possible only on the day when scientific circumstance (the discovery that silver halogens were sensitive to light) made it possible to recover and print directly the luminous rays emitted by a variously lighted object.”⁴³ Barthes elaborates that “the photograph is literally an emanation of the referent. From a real body, which was there, proceed radiations which ultimately touch me, who am here...light, though impalpable, is here a carnal medium.”⁴⁴ Photography is described here as being a

⁴² Barthes 77.

⁴³ Barthes 80.

⁴⁴ Barthes 80-81. In this case Barthes takes his analysis a little too far. If read carefully, this quotation actually implies that a photograph somehow stores the light recorded in the original exposure, and releases these same rays of light to the viewer. If this were true, I think the indexicality debate could safely come to a close.

medium without mediation—a direct artefact of reality, by virtue of medium alone.⁴⁵ According to Barthes, photography chemically encapsulates light, therefore confirming the past existence of its subject, effectively stating, “See, here it is!”

Famed French film critic André Bazin shares a similar sentiment towards the photographic image. Like Barthes, Bazin heralds the photographic image as an amelioration in the evolution of realistic visual representation. Where painting finds itself caught between realism and symbolism, photography “completely satis[ifies] our appetite for illusion by a mechanical reproduction in the making of which man plays no part.”⁴⁶ Through the use of the camera, lens, and film, human intervention is diminished in the creation of an image. “For the first time,” writes Bazin, “there intervenes only the instrumentality of a nonliving agent. For the first time an image of the world is formed automatically, without the creative intervention of man.”⁴⁷ Bazin finds in this an intrinsic beauty, endowing photography and cinema with the ability to capture nature in its objective state. In short, a photograph is a direct transference of reality to representation.⁴⁸

I refer to Barthes and Bazin only because they manifest a greater tendency in the study of film and photography to directly attribute realism to the photographic, filmic medium. Many theorists, including Barthes, Bazin, but also Dudley Andrew, Mary-Ann Doane, Rosalind Krauss, Susan Sontag, W.J.T. Mitchell, Stanley Cavell, and countless

⁴⁵ Barthes 80.

⁴⁶ André Bazin, “The Ontology of the Photographic Image,” *What is Cinema?: Volume I* (Los Angeles: University of California Press, 1967) 2.

⁴⁷ Bazin, “Ontology” 13.

⁴⁸ Bazin, “Ontology” 14.

others, praise the photographic image on the grounds voiced by Barthes and Bazin—the photograph as a document of reality, the return of the dead, a mummification.⁴⁹

As demonstrated by their morbid descriptors, these texts manage to imply that photography has the ability to preserve the past and restore that which is dead. Needless to say, Barthes' fixation on the photography of his deceased mother can attest to this. As Susan Sontag writes, "it is a nostalgic time right now, and photographs actively promote nostalgia."⁵⁰ As a technology ideal for "certifying experience,"⁵¹ photography's alleged connection with the past is useful in commodifying that which has passed. "Photographs," explains Sontag, "give people an imaginary possession of a past that is unreal...People robbed of their past seem to make the most fervent picture takers, at home and abroad."⁵² As Sontag illustrates, photographs preserve the ghosts of friends and family, documenting their past existence.

Death has been a popular subject of photography for this very reason. The nineteenth and early twentieth century produced many photographs of loved ones in post-mortem. Dead children were often photographed in their beds, as if asleep while deceased family members were often photographed in their coffins before being buried under the earth forever.⁵³ There was even a tradition of photographing dead pets, as seen by a collection of photographs depicting dogs "resting" on beds, rugs, and the laps of their owners. Such images represent a historical desire to "remember people, places, and

⁴⁹ An internal examiner on my thesis defence committee suggested that I use the term "zombification" here which I think is at least worth noting.

⁵⁰ Susan Sontag, *On Photography* (New York: Anchor Books Doubleday, 1977) 15.

⁵¹ Sontag 9.

⁵² Sontag 9-10.

⁵³ In some of these images, the photographer goes so far as to paint eyes on the closed eyelids of the children. It is very disturbing.

events” as well as “to mourn and memorialize.”⁵⁴ It is the photograph’s strong sense of presence and seeming link to reality that made this technology seem so ideal to memorialize the dead, leading one mourner to praise the photograph in such terms that “it is not merely the likeness which is precious—but the association and the sense of nearness involved in the thing...the fact of the very shadow of the person lying there fixed forever!”⁵⁵

Many find it useful to appropriate Charles Peirce when arguing this existential bond perceived between a photo and its referent. Pierce’s work on signs has proven to be invaluable to theorists attempting to realize what it is that photographs represent. In an influential essay discussing semiotics, Peirce describes a sign as “something which stands to somebody for something in some respect or capacity.”⁵⁶ This definition, while seeming somewhat vague and self-explanatory, simply illustrates how often we are approached with meaningful representations in everyday life. Peirce divides a sign into three sub-categories: icon, symbol, and index.

An *icon* is a sign which refers to an object or idea by merit of its visible resemblance to that object or idea. In the case of our earlier example, a hand-drawn illustration of Mars is an iconic sign, in that it is made in likeness of the planet. A *symbol* is a sign which refers to an object or idea through a process of conceptual interpretation. A symbol refers to its object by imaginary association dictated by societal systems and laws. A copy of War of the Worlds may symbolize the planet Mars to a science fiction

⁵⁴ Jay Ruby, Secure the Shadow: Death and Photography in America (Cambridge: The MIT Press, 1995) 1.

⁵⁵ Ruby 49.

⁵⁶ C.S Peirce “Logic as Semiotic: The Theory of Signs,” Philosophical Writings of Peirce, ed. Justus Buchler (New York: Dover Publications, 1955) 98.

enthusiast as much as traits of confidence may symbolize the planet to an astrologist. Thirdly (and most relevant to this discussion), is an *index*. An index is a sign which indicates its referent through a causal, existential relation with the object. In other words, an index is the direct result of its referent. In this capacity, a photograph of Mars is an index of the actual planet Mars. The photograph is the direct result of light emitting from the sun, bouncing off the surface of Mars, entering the lens of a photograph, and chemically impressing itself on a filmic surface.⁵⁷ It is this logic that informed those who placed such unwavering belief in Lowell's foggy Mars photos. The technology behind these photos demonstrated an indexical connection between the images and their referential object, therefore lending existential credibility to whatever was perceived in the photos.

The problem here is that Peirce's logic is just that: *logic*. Despite the obvious shortcomings of Lowell's photos, their logical indexicality to the surface of Mars, seemed evidence enough for the most wild assumptions made through them. Arguably, there is nothing essential to a photograph which makes it purely indexical to its referent. A photo can be just as symbolic or iconic given the proper context. Jacques Derrida unveils an interesting aspect of Pierce's logic, arguing that the very basis of our perceived reality is composed of signs—"the thing [or referent] itself is a sign...from the moment there is meaning there are nothing but signs."⁵⁸ This suggests that nothing exists outside of

⁵⁷ Peirce associates the index with demonstrative pronouns such as "this," "that," and "there," suggesting that an indexical photograph of Mars explicitly states the existence of "that" planet, which may, however, be the basis for subsequent erroneous conclusions about the nature of "that" planet, as we have seen. It is worth recalling Barthes' description of a photograph as saying "See, here it is!"

⁵⁸ Cited in Geoffrey Batchen, "Ectoplasm: Photography in the Digital Age," Over Exposed: Essays on Contemporary Photography, ed. Carol Squiers (New York: New Press, c1999) 21.

representation, while directly questioning reality and its separation from the photographic. Photography represents a “reality that is itself already nothing but the play of representations.”⁵⁹ It is a reality “produced within, among other things, the *spacings* of the photographic.”⁶⁰ By this logic, a photograph is merely an image of an image.

John Tagg introduces important complications to the accounts of Barthes and Bazin, with an argument that seems to owe a lot to Peirce. Fundamentally, Tagg challenges the irrefutable indexicality of a photographic image:

At every stage [of the photographic process], chance effects, purposeful interventions, choices and variations produce meaning...This is not the inflection of a prior (though irretrievable) reality, as Barthes would have us believe, but the production of a new and specific reality, the photograph, which becomes meaningful in certain transactions and has real effects, but cannot refer or be referred to a prephotographic reality as to a truth.⁶¹

Tagg emphasizes that photographic images are existent within a greater system of meaning, generated by institutional and cultural processes, practices, traditions, and choices. The reality of the photograph does not only lie in its indexical relationship with its referent, but in the new constructed reality of itself. This assertion stands against Bazin’s idea that photography only mediates through the “instrumentality of a nonliving agent.” As Tagg writes, “Photographs are never ‘evidence’ of history; they are

⁵⁹ Batchen 21.

⁶⁰ Ibid.

⁶¹ Tagg 3.

themselves the historical.”⁶² In this light it becomes very difficult to put trust in an image’s materiality alone.

The history of the cinema as a medium of realism has often been grounded in allegations based on some of the very first films produced, namely the Lumière brothers’ *Arrival of the Train* (1895). However, Martin Loiperdinger’s careful historical analysis of this film demonstrates just how cautious we must be in putting faith in an image’s documentary claim. It is also worth noting the mythology that surrounds the film, describing early audiences as so stricken with the image’s apparent realism that they fled the theatre in fear of an impending train. Loiperdinger writes:

The cinema’s first audiences are interpreted as being unable to distinguish between the film image and reality. *Arrival of the Train* thus is not simply used as an icon of cinema’s birth, rather this one-minute film by Louis Lumière stands as a striking example of the manipulative power allegedly inherent in cinema since its beginnings.⁶³

While the film is presented as a prime example of cinema’s true realistic potential, Loiperdinger demonstrates an early cinema reliant on carefully constructed illusions of objectivity. Loiperdinger asserts that *Arrival of the Train* is nothing more than a “staged documentary,”⁶⁴ disposing of any realist fantasies that might praise the film for its capture of life’s “least controllable and most unconscious moments.”⁶⁵ Loiperdinger suggests that the Lumières employed family and friends of Ciotat to “act out” the arrival

⁶² Tagg 65.

⁶³ Martin Loiperdinger, “Lumière’s *Arrival of the Train*: Cinema’s Founding Myth,” *The Moving Image* 4:1 (Spring 2004) 92.

⁶⁴ Loiperdinger 107.

⁶⁵ Cited in Loiperdinger 110.

of the train, while discouraging them from looking at the camera.⁶⁶ This illusion of presence built by an observational camera effect and naturalistic acting, was strong enough to derive a sense of realism from the “gray movement of gray shadows, noiseless and silent”⁶⁷ that was early cinema. Loiperdinger concedes that “the belated enthusiasm for the realism of ‘randomness’” in *Arrival of a Train*, “is derived from the visual surface of the film.”⁶⁸ It goes to show that a number surface techniques applied to a very planned and subjugated scene can, to put it simply, make it seem real.

Loiperdinger’s analysis makes it clear to us that notions of reality are by no means concrete. “Our ideas of what is realistic,” writes Richard Armstrong, “closely relate to the conventions of representation to which we are accustomed. While these conventions change over time, we now see realisms as distinct moments on a sliding scale.”⁶⁹ To this effect, the Lumières’ realism can be seen as quite unreal by today’s standard. “Even the apparently self-evident Lumière films,” continues Armstrong, “could be seen more as spectacle by today’s standard.”⁷⁰ Technology, argues Armstrong, is at the heart of this sliding scale. New technology “rewrites the rules by which a film can be described as ‘realist,’”⁷¹ changing the conditions in which we become immersed in, or embody, the medium.⁷²

Bazin himself is accountable for having written essays describing various conditions which make an image (or moving images) more aesthetically “realistic.” His

⁶⁶ ...which was very common in actualities at the time.

⁶⁷ Cited in Loiperdinger 100.

⁶⁸ Loiperdinger 113.

⁶⁹ Armstrong 7.

⁷⁰ Ibid.

⁷¹ Armstrong 9.

⁷² Armstrong 30

praise of the deep focus lens only indicates the role that style and context can play in constructing reality-effects for the viewer. “Whereas the camera lens, classically, had focused successively on different parts of the scene,” Bazin describes the deep focus lens as “[taking] in with equal sharpness the whole field of vision contained within the dramatic field.”⁷³ This camera lens imitates the function of the human eye as “it is the mind of the spectator which is forced to discern, as in a sort of parallelepiped⁷⁴ of reality with the screen as its cross-section.”⁷⁵ Here Bazin makes a claim regarding what reality is, and which cinematic style best imitates this reality. The ontology of the image is ignored, and aesthetic style is recognized as something that can accommodate “realistic” experiences (in this case, stylistic techniques which best imitate human vision). The same can be said of Bazin’s disposition towards the style of Italian Neo-Realism. Bazin’s “Myth of Total Cinema” even suggests that all cinematic technology strive to convey “a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist.”⁷⁶ Indeed, as Lev Manovich accounts, “the history of technological innovation is presented as a progression towards realism.”⁷⁷

Tagg would argue that these “realistic” styles are all informed by “complex historical outcome[s]” within “certain institutional practices and within particular historical relations...which will take us far from an aesthetic or phenomenological

⁷³ André Bazin, “An Aesthetic of Reality: Cinematic Realism and the Italian School of the Liberation,” *What is Cinema?: Volume II* (Los Angeles: University of California Press, 1971) 28.

⁷⁴ A parallelepiped is a geometry solid. Each side of a parallelepiped is a parallelogram.

⁷⁵ Ibid.

⁷⁶ André Bazin, “The Myth of Total Cinema,” *What is Cinema?: Volume I* (Los Angeles: University of California Press, 1967) 21.

⁷⁷ Manovich, *Language* 236.

context.”⁷⁸ Realism is a style, and this style depends, as Tagg suggests, on external forces and changes. Therefore, styles deemed as “realistic” are subject to change according to context. As E.H. Gombrich illustrates, the conditions under which we perceive reality in art are subject to change according to the styles which are contemporarily accepted as “realistic.” One only needs to observe the changes in artistic style across the ages to visualize how these stylistic notions have changed. These illusions depend greatly on the experiences of the viewer, and their own projections onto the image.⁷⁹

So what aesthetics have granted the photograph—a medium as malleable as most others—the greater privilege of realism? Answering this, Tagg indicates a deeply entrenched tradition of institutional observation and documentation as establishing evidential trust in the photographic image. This tradition dates to the mid-nineteenth century, when threats of revolution and economic downfall shook the stability of Europe’s leading powers. In an effort to restore order, Britain, France, Germany, and other European nations began to develop state-sanctioned institutions to replace less dependable, privatized organizations. These state institutions included hospitals, police forces, prison systems, schools, and mental asylums. Just emerging at this time, photography played a crucial role in the induction, establishment, and maintenance of these institutions.

Tagg describes an important “*rendezvous*” during this period, “between a novel form of state and a new and developing technology of knowledge.”⁸⁰ As a unique form of

⁷⁸ Tagg 4.

⁷⁹ E.H. Gombrich, Art and Illusion (Oxford: Phaidon Press, 1959) 172.

⁸⁰ Tagg 63.

documentation, photography would come to assume a powerful status as *proof* at this time. This proof-status is not inherent to the photograph, but rather to the cultures and institutions that utilized the photograph to meet their own ends. During the late nineteenth-century, the police force became a powerful tool in the establishment of an orderly state system. It was during this time, describes Paul Virilio, that “the revolutionary police [after 1848] chose an eye as its emblem.”⁸¹ Photography was adopted by the police as an “instrument of permanent, exhaustive, omnipresent surveillance, capable of making all visible, as long as it could itself remain invisible.”⁸² Photography became a means by which the police could document, accumulate, and record instances of criminal behaviour, and became the eyes and memory of the police force—a technology of objectivity and permanence. With repressive institutions of power championing the photograph as an objective document of reality, it is difficult to argue back. As Tagg reminds us, power produces reality.⁸³ When the state defines certain criteria of aesthetic realism, this aesthetic can take prominence in the public consciousness.

This state-enforced aesthetic can even be seen in modern forms of surveillance imaging, which have often even dispensed with photographic technology altogether. Sarah Kember details the importance of surveillance footage retrieved from two security cameras in the James Bulger case, in which two 11-year-old boys kidnapped and murdered a 2-year-old child. This surveillance footage shows images of the kidnapping

⁸¹ Paul Virilio, *The Vision Machine* (Bloomington: Indiana University Press, 1994) 33.

⁸² Tagg 72.

⁸³ Tagg 87.

taking place at a shopping center in Bootle, England, and was used as incriminating evidence in court. Kember emphasizes the extremely low-quality of the footage, in which it was sometimes “hard even to make out the shapes of the children,”⁸⁴ citing one reporter’s description of the images as “fuzzy” and “near useless.”⁸⁵ Yet, officials were able to derive evidence from this questionable footage, relying on an “unstable structure of control and domination.”⁸⁶ This tendency for officials to derive evidence from less-than empirical photography is a “refusal of chaos”⁸⁷ carried on “from the early use of photography in the disciplinary institutions of the nineteenth century.”⁸⁸

Out of the state-enforced system of observation that Kember describes arises an aesthetic associated with realism—an aesthetic privileging the eye’s ability to observe. Simulated observation becomes a key stylistic aspiration in the aesthetic imitation of reality. Bazin’s preference for the deep focus lens can be said to favour this observational human function. By sharpening all depths of field, a filmmaker allows the viewer to more freely observe a scene, thus creating a more “realistic” sensory experience of the represented space. Edward Branigan articulates Bazin’s understanding that cinema, “both its realism and devices—is to be understood as the relationship between the normal conditions of perception and the conditions of perception imposed by cinema when the individual becomes a spectator.”⁸⁹ Bazin makes the assumption that reality is a visible realm that the camera is capable of recording, and that the viewer can experience this

⁸⁴ Sarah Kember, “Surveillance, Technology, and Crime: The James Bulger Case,” *The Photographic Image in Digital Culture*, ed. Martin Lister (London: Routledge, 1995) 115.

⁸⁵ Kember 120.

⁸⁶ Kember 126.

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Edward Branigan, *Point of View in the Cinema* (Berlin: Mouton Publishers, 1984) 202.

realm by experiencing the photographic image.⁹⁰ The real is the visible, and to observe is to experience the real. Describing the cognitive powers at play in constructing a “realistic image,” Stephen Prince adds that:

...a perceptually realistic image is one which structurally corresponds to the viewer's audiovisual experience of three-dimensional space. Perceptually realistic images correspond to this experience because film-makers build them to do so. Such images display a nested hierarchy of cues which organize the display of light, color, texture, movement, and sound in ways that correspond with the viewer's own understanding of these phenomena in daily life.⁹¹

Tagg associates this tradition of observation with the documentary genre, and its tendency to hold that which has been observed by the camera as veritable *truth* or *evidence*. The *documentary*, a term established by John Grierson in 1926, “came to denote a discursive formation...which appropriated photographic technology to a central and privileged place within its rhetoric of immediacy and truth.”⁹² The documentary boldly claims the truth of its subject matter, on the premises that it had acquired first-hand exposure to its subject during production. Tagg directly ties this mentality to realist claims found in earlier modes of documentation established by mid-nineteenth-century institutions.⁹³

Direct cinema attributes much of its realism to its seemingly un-staged, observational style. Emerging in the late 1950s alongside *cinéma vérité* in steadfast

⁹⁰ Branigan, *Point of View* 208

⁹¹ Cited in David Rodowick, *The Virtual Life of Film* (Cambridge: Harvard University Press, 2007) 102.

⁹² Rodowick 8.

⁹³ Tagg 75.

rejection of overtly “objective” modes of documentary, direct cinema held to the philosophy that truth could be captured through unobtrusive observation. Filmmakers such as Jean Rouch attempted to find truth by applying the cinema as a tool of seeing and showing, instead of telling. As Paul Monaco notes however, “more often than not, the ‘truth’ is the truth that occurs to the filmmakers during the moments of observing, shooting, and editing: not the truth, but a filmmaker’s truth.”⁹⁴

In the 1950s and ‘60s direct cinema was made possible by the democratization of the filmic medium. Filmmaking equipment was made largely accessible to the public through handheld 8mm and 16mm formats. The industry was also enjoying a wider use of the zoom lens, allowing direct cinema filmmakers to quickly capture distant events without requiring much physical mobility. The material camera therefore plays an important part in defining these documentary styles. Thus, direct cinema is marked by handheld camera movement, and various spontaneous lens effects, including “shotgun” zooms, and quick, motivated shifts in focus. Branigan argues that the free-form camera style that is characteristic of direct cinema relates to the “freedom of attention of the spectator.”⁹⁵ The haphazard movement of the direct cinema camera “certifies the documentary reality”⁹⁶ of the subject, conventionally identifying the camera point-of-view with the experience of the filmmaker.⁹⁷ Verily, the styles of direct cinema and *cinéma vérité* continue to be associated with truth and reality to this day.

⁹⁴ Paul Monaco, *The Sixties: 1960-1969* (New York: Charles Scribner’s Sons, 2001) 204.

⁹⁵ Branigan, *Point of View* 205.

⁹⁶ Branigan, *Point of View* 205.

⁹⁷ Branigan, *Point of View* 73.

These stylistic devices are prevalent in countless reality TV programs, which appropriate direct cinema techniques in order to calculatedly invoke similar sensations of spontaneous realism. Shows such as *Survivor* (2000-Present), *Big Brother* (2000-Present), *Gene Simmons Family Jewels* (2006-Present), and *Jersey Shore* (2009-Present) exhibit, in an almost exaggerated and self-consciousness fashion, the explicit styles of direct cinema and cinéma vérité. This includes jerky, “spontaneous” camera movement, “shotgun” zooms, racking focus, and interview segments. Being *reality* TV, these programs attempt to allude to the “reality” of direct cinema by borrowing and openly flaunting its “realistic” observational style. Its very name indicates an “obsession that is equally dependent on the camera.”⁹⁸ As Tarleton Gillespie writes, “[Reality TV’s] claim of realism is not achieved by stripping the imagery of all mediation to somehow reveal an unadulterated ‘reality’—an impossible feat. In fact, it tends to require more mediation to assert that these images are real.”⁹⁹

Of course, this use of direct cinema style is intended to sensationalize the viewing experience by affirming the authenticity of the content. This is often the case in comedy programs which rely on this authenticity to derive humour. *The Tom Green Show* (1994-1996, 2000) is an effective example, as it is an early demonstration of reality shock comedy (paving the way for shows such as *Jackass* [2000-2002], *Da Ali G Show* [2003-2004], and *Kenny vs. Spenny* [2002-2010]). *The Tom Green Show* consists of short segments in which the host, Tom Green, places unwary members of the public in

⁹⁸ Dudley Andrew, *What Cinema Is!: Bazin’s Quest and its Charge* (Chichester: Wiley-Blackwell, 2010) 3.

⁹⁹ Tarleton Gillespie, “Narrative Control and Visual Polysemy: Fox Surveillance Specials and the Limits of Legitimation,” *The Velvet Light Trap* 45 (Spring 2000) 40.

compromising, embarrassing, or confusing situations. The comedy is based on their candid reactions to these situations, and not necessarily the situations themselves. As Green himself describes it:

It wasn't the prank that was most important—it was the way people *reacted* to the prank. What I was doing, whether it was walking around the street with meat on my head or shouting at people from a rooftop...how regular people responded to these antics was spontaneous and unpredictable. If their reactions seemed canned or pro forma, the bit was a failure...If we couldn't do something to jar people out of their routine and do or say something real and unexpected, then we weren't doing our job.¹⁰⁰

The camera-crew passively observes these scenarios, often documenting the action like a news crew, rather than attempting to augment it. In light of direct cinema theory and practice, the spontaneous and candid style of direct cinema seems ideal in portraying these “real, unpredictable” reactions from surprised passers-by.

The direct cinema realist aesthetic also proves as a successful device in comedic fiction, as demonstrated by the mockumentary genre as well as a number of popular TV shows. Programs such as *The Office* (2005-Present), *Arrested Development* (2003-2006), *Trailer Park Boys* (2001-2008), and *Curb Your Enthusiasm* (2000-Present)¹⁰¹ share similar comedic philosophies with Tom Green, however they are executed entirely within a controlled fictional setting. Stylistically, these shows use a shaky camera, obvious shifts

¹⁰⁰ Tom Green and Allen Rucker, Hollywood Causes Cancer (New York: Crown Publishing Group, 2004) 46.

¹⁰¹ *Curb Your Enthusiasm* provides us with an interesting case study. The show hybridizes reality and fiction, following the daily events of its star, Larry David. Like *The Tom Green Show*, the comedy in *Curb Your Enthusiasm* is found in characters' reactions to Larry's socially unacceptable behaviour. While these situations are staged, the comedic effect is still preserved, both by the naturalistic reactions of the “straight-man” characters, and by the direct cinema techniques which “capture” their reactions to Larry.

in lens focus, “shotgun” zooms, and sometimes direct address to the camera. They purposely apply direct cinema techniques in an attempt to bring credence to their constructed comedy. These shows remove the laugh track in exchange for a specific style of realism found in the comedy of awkward situations.¹⁰² It is interesting to note as well that “reality” in these cases becomes more associated with digital video aesthetics than traditional photographic aesthetics. Like documentaries that are shot on digital cameras, in these *mockumentaries* “internal cues and or paratextual guarantees about the source of their images...[alert] the public as to their reliability.”¹⁰³ These, of course, include the stylistic codes that I have been repeating—“shotgun” zooms, lens flares, hand-held camera etc. While perhaps merely a technological sign of the times, this shift towards video realism also demonstrates that realism can be produced as an effect, through the application of stylistic codes, in any genre.

Affirming this notion, Lev Manovich defines synthetic realism as “the simulation of codes of traditional cinematography and the simulation of the perceptual properties of real life objects and environments.”¹⁰⁴ Manovich applies this definition of realism to justify digital styles of realism, and uses it as starting block to describe an emerging contemporary realism that he sees in visual media today. I will return to Manovich in more depth in Chapter 3.

¹⁰² Likewise, horror films such as *[Rec]* (2007), *Cloverfield* (2008), and *Paranormal Activity* (2007) use similar stylistic techniques to provide “authentically” horrifying experiences. Like in the mockumentary and reality TV genres, these films use observational techniques to bring immediacy to their horror. *Rec* and *Cloverfield* apply the styles of direct cinema, while *Paranormal Activity* mixes direct cinema and observational surveillance footage.

¹⁰³ Andrew 3.

¹⁰⁴ Manovich, *Language* 174.

In this chapter I have pursued the problem of realism in the photographic arts, investigating medium, style, and context as determinants of “reality” or “truth” in photography. Barthes and Bazin draw on the material foundations of photography as that which binds a photo with its referent. John Tagg counters these claims, arguing that a photo’s truth lies more in its historical viewership than any existential material bond it holds with its referent. From a historical stand-point we then observed stylistic tendencies which produce “realistic” effects, such as those described by Bazin, or direct cinema aesthetics so often appropriated by contemporary entertainment media. As demonstrated by this survey, there are many, sometimes conflicting devices which construct the “reality” supposedly inherent to photography. It is important to understand that photo-realism *is* a construction, projected onto the photograph by the viewer.

Ultimately we know that a photographic image is very different from reality. Rudolph Arnheim was quick to remind us of this in the early twentieth century. In his text Film as Art, Arnheim compares the “corresponding characteristics” between film and reality, in order to ultimately determine how “fundamentally different the two kinds of image are.”¹⁰⁵ And while we criticize the digital image for its flexible maleability, we nevertheless continue to cognitively perceive reality in the images that we encounter. If this chapter has demonstrated that realism is not inherent to the image itself, where can we trace this perception from?

To use a cliché, the realism of a photograph is in the eye of the beholder. Thinking along these lines, Susan Sontag describes photographs as “clouds of fantasy and

¹⁰⁵ Rudolf Arnheim, Film as Art (Berkeley: University of California Press, 1971) 9.

pellets of information,”¹⁰⁶ which “turn the past into an object of tender regard, scrambling moral distinctions and disarming historical judgements by the generalized pathos of looking at a time past.”¹⁰⁷ In other words, photographs tend to invoke a nostalgia in a viewer—a nostalgia which is able to override the viewer’s scepticism. The viewer’s nostalgic desires are projected onto the image, re-enforcing the image’s perceived bond with its referent.

Photography records our most personal and important moments, serving as immediate reminders of the past. By perceiving a photograph’s inherent truth, a viewer constructs an ideal vehicle for revisiting this past. It was through this projected photo-reality that nineteenth-century police forces could interpret crimes and convict criminals, and Roland Barthes could revisit his deceased mother. In each case, the viewer interprets photography and sees what they want to.

Ernst Gombrich writes of the psychological processes which the viewer uses to interpret mimetic reality from the strokes of light and colour in a painting. He calls this “the beholder’s share,” that is, the projection a viewer places on a work of art. Gombrich describes these projections as memory functions which anticipate and fill in gaps of incoherence in our perception—“the reinforcement of illusion and expectation.”¹⁰⁸ It would be no stretch to suggest that a similar process would occur when a viewer is confronted with a photographic image. This uncanny encounter with a visually “realistic” (but obviously “unrealistic”) surface would prompt the mind to “close the gap”¹⁰⁹ and

¹⁰⁶ Sontag 69.

¹⁰⁷ Sontag 71.

¹⁰⁸ Gombrich 173.

¹⁰⁹ Gombrich 174.

perceive the image as true, or real. And yet, a photographic image is nothing more than a pattern of light and darkness. Our own desires, ambitions, memories, and regrets mingle within these projections, only complicating our vision.

There is great psychological debate encompassing cognitive theories of vision and representation, debates that question to what degrees our perceptions implement top-down flows of information. To many, the ability to recognize objects in the world (or in representation) depends on a “top-down process that requires knowledge about specific objects.”¹¹⁰ This requires “matching between the internal representation of an object stored in memory and the representation of an object generated from the image.”¹¹¹ According to David Marr’s theory of vision there are three levels of visual representation: the primal sketch, the 2½D sketch, and the 3D model. The primal sketch captures basic contours and textures of an object, while the 2½D sketch produces higher detail such as shading, colour, and representation of movement. According to Marr, the more detail that a representation bears, the more low-level vision is capable of capturing information without “recourse to higher-level knowledge.”¹¹² This is complicated however, when a representation is too ambiguous to be recognized fully, requiring higher cognitive processes. Observing the classically ambiguous duck-rabbit¹¹³ figure, Athanassios Raftopoulos explains:

¹¹⁰ Athanassios Raftopoulos, Cognition and Perception: How Do Psychology and Neural Science Inform Philosophy? (Cambridge: The MIT Press, 2009) 274.

¹¹¹ Ibid.

¹¹² Raftopoulos 173.

¹¹³ This figure represents an image that is both a rabbit and a duck depending on how the viewer decides to perceive it. The beak of the duck is also the rabbit’s ears, while both creatures share the same eye, located within the center of the figure.

When the ambiguous figure appears, the perceiver, because of the perceptual set, focuses on some part of the image and retrieves from it bottom-up, and therefore is phenomenally aware of, either a duck-like or a rabbit-like figure. This image is fed to higher cortical areas where Global Recurrent Processing (GRP) occurs and working memory activation affects visual processing. At this stage, cognitively driven object-based attention intervenes and determines, depending on the kind of perceptual readiness, whether one sees a duck or a rabbit.¹¹⁴

The viewer detects an ambiguous image, searches for something to recognize within the image, and then projects his or her own knowledge onto the object. Like Thomas in *Blow-Up* (1966), who separately finds both a murderer and a corpse within the same blown-up image, viewers project (usually to a less dramatic degree) interpretations on the patterns of light and colour that make up photographs.

With all of this in mind we may find ourselves more equipped to answer the questions initially posed in this chapter. What was it that made Percival Lowell's primitive photographs such convincing empirical evidence of life on Mars? What conditions the credibility of an image? Well we now understand that an image is not credible on its own—that it takes a viewer to put their faith in it. The night Lowell directed his lens to the sky, he was already looking to find something. Astronomers had already been suggesting that canals existed on Mars, and these canals had been seen in astronomical sketches for decades.¹¹⁵ Indeed, a general “Martian-buzz” had seemed to have come over the Western world at this time, as demonstrated by the hefty collection of speculative texts and illustrations produced during the period. Lowell and his

¹¹⁴ Raftopoulos 283.

¹¹⁵ The fact that astronomers interpreted the natural geography of Mars' surface as canals is a projection in itself!

contemporaries lived within this pseudo-scientific climate, which informed the ways in which they viewed images of Mars. When detecting patterns on the planet's surface, Lowell denied consideration of other possibilities, and leapt to the conclusion that he had already hoped to reach. Of course Lowell perceived Mars' geographic surface as riddled with canals—because this is what he was setting out to prove!

And now we continue to point our lenses at Mars, hoping to unlock its secrets. We are now capable of sending cameras to the actual planet surface itself, to navigate, investigate, and transmit more “empirical” images home. To avoid the risk of assumption-making (the story of Lowell alerts us to this trap!), scientists strive to send cameras, as well as an arsenal of other measuring instruments, closer to the subject. This approach presumes a more *immediate*¹¹⁶ and multi-faceted relationship with the subject, thus providing more grounded research.

In this chapter I have identified and dissected a powerful myth that surrounds photography. This is the myth of photo-realism, a myth that has governed the photographic medium for almost two centuries. While digital images have purportedly abandoned photo-realism, I have argued that this is not the case. Perceptions of photo-realism persist in digital images through their invocations of the photo-realist myth. As we will observe later, these invocations are facilitated by referencing the camera (which is an object that signifies photo-realism). In the next chapter I will look at the complicated concept of the camera and how a viewer's relationship with a camera's movement in space informs ways in which they perceive reality in an image.

¹¹⁶ *A relationship with less media*

Chapter 2:

Embodiment and the Incidental Camera

When Percival Lowell published the first photographs of Mars, many assumptions were made in regards to the properties of the planet. From these photos scientists managed to deduce that the planet was cool, vegetated, and inhabited by canal-building Martians. Lowell's conclusions are ludicrous because we know that empirical evidence is most infallible when it is gathered from first-hand sensory experience. Luckily today, scientists know better than to come to such conclusions based on blurry photographs alone. Despite what media we gather evidence with, it must always face ultimate mediation at the level of human consciousness. It has since been determined that Mars is barren and desolate, and devoid of sentient Martian life. These conclusions have been reached through scientific observations far more intimate and rigorous than those conducted by Lowell in the early-twentieth century. Increasingly multi-faceted studies expose information to our senses, thus improving the credibility of the experience. As founding empiricist David Hume wrote, "all belief of matter of fact or real existence is derived merely from some object, present to the memory or senses."¹¹⁷ Through observational reasoning we deduce cause and effect relations that ultimately determine what we would consider to be fact. Empiricism thus stresses the importance of heightened experiential sensory observation in the pursuit of establishing truth, a fact

¹¹⁷ David Hume, Enquiries Concerning the Human Understanding and Concerning the Principles of Morals, (London: Oxford University Press, 1961) 46.

which leaves Lowell's studies as obsolete at best.

Still, Lowell's story helpfully illustrates an urge we have as humans to continuously further the reach of our senses, through the inventions we create. This is evident in our current Mars exploration efforts that seek planetary knowledge through mediated empirical experience. Since the 1960s, NASA and Russian space scientists have attempted to further qualify Mars through closer and closer observations of the planet, including a number of orbital, landing, and probing missions.

The Mars Exploration Rover Mission represents the closest of these planetary observations. In 2003 NASA launched two robotic rovers, *Spirit* and *Opportunity*, to observe and collect geological data from the surface of Mars.¹¹⁸ Each rover is equipped with a panoramic camera, a miniature thermal emission spectrometer, an alpha particle x-ray spectrometer, a microscopic imager, rock abrasion tools, and various magnetic collecting instruments. Travelling slowly across the planet surface, these robots collect mineral data while relaying stereoscopic images and video back to Earth. The NASA website describes these rovers as the "mechanical equivalent of a geologist walking on the surface of Mars."¹¹⁹ Many of the robots' features are designed to be human-like, including their limbs, joints, and "mast-mounted cameras...mounted 1.5 meters (5 feet) high, [providing] 360-degree, stereoscopic, human-like views of the terrain."¹²⁰

These descriptions reveal the degree to which the rovers are designed as human-like in both physical capacity and sensory capability. They have limbs which bend like

¹¹⁸ NASA is also developing a third Mars rover named *Curiosity*, which they expect to launch later this year.

¹¹⁹ "Mars Exploration Rover Mission," *NASA Jet Propulsion Laboratory*, NASA, Jan. 23 2009 Web. Nov. 2010 <<http://marsrovers.jpl.nasa.gov/overview/>>

¹²⁰ *Ibid.*

those of a human, use tools that humans use, and see the way humans see (stereoscopically, 5 feet from the ground, in 360 degrees). Ideally, the rover's experience is akin to a geologist's experience. Since human geologists cannot yet safely conduct research on Mars, their substitutes' experiences must be as humanly-relatable as possible. The Earth-bound geologist must be able to view the rovers' video footage and easily step inside the body of the rover, assuming its experience as their own.

As a device simulating vision, the camera places our bodies within other configurations (as other-worldly as they may sometimes be). The cameras on the rovers allow the scientist to imaginatively engage with the Martian surface, to imagine that they are on the planet themselves. This chapter will analyze the camera as an embodying device, and as a substitute for sensory experience. In the context of contemporary digital media, we will interpret more productive ways of discussing the camera, beyond that of a concrete recording device. The camera is, as we will see, more an imaginary vehicle projected into the film by the viewer. Cinematic style plays a major role in this process, generating sensations of embodiment in the viewer. Since style can be easily mimicked from medium to medium, this suggests that material foundation is incidental in the process of forming visually mediated embodied experiences.

Vision has traditionally been the most privileged of the human senses. It informs our memory and language, thus greatly constituting our experience of the world. Our knowledge of our surroundings is shaped by how our eyes perceive. Recognition and memory reflect and build upon past visual experiences, mediating and shaping current experiences. Our very consciousness "pervades perception...what we see resonates in the

memory of what we have seen; new experience always percolates through old..we live, in this sense, in a ‘remembered present’.”¹²¹ Sensations of various systems of visual motion build and inform a person’s existential experience.¹²²

Much discussion surrounding mediated embodiment points to vision as the primary sense of experience. Mark Hansen describes Virtual Reality (VR) simulators as technically extending the human sensory apparatus into a world created entirely out of virtual data. As a system that solely stimulates the eyes, VR privileges vision as an experiential sense. Hansen suggests that VR achieves bodily immersion “by purportedly removing experience from its bodily anchoring in the physical space of the ‘actual’ world.”¹²³ Hansen further confirms the notion that visual perception constructs the subject’s bodily experience through a process called *body-brain achievement*. Hansen argues that because it privileges experience as visual, VR “reterritorialize[s] the body onto the face.”¹²⁴ The virtual spaces of VR come to be mediated entirely by visual perception. These systems are understood to reach a high degree of sensory immersion by eclipsing peripheral stimuli from the actual world, and isolating visual virtual stimuli as the body’s dominant source of sensory perception.

It is this effect that Siegfried Kracauer describes when writing on the “elegant surface splendour”¹²⁵ of Berlin’s picture palaces of the 1920s. Kracauer describes the baroque interiors of these picture palaces as distractions aimed “to rivet audience’s

¹²¹ Adam Zeman, *Consciousness: A User’s Guide* (New Haven: Yale University Press, c2002) 181.

¹²² Vivian Sobchack, “The Active Eye: A Phenomenology of Cinematic Vision,” *Quarterly Review of Film and Video* 12:3 (1990) 23.

¹²³ Marc Hansen, *New Philosophy for New Media*, (Cambridge: The MIT Press, 2004) 161.

¹²⁴ Hansen 162.

¹²⁵ Siegfried Kracauer, “Cult of Distraction: On Berlin’s Picture Palaces,” *New German Critique* 40 (Winter, 1987) 91.

attention to the peripheral so that they will not sink into the abyss.”¹²⁶ Discussing a primarily visual medium (at the time), Kracauer’s observation champions the visual sense as the most entrancing, and distractive of them all.

In an interesting investigation of first-person pornographic sex-simulators, Kevin Wynter identifies the variety of means through which we perceive stimuli in a visually stimulated embodied experience. According to Wynter, a simulator’s ability to effectively incorporate a user “is predicated on its ability to reproduce contextually specific effects on the human sensorium.”¹²⁷ Therefore, a spectator’s willingness to assume the medium as an extension of their own body greatly depends on the medium’s ability to sensually contextualize the player within its sensory realm. This is an example of *exteroception*—that is, the body’s sense of stimuli which originates from outside the body. Visual media apply specific techniques that appeal to exteroception as a means of contextualizing the viewer into the medium’s diegetic frame of experience.

Wynter maps the experiential power of vision in the psychological field of the *body image*—a term that describes one’s bodily sense as guided and conditioned through learned and patterned cultural paradigms.¹²⁸ It is the unification of the body image and the medium which refers stimuli emitted by the medium into the body of the user.¹²⁹ The medium surreptitiously tricks the subject into assuming the visual perspective of the medium, thus informing the body’s own sensory situation. Exteroceptive sensations train a viewer into extending their body image beyond the threshold of the given medium.

¹²⁶ Kracauer 94.

¹²⁷ Kevin Wynter, “Towards a Theory of Virtual Pornography,” *Cineaction* 72 (2007) 19.

¹²⁸ Ibid.

¹²⁹ Ibid.

These observations only attest to the power of the camera—an instrument with the ability to remotely provide vision, and thus remotely create experience. Throughout the last century, cameras have become smaller and more portable as people feel the need to provide their friends with more remote experiences of *their* world. Portability seems to be one of the consumer camera's most important features as it lends convenience to the recording of the visual realm.

But camera portability does not simply feed a commercial desire to capture and share experience. Portable cameras have proven to fulfill a wide range of practical needs in many professional sectors.¹³⁰ Such cameras have many practical applications, lending visual access to dangerous, confined, or forbidden territories. This is no doubt why *Spirit* and *Opportunity* are equipped with so many types of cameras. NASA wishes to remotely experience Mars through as many visual systems as possible. Without this remote vision, we would have trouble feeling as though the rovers were actually on Mars, or at least the reality of their presence there would not be as credible to us.

Remember how strange it was to experience the Chilean miners' plight through the television, as we were shown remote video images 2,300 ft below the surface of the earth? Suddenly the dark and confined space of the cave that we all imagined was given a visual reference. I say that we share the miners' *experience* because to some degrees we assume their visual world. The camera placed under the earth momentarily positioned us as embodied subjects trapped within a mine. While this may seem to contradict claims of constructed photo-realism made in my previous chapter, it only corroborates my

¹³⁰ Surprisingly, not just the film and porn industries!

argument even further. Be reminded that these senses of simulated presence are the product of certain formal and stylistic choices. These sensations apply to many visual media reaching far beyond the photographic.

For example, in the seventeenth century, Diego Velázquez produced an interesting example of an embodied painting. His masterpiece, *Las Meninas*, effectively demonstrates how diverse visual media are capable of simulating physical presence and experience. The painting is remarkable in that the viewer visually experiences the scene from the perspective of Velázquez's subject. Velázquez himself is seen in the portrait peering around a giant canvass, looking at the viewer as if they were present in the scene. The painting positions the viewer within the eyes and body of Velázquez's patrons. To further the effect, Velázquez places a mirror at the back of the room, reflecting his imaginary subjects. The reflection depicts King Philip IV and Queen Mariana of Spain, thus effectively placing the viewer within the first-person perspective of the king and queen! Michel Foucault puts it quite simply: "The face reflected in the mirror is also the face that is contemplating it."¹³¹

Before I continue to discuss embodiment in various visual media, it is important to visit the theories of Vivian Sobchack. Her writing on the body's carnal relationship with visual media informs much scholarship written around the concept of embodiment. For Sobchack, visual media, which are both expressive and perceptive (eg. photography, cinema, electronic media), "in-form and orient our social, personal, and bodily

¹³¹ Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (London: Routledge, 1989) 15.

existence.”¹³² These media exist in specific material conditions which serve to both *mediate* and *constitute* a subjects’ bodily figuration. Take the Mars rovers for example. It is likely that the engineers who designed *Spirit* and *Opportunity* did so while keeping in mind the bodily figuration of those monitoring its systems. *Spirit* and *Opportunity* are designed to view the world from a human-like perspective, therefore encouraging strong sensations of embodiment. These robots represent a very literal case in which the camera serves as an “embodied, mobile, and invested inhabitant of worldly space, one able to inscribe visual and bodily changes of situation as both open-ended and yet bound by the existential finitude and bodily limits of its vision.”¹³³ In her essay “Scene of the Screen: Envisioning Cinematic and Electronic ‘Presence’” Sobchack primarily focuses on the material conditions of photographic, cinematic, and digital (“electronic”) media, and the ways in which these media inform the physical orientation of their subjects.

While conceptually useful to my argument, Sobchack’s analysis clearly reveals her own subjective relationship with digital media. In contrast to photography and cinema, which she finds to be highly embodying media in their “self-displacing vision,”¹³⁴ Sobchack finds electronic media to be “weakly temporalized and quasi-disembodied.”¹³⁵ Ignoring the fact that the term “electronic media” constitutes a wide variety of objects with varying material conditions,¹³⁶ it seems that her analysis of digital media is based greatly on her own culturally specific experiences with them. Her description of “the electronic” as “simultaneous, dispersed, and insubstantial” is

¹³²Sobchack, *Carnal Thoughts* 136.

¹³³Sobchack, “Active Eye” 22.

¹³⁴Sobchack, *Carnal Thoughts* 145.

¹³⁵Sobchack, *Carnal Thoughts* 153.

¹³⁶Is a light switch an electronic medium?

supported mainly by her own “disappointed experience searching the Internet for things more meaningful than cheap airline tickets.”¹³⁷ While it is clear that Sobchack is likely describing a certain type of digital media (Internet browsers, DVD interfaces), she should be careful not to lump all forms of digital media into one analysis. For example, a film shot on a digital camcorder can create sensations of embodiment equal to those experienced when watching celluloid film.

In the previous chapter we encountered a similar valorization of analog media. After questioning Roland Barthes and André Bazin’s praise of photography for its apparent existential bond to a reality, we were led to conclude that realism in the photographic arts is more of a subjective projection than something inherent to the medium. With Vivian Sobchack’s comparison of electronic media and photographic media, one can draw similar conclusions. I believe that sensations of embodiment are less intrinsic to a medium itself, and more properly attributed to the formal and stylistic elements applied to the medium. These defining elements work in conjunction with each other, positioning the spectator within a certain sensory frame. With that said, similar media may achieve similar levels of embodiment through similar means. Certain video games, films, animations, and audio-visual spectacles may condition equivalent experiences of embodiment if they confront a subject with comparable sensory stimulation.

Sobchack’s vague umbrella term “electronic media” demonstrates the difficulty theorists face when attempting to identify and categorize the new forms of media

¹³⁷ Sobchack, *Carnal Thoughts* 155.

emerging from our current digital revolution. The diverse media which derive from digital code differ dramatically, and yet we continue to feel compelled to generalize them as one group. Terms such as “electronic media,” “digital media,” and “new media” each attempt to encompass a breadth of video games, digital cinema, digital art, digital interfaces, portable music players, cell phone applications, Internet browsers, social networking sites, weapon targeting systems, digital cartography, VR, MRI, CGI, IMAX, UMD, LED, HD, SD, DVD, DTV, GPS, PSP, and USB¹³⁸...just to name a few. Even looking at this list demonstrates some problems. How can one simply define any one of these examples? Digital technology is such a major part of everyday life that it affects all media on different levels. The term “digital cinema,” for example, can indicate a number of things about the medium. A film can be considered “digital” on any number of levels. It can be shot, edited, doctored, projected, or (with the use of computer-generated imagery [CGI]) actualized through digital means. The potential digital intermediacy at these various levels of production confounds what it means to be a definitively “digital” film. And yet with all of this variety, digital media are often considered as a single phenomenon united by a common digital ancestry, instead of as very different manifestations of digital technology. We will be looking at a specific instance of digital technology. In this project I will mainly attend to computer-animated films, and films that make heavy use of computer-generated imagery (CGI).

While comprised of binary information at its core, computer-animation can

¹³⁸ Virtual Reality, Magnetic Resonance Imaging, Computer-Generated Imagery, IMAX, Universal Media Disc, Light-Emitting Diode, High-Definition, Secure Digital, Digital Versatile Disc, Digital Television, Global Position System, Playstation Portable, Universal Serial Bus

imitate the basic characteristics and functions of traditional cinema.¹³⁹ It incorporates moving images and sound, and communicates spatial concepts through editing. Yet while computer-animation resembles analog film, it lacks the material aspects that define film as a medium. As stated by Mike Jones, “software virtual cameras are invested with many of the mechanical properties of physical cameras to simulate a common visual language: depth of field, lens flare, focal length and aperture.”¹⁴⁰ A digital film does not require the existence of actors, sets, or props, nor does it require film stock to record images. For that matter, digital films have seemed to dispense with the camera itself, using computers to not only render the world of the film but also to “record” it.

In discussing this so-called *camera* in digitally rendered films, one must adopt Jones’ position regarding what he calls the *virtual camera*. In a time of computer-generated 3-D graphics, the camera must be viewed as more than simply a physical tool for the capturing of images. Accordingly, “the lack of physicality and subsequently the ability to depict, engage and navigate cinematic space in a new and omnipotent manner, forces us to reconsider our perceptions of both what the camera is and what it does.”¹⁴¹ The camera is not only a recording device, but also a vehicle and an entity, acting as “a positioning construct for perception and engagement.”¹⁴² Thus, when discussing camera aesthetics in camera-less digital media one must understand that these media position a spectator in ways comparable to a conventional cinematic camera.

However, while a traditional camera records its surrounding spaces, the virtual

¹³⁹ Mike Jones, “Vanishing Point: Spatial Composition and the Virtual Camera,” *Animation 2* (2007) 227-228.

¹⁴⁰ Ibid.

¹⁴¹ Jones 226.

¹⁴² Ibid.

camera is one with its digitally constructed world. As Jones puts it, “the virtual camera becomes a simulation of ‘I’ rather than ‘eye’; a simulation of viewer-derived presence in space rather than an anthropomorphically-based viewing apparatus.”¹⁴³ This creates a new visual language which positions the camera as the focal point for virtual cinematic action as opposed to privileged observational entity. In this context Jones provocatively re-defines the cinematic camera, and questions the status of the camera in our current digital world.

Setting the stage for his reading of Bazin in his book What Cinema Is!, Dudley Andrew also offers an account of the camera, and poses a very provocative question: *Is a camera essential to the cinema?* It seems that Mike Jones would answer “no,” and we will later see Edward Branigan suggest the same. Addressing this question, Andrew recounts the animation practices of Emile Reynaud in the late 1800s, who projected his animations on 500 successive plates of glass.¹⁴⁴ Additionally, this can be seen in later forms of camera-less animation such as Stan Brakhage’s *Mothlight* (1963). This “camera-less” tradition continues in digital media, which also dispenses with the camera. While Andrew’s examples represent practices in the avant-garde, most contemporary camera-less films are conventional and appear quite realistic. “In audiovisual entertainment,” describes Andrew, “cameras are at best conveniences, potentially dispensable as computer technology improves.”¹⁴⁵ Unlike Jones however, Andrew is insistent that the cinema must not part with the material camera if it is to maintain its status as cinema.

¹⁴³ Jones 228.

¹⁴⁴ Andrew 2.

¹⁴⁵ Ibid.

Andrew wishes to refocus significance on the shooting aspect of cinema, as opposed to post-production where it now seems to lie. Positing a Bazinian stance, he places value in cinema's ability to capture the visual subtlety of life—a subtlety that cannot be created by digital artists but only recorded by the camera. It seems, however, that Andrew and I are discussing two completely distinct forms of “camera.”

Before continuing, it is imperative that we recognize a very convincing argument offered by Edward Branigan. At the heart of his latest text, Branigan sets out to “analyze the complicated sets of meanings devised for the word ‘camera.’”¹⁴⁶ By doing so, his mission is to expose the diverse range of usages of the word, but also the concepts that these “cameras” represent. According to Branigan, theorists have been haphazardly using the word “camera” in scholarly work without establishing a set definition. With this in mind, I would like to touch on Branigan's definition and endeavour not to use the word haphazardly myself!

Branigan's definition lends itself quite neatly to my study.

I believe that the word ‘camera’ is a radial concept that extends far beyond the properties of a (definite) physical apparatus able to record the real world and having a weight and serial number. I believe that the camera extends beyond—dare I say?—photographicity, beyond pictured-ness, beyond the visible and visual, and instead extends into the schematic and abstract wherein lie language and the language of film, where there is no genuine and exact description proper for all occasions, where a camera is created to point out, and where getting to the point means imagining a camera.¹⁴⁷

¹⁴⁶ Edward Branigan, Projecting a Camera: Language-Games in Film Theory (London: Routledge, 2006) xiv.

¹⁴⁷ Branigan, Projecting 149.

For Branigan, the word “camera” refers to the elusive concepts adopted by those who talk about motion pictures as a way of describing what they see. The camera as we conceive of it in motion pictures is not a physical entity in space but more a *mini-thesis* used to “mark a place in our stream of thought.”¹⁴⁸ When one describes a film, the word “camera” seldom refers to the physical recording instrument itself. Much the way we do not perceive the actor in a film but rather the fictional character they play, we also see the camera as a fictional version of spectatorial vision. This echoes Leslie Stern’s analysis of *The Maltese Falcon* (1941), and the overall “mutability of things in the cinema.”¹⁴⁹ A cinematic object assumes a shifting identity: “a fictional and documentary identity, it is real and imaginary, a thing and a commodity, an object incarnated as a sign and an unremarkable quotidian thing.”¹⁵⁰ According to Branigan’s argument, movie-watching involves a complex cognitive process of mental “crisscrossing through time.”¹⁵¹ Our mind constantly remembers, imagines, completes, and projects as it rapidly negotiates the moving images on-screen. The perceived moving “camera” in a film stands simply as a model, developed by the mind to make sense of its perceptions. Therefore, what we perceive as the camera’s perspective is simply a projection of the mind. This becomes obvious when one describes a traditionally animated film, which records its images from a consistently stationary camera used to capture singular frames. When these frames are shown in rapid succession however, we perceive a wholly different camera that moves and adjusts according to the action being represented.

¹⁴⁸ Branigan, *Projecting* 201.

¹⁴⁹ Lesley Stern, “Paths That Wind Through the Thicket of Things,” *Critical Inquiry* 28:1 (Autumn, 2001) 319.

¹⁵⁰ Stern 320.

¹⁵¹ Stern 177.

Animation itself is an art-form born as a camera-less medium. A product of the thaumatrope, phenakistoscope, zoetrope, and praxinoscope, animation took on extreme popularity in the nineteenth century in the form of novelty toys designed to create simple moving illustrations.¹⁵² While these animations hardly produced any reality effects (aside from the impression of movement), they demonstrate the camera's ultimately dispensable role in the production of motion pictures. In fact, its only purpose seems to be that of utility, since the camera can "conveniently render the artist's handiwork on celluloid for projection."¹⁵³

Despite the fact that most traditionally animated films *do* use a camera, the camera itself hardly has a presence in the film. The camera we see in the film (the anthropomorphic camera, the camera of presence, the mediated eye) is drawn, simulated by changes in three-dimensional perspective. Once put into motion, these changes in perspective come to simulate cinematic camera motion. With this simulation comes other effects produced by the cinematic camera as well, such as the sensations of embodiment and movement. Hayao Miyazaki creates such sensations in *Porco Rosso* (1992), an animated film about a pig who pilots a WWI-era fighter plane. In many of the flight scenes, Miyazaki masterfully animates illustrations drawn from the perspective of Porco Rosso's flying airplane. The illusion of movement conforms to the movement of the flying plane, thus creating an effect that encourages viewers to embody a "camera" mounted on the animated aircraft as it flies over the Italian country-side and circles the

¹⁵² Kit Laybourne, *The Animation Book* (New York: Crown Publishers, Inc., 1979) 18-23.

¹⁵³ Andrew 3. This can be further demonstrated by the animated television series *South Park* (1997-Present). The creation of its pilot episode required long, grueling hours of stop-motion animation with the use of a camera. After reaching success, the show now uses computer animating technology to recreate the exact same animation aesthetic without the use of a camera.

insular Hotel Adriatic. This example only further demonstrates the camera's incidental role in creating embodying effects. Miyazaki's challenge was to create a sense of movement in three-dimensions using a two-dimensional medium. The cinematic camera has proven in the past to be particularly good at creating this visual impression, and here Miyazaki adopts and imitates the camera for just such a purpose. In cases like these, the word "camera" assumes a shifting identity used to achieve differing interpretive ends.

In discussing Vivian Sobchack's views on an embodied camera, Branigan reflects on a viewer's cognitive tendency to anthropomorphize the cinematic camera. To review, Sobchack views the moving "camera" as more than a material instrument, conceiving it instead as a perceiving subject that "participates in the consciousness of its own animate, intentional, and embodied existence of the world."¹⁵⁴ The camera is a simulation of human presence within the diegesis of a film. In order to create a more convincing simulation of this human presence, the camera assumes the physical and spatial properties of a human observer (just as discussed in the context of the Mars rovers). Branigan credits the camera's height, angle, and lens as contributing to this simulation, along with the moving camera's speed, rhythm, and acceleration. If these camera properties are "human-like" then one can say that the camera is highly anthropomorphic, and therefore more embodied.

Sobchack's claim to digital disembodiment is complicated by both Jones' and Branigan's definitions of a camera. While Sobchack asserts that the recording camera's physical existence in space privileges photographic media as embodying media, both

¹⁵⁴ Vivian Sobchack, "Toward Inhabited Space: The Semiotic Structure of Camera Movement in Cinema," *Semiotica* 41:1-4 (Jan. 1982) 327.

Jones and Branigan seem to downplay the physical camera's role in this process. Digital animation is more than capable of generating camera-like perspective in imagery, since the brain undergoes the same meaning-making processes when perceiving these images.

Of course, I would never claim that digital media *always* display embodied perspectives (nor would I claim that traditional photography does either). I will admit, when a camera is not anthropomorphic, it can exhibit some very disembodied effects. Camera effects that do not represent human-like perception can be very unsettling to a viewer. This may include swish pans, odd angles, and obscure camera perspectives. These effects make it difficult for a viewer to hypothetically assume the camera's perspective in space, arguably creating disembodied sensations.

These notions permeate the writings of Mark Hansen who is also intrigued by questions surrounding the "affective topology of new media art."¹⁵⁵ Hansen's research specifically focuses on digital art and the *inhuman* effects it has on the body's sense of space. Inspired by Gilles Deleuze's concept of the any-space-whatever (ASW), Hansen coins the term *digital any-space-whatever*. The digital ASW refers to the "bodily processing of a spatial regime that is...radically *uninhabitable*—that simply cannot be entered and mapped through human movement."¹⁵⁶ Such spaces are only possible "within the weird logic and topology of the computer."¹⁵⁷ Hansen uses the example of a digital art exhibit by Robert Lazzarini entitled *skulls*. To produce this exhibit, Lazzarini digitally scanned a number of human skulls into a computer program. With this program he then

¹⁵⁵ Hansen 196.

¹⁵⁶ Hansen 208.

¹⁵⁷ Hansen 201.

manipulated and warped the digital skulls into unusual shapes. Reflecting this manipulation, he then used the digital skull models to mechanically sculpt new physical skulls in their likeness. The new skulls are odd and inhuman, presenting a familiar nature ruled by unfamiliar digital logic.

Such is the case in Lars Von Trier's office-comedy *The Boss of It All* (2006), which was largely shot by a computer. Through a program that Von Trier calls Automovision, directorial control is partially forfeited to the whims of a machine. Von Trier describes, "with Automavision, the technique was that I would frame the picture first and then push a button on the computer. I was not in control - the computer was in control."¹⁵⁸ The effect is somewhat unnerving. When a computer makes compositional choices, it is not governed by the complex perceptions of the human eye, and therefore does not conform to them. Many shots feature key figures in awkward positions on the screen, sometimes cutting off large parts of their bodies. The camera movement is just as unpredictable, as is the editing which boasts more jump-cutting than *Breathless* (1960).¹⁵⁹ In his blog, David Bordwell describes the film's breaking of stylistic conventions, writing that, "there is a method to this madness, although the method, granted, is a bit mad."¹⁶⁰ This statement could define the uncanny unfamiliarity that computerized effects can have on a viewer's experience of representational media.

Until this point I have restricted my consideration to contemporary views on embodiment, in an effort to illustrate its relationship to digital media. The fact is, these

¹⁵⁸ Geoffrey Macnab, "'I'm a control freak – but I was not in control,'" *The Guardian* 22 Sept. 2006 <<http://www.guardian.co.uk/film/2006/sep/22/londonfilmfestival2006.londonfilmfestival>>

¹⁵⁹ David Bordwell, "Another Pebble In Your Shoe," *Observations on film art*, davidbordwell.net, 13 Dec. 2006 Web. Feb. 2011 <<http://www.davidbordwell.net/blog/?p=202>>

¹⁶⁰ Ibid.

concepts significantly precede the digital age. In “Narrative Spaces,” for example, Stephen Heath addresses the ways in which imaginary space is constructed and deconstructed in cinema. Distinguishing between *space* and *place* (the former being non-descript, with the latter being a narrativized location), Heath concerns himself with Renaissance perspective vision, and the ways in which it positions a viewer within the diegesis. In his article, Heath illustrates an example in which the viewer is positioned in an “impossible space.” He investigates camera movement, and various spatial cues that this movement produces, and indicates a “spatial *aufhebung* that decides a superior unity, the binding of the spectator in the space of the film.”¹⁶¹ This unity can be disrupted however—spaces can be created which infer un-inhabitability and impossibility. Heath gives an example from *Death By Hanging* (1968) in which the film’s editing suggests that the camera is viewing a cat from within a brick wall. This disembodied effect is achieved not by omnipotent camera tricks but by the mere suggestion that the camera (and spectator) is positioned within a space it cannot physically occupy.

Similar effects can be seen in the non-anthropomorphic cinematography found in many computer animated films today. While I have spent much of this chapter defending the digital as a possibly embodying medium, I would like to point out the propensity of computer-animated films to produce highly disembodied effects. There seems to be a notion in Hollywood that since digital technology is capable of rendering fantastic images, that it should. Digital technology has given the green light to many cinematographers to deploy their “cameras” in physically impossible ways. It seems that

¹⁶¹ Stephen Heath, “Narrative Space,” *Narrative, Apparatus, Ideology: A Film Theory Reader*, ed. Philip Rosen (New York: Columbia University Press, 1986) 86.

the novelty of the technology has nurtured a visual extravagance, in blockbuster films filled with radical, even “impossible” camera movements. Epic fantasy, and sci-fi films seem to gravitate towards such impossible camera movement, with fantastic narrative content seeming to pervade fantastic cinematic aesthetics. The other-worldly nature of these films seems to warrant less grounded camera movement. This is likely due to the fact that the spaces these virtual cameras move through are so dissimilar from our own.¹⁶²

Nearing the conclusion of *Lord of the Rings: The Return of the King* (2003), the final film in the trilogy, a conflicted Frodo Baggins stands before the fires of Mt. Doom, debating whether to dispatch the evil One Ring into the flame, and fulfill his quest. His companion Sam stands on the sidelines begging Frodo to fling the ring into the fire and save Middle-earth from evil domination. Overcome by the power of the ring, Frodo denies his destiny and places the ring on his finger, becoming magically invisible. Out of the volcanic smoke, the demented creature Gollum emerges and leaps onto Frodo’s invisible form. Driven mad with desire for the evil ring’s power, Gollum bites Frodo’s index finger off, claiming the ring as his own. Overtaken with bliss, Gollum holds the ring victoriously over his head, dancing and screaming “It’s mine!”

During this dramatic moment in the film, Peter Jackson’s virtual camera takes on some very peculiar properties. One particular shot begins with a close up of Gollum’s ecstatic expression as he holds the ring above his head. Slowly, the virtual camera pulls back from his expression, *into the air, passing backwards through the band of the evil ring held in Gollum’s fingers*. The camera continues its ascent into the air eventually

¹⁶² This applies in two senses. In one sense, the virtual camera moves through virtual space, not real space. Secondly, the space of fantasy films is fantastic space—an obviously fictional diegetic world.

halting about ten meters above Gollum's head. In this shot, the camera is highly un-anthropomorphic, as its spatial properties are quite unfamiliar to a human. The camera is able to freely float in the air, and pass through tiny spaces such as the small loop of a ring. Such a shot not only acknowledges the virtual camera's unreal nature, but also demonstrates digital cinema's proclivity for disembodiment effects.

Similar effects can be experienced in *Star Wars: Episode III: Revenge of the Sith* (2005). In the film's dramatic opening sequence the virtual camera follows two space-fighters as they careen and weave through an explosive space battle. The camera freely moves at break-neck speeds, through the unaccommodating vacuum of space, and into treacherous explosions. While this demonstrates another disembodied camera, it also reminds us that such effects are not always tied to the digital medium. I say this referring to the similar sensory effects achieved by the practical visual spectacles of the original *Star Wars* (1977) (Branigan also notes the practical space battle effects of *Star Wars* as another instance in which the viewer projects a mobile camera).¹⁶³ In order to capture the space battles presented in *Star Wars*, the "camera" veers intensely through space, creating inhuman, disembodiment sensations. A human subject cannot move the way the *Star Wars* camera does, and therefore, a human subject cannot embody this camera easily.

And yet, it is conceivable that any of these camera perspectives *could possibly* provide an embodying experience. Recall Vivian Sobchack's description of visual media as both expressive and perceptive media. They "in-form and orient our social, personal,

¹⁶³ Branigan, *Projecting* 90.

and bodily existence,”¹⁶⁴ and provide “self-displacing vision.”¹⁶⁵ Visual media metaphorically displace our eyes to new realms of being, effectively re-informing our physical identities. While a space battle in *Star Wars* may place us in an unfamiliar physical realm, there is no certainty that a viewer cannot sensually inhabit this space.

One only needs to retrospectively consider past forms of disembodiment that have since entered our visual vocabulary. Early cinema defined itself by its ability to displace vision and embody spectators in distant places. As was often the case, early cinematographers would seek revolutionary ways of placing and moving their cameras (thus positioning their audiences in new spaces). A famous example of this can be drawn from the myths surrounding the first screening of *Arrival of a Train at La Ciotat* (1897). To produce this short actuality film, the Lumière brothers placed a camera on a train platform as a train arrived in the station. The camera was positioned in a way that made the train appear to be driving towards the viewer. The shot displays a strong sense of depth as the train moves in from the distance, eventually occupying the entire left portion of the screen. It has been rumoured that early audiences were terrified by this sensation of depth, reportedly fleeing the theatre in belief that a train was actually tearing through the movie house walls.

This urban legend has been both propagated and debunked by many historians throughout the last century. One scholar, Martin Loiperdinger, analyzes the legitimacy of this myth, carefully considering this canonical film’s documentary claim, and its possible power to inspire embodied fear in early audiences. After careful inspection, and very

¹⁶⁴ Sobchack, *Carnal Thoughts* 136.

¹⁶⁵ Sobchack, *Carnal Thoughts* 145.

informed speculation, Loiperdinger not only confirms that the panic legend surrounding the film¹⁶⁶ as a historical falsehood, but concludes with a strong suggestion that the Lumières in fact staged the events of *Arrival of a Train at La Ciotat* under the guise of documented reality.

The panic legend assumes that early audiences were naïve, unable to distinguish between image and reality. On the contrary, Loiperdinger uncovers primary sources that demonstrate historical recognition of cinema's un-reality. Early descriptions of the film describe that "the locomotive appears small at first, then immense, as if it were going to crush the audience; one has the impression of depth and relief, even though it is a single image that unfolds before our eyes."¹⁶⁷ Similar accounts describe the film's visual effects, likewise recognizing the film's illusory nature. It is under record that many early film-goers were well aware of cinema's status as representation, despite the fact that the Lumières visually (virtually) place film-goers in harm's way. Early film audiences, afterall, lived in a world replete with powerfully realistic images. Photographs, stereoscopes, dioramas, and panoramas all situate viewers in such a way that they are meant to *feel like they're there*. It is part of Loiperdinger's argument that such technologies had already conditioned viewers to be accustomed to the complex spatial regimes that could be presented by visual images. As a result, early film-goers were evaluating the new technology against already established media, as well as against their own expectations. The emerging cinema was being held up to not only media such as

¹⁶⁶ Loiperdinger actually identifies an "Arrival of the Train" sub-genre within the Lumiere brothers' filmography. Three different films produced by the brothers feature a train arriving in a station, moving towards the camera from a distance. These films are: *L'arrivée d'un train en gare* (de Villesfranche-sur Saône), *Lyon, l'arrivée du train à perrache*, *L'arrivée du train à La Ciotat*

¹⁶⁷ Cited in Loiperdinger 97.

photography and stereoscopes, but also to the future technologies that these media promise. “Film has from the start been conceptualized within a broader network of media technologies and media practices,”¹⁶⁸ explains William Uricchio. Film did not emerge in a vacuum, but rather in a time “seething with possibilities and limits.”¹⁶⁹ Futurists like Albert Robida and Jules Verne continued to inspire the public imaginations with images and descriptions of “televisual” devices, bringing simultaneity to remote vision the way the telephone brought simultaneity to remote sound. Uricchio insists that it was this “fantasy of simultaneity”¹⁷⁰ that inspired the development of the cinema, but also the disappointment and disbelief of its early audiences.

In many ways Vivian Sobchack mirrors the sceptical audiences of the late nineteenth century. Her critical reception of “electronic media” evaluates the Internet against established visual media like film and photography—media that she has had decades of experience with. Though early audiences were quite aware of cinema’s constructed nature, the cinematic medium was soon integrated into our culture as an immersive, embodied form of representation (just ask Sobchack). We should expect, that while new and irruptive to some, “electronic media” may too enter our visual vocabulary upon further familiarity.

Plenty of other visual media offer instances of hypothetical embodiment. Microscopes and telescopes displace our vision to other spatial realms, while vehicles such as cars and airplanes allow us to manoeuvre at inhuman speeds (vehicular

¹⁶⁸ William Uricchio, “Television, Film and the Struggle for Media Identity,” *Film History* X:2 (1998) 118.

¹⁶⁹ Uricchio 119.

¹⁷⁰ Ibid.

simulators condition our senses to fit these mediations). Video games and computer interfaces allow us to embody virtual avatars, moving interactively through virtual realms of space, and still, young children are able to perform these tasks with astounding proficiency. These media position our bodily senses in unfamiliar spaces, and yet with some practice we are able to navigate these spaces quite naturally. These visual media place us in hypothetical spatial regimes, allowing us to become accustomed to their logics. I would argue that the cinema is capable of this same process. Films such as *Lord of the Rings: The Return of the King* may very well exhibit “disembodying” (or un-anthropomorphic) camera movement, however, as a single instalment in a generation of cinematographically “impossible” films, *Lord of the Rings* is not un-watchably jarring. In *Spider-man* (2002), an “impossibly” quick and unhindered camera swoops behind the superhero as he swings between Manhattan’s skyscrapers. While this camera movement is hardly anthropomorphic, it offers viewers a hypothetical sense of Spider-man’s spatial configuration.

This idea of learned embodiment may also shed light on Vivian Sobchack’s claim that digital media is an inherently disembodying medium. Her humorous description of Internet browsing demonstrates her lack of experience with on-line media. This unpractised navigation of unnatural space must be undoubtedly frustrating to her, and thus disembodying. I presume that Sobchack is constantly distracted by the mechanics of the Internet, and therefore lacks a certain sense of immersion and familiarity. Nevertheless, this should not justify her entire classification of the medium. With more practice navigating virtual space, I am certain she would find it much more natural.

Of course, Sobchack will later partially admit her own subjectively mediated experience with digital devices. Reflecting on the generation gaps defined by technological difference, Sobchack accepts that “generational modes of perception and cognition are thus different, even as those of us who are older have to some degree come to experience the modes of those who are younger, and to a lesser extent vice-versa.”¹⁷¹ Nevertheless, Sobchack continues to mourn photo-chemical cinema, conveniently marking *Wall-E* as the herald of a new technological generation, and the metaphorical “end of human being.”¹⁷²

Sobchack may argue otherwise, however, sensations of embodiment are not medium-specific. As suggested by the theories of Mike Jones, Edward Branigan, and Stephen Heath, embodiment is a perceptual state produced by specific effects of style. The cinema can inform a spectator’s sense of embodiment through the careful application of camera perspective, camera movement, and editing. Disembodied visual effects are merely the product of unfamiliar stylistic tendencies. They represent revolutionary ways of navigating space, and have the potential to embody spectators as they become more familiar. By guiding our eyes, and informing our bodies, disembodied camera movement can become familiar in time. Key to this argument is the recognition that the material camera is incidental in the formation of diegetic space and embodied experience.

In Chapters 1 and 2, I have mainly argued that common conceptions of “reality” and “presence” surrounding photographic media are largely the historical products of

¹⁷¹Vivian Sobchack, “Animation and Automation, or, The Incredible Effortfulness of Being,” *Screen* 50:4 (Winter 2009) 378.

¹⁷² Sobchack, “Animation” 379.

style, projected by the mind of the viewer. While these phenomena are often considered to be inherent to medium, strong evidence suggests that this is simply a myth. Visual media, regardless of their building blocks, situate a viewer within a certain sense of space. As long as media share certain styles, they will be capable of shaping a viewer's experience in similar ways. In the next chapter I will use Disney-Pixar's *Wall-E* to demonstrate that photographic style can be applied to a purely digital medium, in order to invoke effects of photographic realism and embodied presence. We will see that digital artists frequently conjure myths of photo-realism and photo-embodiment in their work. This, I will argue, is meant to heighten the perceived realism in computer generated imagery. This not only demonstrates the flexible nature of realism and visual embodiment, but also reveals their stylistic (not medial) origins.

It is this flexibility that allows an engineer to design a robot that can effectively provide geologists with a mediated Mars-walking experience. It is also this flexibility that allows computer animators to document another robot's fictional experience in a harsh and barren wasteland. This robot, Wall-E, probes a contaminated, inhospitable Earth, organizing its trash, and scouring for any small treasures he may find. In this post-apocalyptic setting, the viewer may recognize a shadow of human civilization hidden beneath the heaps of refuse. Nevertheless, this is a planet that we do not know—a fantastic Earth inhabited only by decrepit robots and skittish cockroaches. Like many films laden with computerized special effects, the viewer is placed in an imaginary, fantastic world. For many filmmakers, these worlds are required to be “shot” with anthropomorphic cinematic style in order to invoke a sense of realism. Much like our

robots that traipse the red deserts of Mars, *Wall-E* must take us to a planet that we can barely conceive.

Chapter 3:

A “Classic Aesthetic”: Re-Mediating Artefacts of Photography

There are certain things in live action, and certain things that lens makers in Germany have been trying to get rid of since, you know, since film has been invented I guess. And the idea of recreating these artifacts in animated form is kind of weird really.

– Cinematographer Roger Deakins (*O Brother, Where Art Thou?*)

The planet is barren and dry—its atmosphere choked with toxins. Red dust storms rage across its surface, blasting the dead landscape with sharp specks of sand. This is not a place for humanity. Instead, humans make their presence felt with the tools of their creation. A tiny rover hums across the sand dunes, determined to fulfill its human-designed directive. Sifting through the sands, the rover observes through a camera’s lens, and organizes any debris found along its path. The rover was placed here to perform the tasks that humans cannot, in order to prepare the planet for their return.

The year is 2815, and the rover, Wall-E, is combing an over-polluted Earth, organizing its mountains of garbage into towering stacks. Mankind has been forced into extra-terrestrial exile by their own wasteful ways, leaving robots like Wall-E to prepare the planet for their return. The Earth that Wall-E walks is barely recognizable, and could be mistaken for another world. Wall-E exists on a post-apocalyptic Earth forecasted by the writers and animators working at Disney-Pixar. Not only is this world fictional, but its very fabric is woven by digital data. Everything about Wall-E’s world is unfamiliar—like

another planet. Digital technology breathes life into this fantasy, reflecting “technology’s ability to duplicate onscreen what before could be realized only by comic-book artists on the page.”¹⁷³

And yet, to lend believability to the story, Wall-E’s plight must be made accessible to the audience. The viewer must somehow relate to a post-apocalyptic waste-management machine built from thousands of digital pixels. Of course, it helps that this machine is given a human name (Wall-E = “Wally”) and displays a range of human emotions and behaviours. More importantly, the film applies cinematographic strategies that can only be described as “realistic.” The camera observes (records? represents?) Wall-E’s tasks like a documentary crew observing an animal in the wild. The style is spontaneous, capturing the robot’s daily behaviour apparently unplanned as it unfolds. As I will describe in detail later, the camera’s spontaneous aesthetic becomes a key feature of the film, almost taking on the role of an additional character. (Who is it capturing these moments?) The camera style itself serves as film content as well, signalling a certain brand of reality to the viewer through a set of known techniques and visual strategies. With such obvious cinematography, it is then interesting to remind ourselves that this is a camera-less film. Created almost entirely on computers, Wall-E, his cohorts, and his world are not concrete things. And for that matter, neither is the camera that brings this world to us. If that is the case, then why do its makers *deliberately* draw attention to a camera that is so obviously non-existent?

¹⁷³ Prince 26.

This chapter will draw on concepts that I established in Chapters 1 and 2 in order to explain the noticeable presence of analog artefacts in contemporary digital media. Examples of lens flares, “shotgun” zooms, shallow depth of focus, and anthropomorphic camera perspectives in *Wall-E* will serve to exemplify many of the concepts I have already touched on in previous chapters, and illustrate an industry practice bent on building aesthetics of realism with a virtual medium.

With digital technology in general, the very medium at play is often in question. With traditional arts, the medium under manipulation is rarely a mystery. In the art of painting, the artist manipulates pigment on canvas, while a sculptor transforms raw materials such as clay or stone. These media are well-defined, distinct from one another. The digital medium offers no such convenient facility. Digital media are derived from binary digits, or code, which is used to produce a number of various artistic products. Its mutability offers a troublesome puzzle that theorists and philosophers continue to unravel.

David Rodowick attempts to define the digital medium in relation to its more traditional analog counterparts. The digital medium, a “medium of information,”¹⁷⁴ presents its subject with radically different relations to the world. “*Digital acquisition quantifies the world as manipulable series of numbers,*” insists Rodowick, distinguishing the digital process as a “*conversion or calculation*” over the “*transcription*” of analogical arts.¹⁷⁵ This implies an important temporal distinction to Rodowick, presenting immense indexicality problems. Following Peircian logic, the digital image is perceptually similar

¹⁷⁴ Rodowick 174.

¹⁷⁵ Rodowick 116.

to its referent, but, retains its status as a symbol (or simulation) and not an index. In light of this interpretation, Rodowick questions what *new* visual styles and aesthetic strategies will emerge that take advantage of the digital medium's own unique, symbolic make-up.¹⁷⁶ He identifies a current tendency of artists to, "render the digital image identical with 'photography,'" a practice that "already imagines the photograph as if it were a digital image, or at least what the digital is capable of simulating as photography."¹⁷⁷ Rodowick nevertheless recognizes that digital media are quite capable of cognitively creating effects of photo-realism, but argues that this presents a number of serious questions. The criteria for realism are shifting, and according to Rodowick, this unveils the "emerging ontology of the digital."¹⁷⁸

This allows us a convenient point of departure. As I have already explored in my previous chapters, styles of realism are susceptible to change, and can be translated from one medium to another. With Rodowick's question in mind—what *new* visual styles can the digital medium offer us?—one wants to ask why artists insist on using digital media to imitate already existing analog processes. Is it all for the sake of realism?

Paul Young describes a strategy used in early sound films to simulate codes of radio performance in an attempt to fulfill the expectations of radio-savvy movie goers. According to Young, both media were permanently transformed by "friendly acts of theft"¹⁷⁹ that occurred between them. Sound audiences were an unruly crowd, as they were not used to enjoying audio entertainment—a typically private pleasure—in the

¹⁷⁶ Rodowick 109.

¹⁷⁷ Rodowick 104.

¹⁷⁸ Rodowick 105.

¹⁷⁹ Young 74.

public space of the theatre. Listening to the radio was mainly a “passive” act, performed simultaneously with other household activities. Now audiences were asked to listen “actively” in a theatre – to listen attentively at the expense of other activities. In order to cushion this transition, “Hollywood was eager to surround its own sync sound experiments with the *aura* of radio.”¹⁸⁰ Hollywood “borrowed forms and formats from the recording and radio industries” which audiences were already familiar with. Films such as *The Jazz Singer* (1927) and *The King of Jazz* (1930) assumed the form of a radio variety show, split into acts strung together by a weak narrative. Characters address the viewer the way a live performer addresses an audience—a reflexive sort of cinema of attractions.

This historical account seems to parallel certain attractions observed in digital media today. Contemporary Hollywood frequently nods to its roots through figurative allusions and visual gimmicks. The climax of *Speed Racer* (2008), a film dense with mind-bending computerized special effects, features a hair-raising race to the finish line between the protagonist Speed, and a corrupt corporate opponent. The end of the track features wall décor that when seen from the perspective of a speeding race car achieves the same visual illusion of a zoetrope. As Speed races along this corridor, it appears as though a zebra is quickly galloping beside him. Here the Wachowsky brothers pay tribute to cinema’s past, as they simultaneously sweep it under the carpet.

Citing Karl Marx’s “The Eighteenth Brumaire of Louis Bonaparte”, Michelle Henning observes this practice of “revivalism” not only in new digital technology, but in

¹⁸⁰ Young 88.

many other cultural expressions as well. This act of “reinventing the old”¹⁸¹ functions to progressively invoke the past, commenting on the present. It can also, however reactively mask the inner-workings of the present. In the case of the emergence of a new medium, revivalism attempts at “giving the impression of a ‘false continuum’ of history.”¹⁸² Like a modern iron structure hiding within a cobblestone shell, digital media reworks the past, bringing shape to its own form.

In the above examples we see that new forms of media are often disguised as older media. This serves to situate the newer media within a stylistic history, presenting them comfortably in an encompassing lineage. Digital media are fundamentally applied the same way, re-purposing other media such as photography and working within these already established visual strategies.

In a 2004 paper entitled “The Emergence of Filmic Artefacts: Cinema and Cinematography in the Digital Age,” Prince discusses the tendency of filmmakers to digitally simulate the aesthetics of traditional film practices. Prince points to the use of the digital intermediate in creating the cinematography of *O Brother, Where Art Thou?* (2000), and compares it to the painterly process of hand-tinting seen in many early films.

While shooting *O Brother, Where Art Thou?* the crew encountered location problems that challenged cinematographer Roger Deakins’ ability to fulfill the Coen brothers’ vision of the film. The film was shot in Mississippi, where a particularly lush and wet September conflicted with the intended dust-bowl setting that the Coens had

¹⁸¹ Michelle Henning, “Digital Encounters: Mythical Pasts and Electronic Presence,” The Photographic Image in Digital Culture ed. Martin Lister (London: Routledge, 1995) 221.

¹⁸² Henning 223.

envisioned. Deakins was required to digitally de-saturate Mississippi's green foliage and blue skies in order to achieve this look. A digital intermediate was used, isolating the colours of the scenery and de-saturating them like an Adobe Photoshop tool. "Ethan and Joel favored a dry, dusty Delta look with golden sunsets," Deakins recounts in an interview. "They wanted it to look like an old, hand-tinted picture with the intensity of colors dictated by the scene, and natural skin tones that were all shades of the rainbow."¹⁸³ The digital intermediate allows this painterly precision, resulting in a "transformation that is at once substantive and, for film viewers, relatively subliminal."¹⁸⁴ Unlike many films associated with digital imagery:

O Brother, Where Art Thou? ...brings us closer to traditional visual aesthetics. The filmmaker here approaches the painter's ability to control the fine details of color, shading, contrast, filtration, and other attributes of the image within images that can otherwise appear naturalistic.¹⁸⁵

The digital intermediate is compared to the hand-tinting process, allowing filmmakers absolute manual control over the colour of a film image.

In this paper Prince introduces the idea of the *filmic artefact*. A filmic artefact is a stylistic element that assumes a new saliency in the age of digital imagery. It is an inherent element of the filmic medium, taken for granted only until it is brought to our attention through its deliberate exhibition in digital media. An example would be the

¹⁸³ Robert Allan, "The Digital Domain," *Local 600 International Cinematographers Guild*, n.d. Web. Dec. 2010 <<https://www.cameraguild.com/member-resources/techtips/the-digital-domain.aspx>>

¹⁸⁴ Prince 29.

¹⁸⁵ Prince 28.

scratches and grain projected from a film stock. These “odd vestiges of a medium”¹⁸⁶ are easy to ignore (in fact, they are considered as flaws on the film stock). They are only made evident, and able to perform a stylistic function, when they are no longer a necessary technical evil imbued in the filmic image. Digital technology is now able to remove these flaws from the image quite easily, to the extent that their presence only reminds us “of the medium's physical state in its pre-millennial form.”¹⁸⁷ However, when it is decided that these scratches and flaws are to be preserved (or even added) to a digital print, they become filmic artefacts—evidence of an earlier form of cinema.

In making *O, Brother Where Art Thou?*, the filmmakers used a digital intermediate, not only to alter the diegetic environment, but also to create a sepia-tint filter akin to familiar 1930s photographic aesthetics. The Coens’ wilful application of filmic (or, more precisely, photographic) artefacts to their film can be seen as an attempt to appeal to a bygone era in cinematic practice. (Ironically, their film also pushes this practice into obsolescence.) The film’s “old, hand-tinted picture” represents analog film techniques dating back at least a century. Prince calls this a “nostalgic drive,” and “an attempt to retain a part of the past in a present that is outdistancing it.”¹⁸⁸ Taking a nostalgic turn himself, Prince even describes these artefacts as “ghostly traces of our former love, artefacts of the stuff that dreams once were made of.”¹⁸⁹ Later in this chapter

¹⁸⁶ Prince, 33.

¹⁸⁷ Prince 32.

¹⁸⁸ Prince 28.

¹⁸⁹ Prince, 33. Again, like in the words of Roland Barthes, André Bazin, and Susan Sontag, we see deathly imagery being used by a theorist to describe the effects of analog photographic technology.

I will describe how such filmic artefacts (including lens flares, depth of field, and so on) function in *Wall-E* much to the same effect as they do in *O, Brother Where Art Thou?*

I find it intriguing that Prince uses the word “artefact” to describe these filmic anomalies. The word “artefact” is derived from the Latin *arte factum*, meaning “something made.” By definition, it is a word that refers to hand-crafted items created by human design. According to the Oxford Dictionary, an artefact is “an *object made by a human being*, typically one of cultural or historical interest.”¹⁹⁰ Without a doubt, filmic artefacts are of great cultural and historical interest (indeed, I am dedicating to them a great deal of interest through this project). However, when characterized as “something made,” the term *filmic artefact* is slightly problematic. The mechanical nature of traditional photography is something that is praised by many photographic theorists (as I have gone over in Chapter 1). That a photograph is not hand-crafted sets it apart as a medium with little subjective control. The mechanical nature of photography lies at the foundation of this realist myth, through its nostalgic, “indexical” connections to the past. Whether knowingly or not (Prince does not describe the term in-depth), Prince makes some very strong statements using the word “artefact” to describe filmic traces (or imitations) found within digital media. He implies several possible positions. One position may be obvious—that filmic objects existing in digital media are under a sort of artisan’s control, available for manipulation and removal at the stroke of a brush or click of a mouse. This case is made when Prince describes the removal of film grain for DVD

¹⁹⁰ “Artefact,” Oxford Dictionaries,
<http://oxforddictionaries.com/view/entry/m_en_gb0041570#m_en_gb0041570>

releases. He may also be implying that photographic arts are far less mechanical than they are made out to be. The term *filmic artefact* may be acknowledging that photographic style is the product of an artist, and is therefore subject to human design. This includes technological “flaws” such as film grain and lens flares, as they can be exploited for aesthetic effect. There is also the possibility that Prince implies a paradox—that filmic artefacts exist as artefacts only when they are no longer filmic. Photographic style can only be manually crafted when entered into the digital realm of the computer. This argument could be furthered by Prince’s claim that the filmic artefact has only “emerged” in the digital age.

Jay Bolter and Richard Grusin argue that such interrelations between old and new media have always existed as a long-standing habit of *re-mediation* in the arts. According to Bolter and Grusin, all media exchange with one another in a borrowing process called re-mediation. Any mediation mediates prior mediation. As described by the authors, “any act of mediation is dependent on another, indeed many other, acts of mediation and is therefore re-mediation.”¹⁹¹ A prototypical model of remediation is the cell-phone. Contemporary cell-phones remediate a vast number of older media, including telephones, cameras, address books, lap-tops, and hand-held gaming devices (the list continues, and as I type this, designers are finding new objects of convenience for cell-phones to re-mediate). Cell-phones often adopt the aesthetics of their predecessors. Usually cell-phones feature an analog “ring-ring” ringtone, as well as a shutter “click”

¹⁹¹ Jay David Bolter and Richard Grusin, Remediation: Understanding New Media (Cambridge: The MIT Press, c1999) 56.

when taking a photo. The cell-phone lacks the mechanical processes that create these analog sounds, yet designers feel the need to include digital imitations as a part of the cell-phone's primary functions.

Such is the case with photo-realism in digital media. When one describes computer graphics as "realistic" they are not remarking on the medium's ability to visually imitate external reality, but rather its ability to mimic the photographic medium. "To achieve photorealism," writes Bolter and Grusin, "the synthetic digital image adopts the criteria of a photograph. It offers a single station point, a monocular point of view, and a photographic sense of appropriate composition."¹⁹² Much in the vein of Young and Rodowick, Bolter and Grusin argue that most media repurpose older media until they are able to find a unique aesthetic.¹⁹³ In an exceptional case, digital media must rely on re-mediation to exist at all.¹⁹⁴ Consisting entirely of numeric code, the digital must manifest itself in the forms of other media. In fact, some practitioners of this medium try to efface digital "materiality" entirely, by attempting to bring the signs of re-mediated media into immediacy.

The authors claim that digital media "oscillate between immediate and hypermediacy, between transparency and opacity."¹⁹⁵ On the one hand media are designed to efface their inner mechanisms so that they are *immediate* to their audiences. Continuity editing exists so that cuts in a film are made invisible to the audience, accommodating a more immersive viewing experience. Inversely, media also harbour an

¹⁹² Bolter and Grusin 28.

¹⁹³ Bolter and Grusin 49.

¹⁹⁴ Bolter and Grusin 45.

¹⁹⁵ Bolter and Grusin 19.

array of styles and forms borrowed from other media. The Internet, as a medium, serves as a melting pot for countless other media, including graphics, text, audio, and video, all presented to a user simultaneously. Hypermediacy self-consciously bombards a viewer, preventing any sense of immediacy to set in. And yet, these two contradictory logics somehow learn to co-exist in digital media. Bolter and Grusin explain:

The desire for immediacy leads digital media to borrow avidly from each other as well as from their analog predecessors such as film, television, and photography. Whenever one medium seems to have convinced viewers of its immediacy, other media try to appropriate that conviction.¹⁹⁶

Digital media exhibit the styles, quirks, and flaws of analog media to create a heightened sense of immediacy. One of my favourite instances of such re-mediation is in the Super Nintendo game *Donkey Kong Country 2: Diddy's Kong Quest* (1998). In the game, there are a series of levels which take place within a bee-hive. As an added effect in these levels, programmers created animations of dripping honey which appears to drip down the inside surface of the television screen. Through this effect, the television screen seems like an actual threshold into this virtual world of bees and honey. It creates immediacy through hypermediation—a seemingly paradoxical task. By recognizing its own medium, the game reflexively creates a stronger sense of immersion. It creates an imagined physical connection between the television set and the diegetic bee-hive.¹⁹⁷

¹⁹⁶ Bolter and Grusin 9.

¹⁹⁷ The game's series would return to these reflexive techniques in *Donkey Kong Country Returns* (2010). Several levels take place with the game's side-scrolling camera looking into a setting sun. This perspective effectively casts the game's foreground objects (including the playable character) into silhouette. This

This effect may remind readers of radical theatrical techniques pioneered by Bertholt Brecht. A major aspect of Brecht's theory is the *Verfremdung Effekt*, or *V-Effekt*. This is a distancing effect meant to break theatrical illusions of objective reality and create a feeling of critical detachment in the spectator. This distancing allows the viewer to see the theatre from a fresh, critical perspective and promotes active authorial viewership. According to Walter Benjamin, the *V-Effekt* denies the spectator a position of "comfortable contemplation,"¹⁹⁸ transforming them from "readers or spectators" to "collaborators."¹⁹⁹ Brecht is famous for breaking the 4th wall, a process of diegetic audience-acknowledgement. For Brecht, "realism" is an aesthetic that upholds the illusion that art can reflect our perception of reality.²⁰⁰ His *V-Effekt* suggests a self-conscious realism marked by abrupt abstraction. To Marc Silberman, this process produces reality while continuing to observe the practice of production itself.²⁰¹ The *V-Effekt* has been adopted by many notable radical artists as a means for promoting social change. Filmmaker Peter Watkins attempts to similarly disrupt illusions of historical authenticity in his films. His depiction of pre-modern historical events through cinema

visual effect is not something we encounter in reality and can only be achieved with the use of a camera's aperture and lens. The game recognizes its virtual camera to attest its own reality. Similarly, many games address the television threshold. The *Super Smash Bros.* Series (1999, 2001, 2008) often features characters being violently slammed against the inside of the TV screen. While this is mainly done for comedic effect, it also addresses the television threshold, and like *DKC2*, builds that physical link between player and game.

¹⁹⁸ Walter Benjamin, "The Author as Producer," *Understanding Brecht*, Trans Anna Bostock (London: NLB, 1973) 96-97.

¹⁹⁹ Benjamin 98.

²⁰⁰ Marc Silberman, "Brecht, Realism and the Media," *Realism and the Audiovisual Media*, ed. Lúcia Nagib and Cecília Mello (New York: Pelgrave Macmillan, 2009) 31.

²⁰¹ Silberman 33.

vérité aesthetics makes direct reference to the camera apparatus, and in extension the constructed nature of the film.²⁰²

Unlike the plays of Bertolt Brecht or the films of Peter Watkins—which embrace the opacity of reflexive technique—many digital media use reflexive techniques to build realism and maintain transparency. In many ways *Wall-E* shares an almost identical cinematic style to many of Watkins’ films, and yet it achieves an almost entirely reverse effect. I will now provide an analysis of Disney-Pixar’s *Wall-E*, and demonstrate these theories in practice.

In its opening sequence, *Wall-E* takes the viewer for a journey through space, taking us to galaxies we would never witness in our lifetimes. The film’s opening shots display vast arrays of stars, nebulae, and distant planets as “Put on Your Sunday Clothes” from *Hello, Dolly!* (1969) plays in the apparently non-diegetic soundtrack. Digital artistry has allowed the filmmakers at Pixar Studios to show us the infinite corners of the universe, placing their virtual cameras in the cold vacuum of space. The scale is breathtaking, and reminds us of our insignificance in the spinning stars. Soon this scale shifts however, and slowly undertakes a transition. We are soon taken to Earth—a desolate planet, overcome with waste and devoid of human existence. The camera soars through the stratosphere, choked by smog pierced by stacks of trash. We have seen this shot many times, often when the filmmaker introduces us to a city setting. In this case, though, the city’s skyscrapers are neglected and hollow, often overshadowed by piles of garbage

²⁰² In *Culloden* (1964) Watkins places a television news crew on the site of an eighteenth-century Scottish highlands battle. The absurdity of news reporters interviewing an eighteenth-century highlander reminds the viewer that history is constructed through media and memory.

towering above. As the camera soars, the soundtrack begins to fade. The stark images of man's demise are shown in silence. Soon the music resumes, but it is tinny and high in reverb as if it is echoing throughout the empty city streets. The music has become a diegetic element of the scene, emitting from Wall-E's built in sound-system. He listens to "Put on Your Sunday Clothes" as he busies himself, cleaning up humanity's mess.

The film's initial soundtrack establishes the anthropomorphic cinematic style that will dominate the *Wall-E*'s aesthetics for the first half hour of the film. The film opens with epic vistas of stars and galaxies, accompanied by a non-diegetic musical soundtrack ("Put on Your Sunday Clothes"). The camera seems omnipotent, as it non-anthropomorphically drifts through a Universe we have yet to explore. As the camera tilts down to reveal a desolate Earth, it rapidly flies towards our planet at an impossible speed. The closer the camera comes to ground level, the more anthropomorphic, more embodying, and more "real" it becomes. The soundtrack becomes diegetic in order to position the viewer within the space of the film. The soundtrack begins to closely follow James Lastra's fidelity model, in which Wall-E's distance from the camera determines how clearly the audience hears him (and the music that he's playing).²⁰³ The soundtrack grows louder as Wall-E moves towards the camera, but softens as he drives away. Through this effect the viewer may begin to feel a sense of presence in the scene, as occupying a physical space in relation to Wall-E. It also establishes the camera as a physical construct occupying this space as well, recording Wall-E's movement.

²⁰³ James Lastra, "Fidelity Versus Intelligibility," Sound Technology and the American Cinema (New York: Columbia University Press, c.2000) 138.

Soon the camera shifts, standing at Wall-E's height, close to the ground. It is at this level that the virtual camera becomes most anthropomorphic. After glimpsing him from several high angles, we are first truly introduced to Wall-E through a series of extreme close-ups of the robot at work, abstracting his mechanical parts. The close-ups are shot with a very shallow depth of field, allowing the audience to observe the finer details of Wall-E's rusted and scratched exterior. We see his claws gather aluminum cans into a trash compactor on Wall-E's abdomen. As the compactor door closes, the model name "Wall-E" is revealed on the outer hatch. After crushing the cans and ejecting them in an aluminum block, Wall-E drives off screen-right. The shallow lens depth quickly adjusts focus to introduce Wall-E's friend, a cockroach, as it scuttles out from a distant tin can. Wall-E places the aluminum block onto an organized pile before checking the position of the sun in the sky. A simple eye-line match shows the setting sun as it blinds Wall-E's camera-eye, producing a sharp lens-flare effect. Wall-E must return to his shelter before the sun sets. He packs his lunch kit and begins to head home. The camera travels beside Wall-E, holding the robot in sharp focus, with the background fields in a soft blur.

The opening scene of *Wall-E* demonstrates an abundance of filmic artefacts, including obvious focal length, shifting depth of field, and lens flares. Each of these effects typically requires a camera lens to be produced, but *Wall-E*'s creators deliberately create these effects digitally. Another short sequence in the film demonstrates these effects in an even more apparent display. Wall-E pursues his love interest, Eve, through an abandoned shopping mall. When Eve notices his smitten gaze, Wall-E panics,

colliding with a pile of empty shopping carts. The shopping carts begin to fall, toppling after Wall-E as he races towards the mall exit. Unable to escape in time, Wall-E is smashed against the glass door by a dozen speeding shopping carts. The camera “records” this scene as if it were unscripted and caught fortuitously by the camera crew. As Wall-E runs towards the distant exit, the camera performs a “shotgun” zoom, quickly capturing Wall-E as the center of attention and placing the foreground (an embarrassed Eve) out of focus. The sequence not only exhibits a very palpable camera lens technique (the “shotgun” zoom) but also implies the presence of an unscripted camera crew capturing these spontaneous events. It is clear that *Wall-E* is re-mediating certain photographic and cinematic aesthetics to achieve a sense of real-life presence.

The film also remediates several other established media through subtle references to Apple Computers. (Pixar is owned by Apple Computers CEO Steve Jobs, so this may be as commercially motivated as it is artistically.) Wall-E’s reboot sound effect is the same sound an Apple computer makes when it is turned on. Similarly, the antagonist of the film—a star ship’s autopilot computer—is voiced by Apple’s text-to-speech application MacInTalk. Wall-E’s cinephilia, and appreciation for Classical Hollywood also indicates the film’s proclivity to re-mediate and appropriate the golden age of Hollywood cinema. He uses the video feature of an Apple iPod as a means of fantastic escape from his lonely existence. A particular musical number from *Hello, Dolly!* becomes an object of interest for him, entertaining the robot before he retires for the evening. Wall-E views actual footage from the film on an enlarged iPod screen in his home. The inclusion of live-action footage creates an obvious distinction between digital

and photographic technologies, while the film maintains a computerized photographic aesthetic. Vivian Sobchack writes of this remediation as a “remainder/reminder of a once live-action but long-gone photochemical cinema capable of an indexicality that exists even when its subject is a fantasy.”²⁰⁴

To this effect, *Wall-E* noticeably channels Classical Hollywood in a series of visual gags. My favourite of these visual tricks occurs when Wall-E first sets his eyes (optical scanners?) on the beautiful robot Eve. She first perceives him as a threat and attempts to turn him into a smouldering crater with her plasma cannons. Only when the smoke and flame is settling does Wall-E catch a look at Eve. In a point-of-view shot Eve is seen in a soft halo of light and smoke, reminiscent of the soft-focus close-up treatment of the leading ladies in Classical Hollywood films.

In an aptly titled DVD special feature named “The Imperfect Lens,” it is explained that such re-mediations are all intentional. The director Andrew Stanton describes his childhood fascination with science fiction films, which were able to trick the viewer into believing in fantastic and implausible worlds. He wished to emulate this “dimensionality”²⁰⁵ with *Wall-E*, through what his contemporaries call a “classic aesthetic.” The featurette makes it clear that this aesthetic is rooted in a stylistic use of filmic artefacts, harkening specifically to 1970s science fiction films such as *2001: A Space Odyssey* (1968) and *Star Wars*.

To achieve this aesthetic, Pixar Studios invited the aforementioned Roger Deakins and special effects artist Dennis Muren (*Star Wars*, *Jurassic Park* [1993]) to discuss

²⁰⁴ Sobchack, “Animation” 380.

²⁰⁵ He is never clear on what this term really means.

various technical and practical aspects of filmmaking to Pixar's digital artists. Deakins' task was to teach Pixar's digital team of the "subtle things" of the camera, including "the way that the camera moves in physical space" and "the way the lenses are made." He held a workshop with Pixar's animators in which he demonstrated classical and dramatic lighting techniques, the merits of experimenting with light sources, and the ways in which light reacts with different lenses. In addition to applying these techniques to the film, as I have described above, Stanton subtly adjusted grain and focus effects so that the film would appear to be shot specifically on 70mm film. He states that this photographic look would "mine that much more empathy from the audience" for the robot Wall-E. The "more subtle level of imperfection...all adds up to one step forward in believability...we are really on this planet and we are really with this little box, and there is nobody else here."

We see this aesthetic approach in other contemporary science fiction films. J. J. Abram's *Star Trek* (2009), for example, has been noted for its notorious (over)use of lens flares.²⁰⁶ A recent publication of American Cinematographer reveals Abrams' intention behind this stylistic choice. "It goes against everything one learns as a camera technician," says cinematographer Dan Mindel.²⁰⁷ Abrams adds, "I love the motif that is so inherently analog and imperfect in its unpredictability; it serves as a counterpoint to the sterile, controlled look that so many visual-effects films seem to have."²⁰⁸ While

²⁰⁶ Meredith Woerner, "J.J. Abrams Admits Star Trek Lens Flares are 'Ridiculous,'" *io9*, Gawker Media, 27 Apr. 2009 Web. Feb. 2011 <<http://io9.com/5230278/jj-abrams-tells-us-why-star-trek-has-so-many-lens-flares>>

²⁰⁷ Jon Witmer, "A Bold New Enterprise," American Cinematographer 90.6 (2009)

²⁰⁸ Witmer

many of the lens flares in the film were practical effects, the visual motif was also prevalent in many of the film's CGI shots, including a shot featuring a "shotgun" zoom towards James T. Kirk, sky-diving through Earth's atmosphere. These aesthetics have translated to some video games as well. Science fiction role-playing games *Mass Effect* (2007) and *Mass Effect 2* (2010) feature an optional film grain visual filter and prominent anthropomorphic cinematography, while the in-game camera for *Gears of War 2* (2008) occasionally assumes the shaky and cautious visual style of a battlefield film journalist, recalling the style of *Saving Private Ryan* (1998).

On a practical level, computer animation trade journals urge animators to take on the aesthetic of a "nuanced camera."²⁰⁹ A trade journal article from 1996 emphasizes that computer animators should not abuse the freedom that the digital language affords them. It argues that computer animators must limit the visual "grammar" of their virtual cameras to the conventions already established by traditional film media. The author devises and revises a list of metaphors to describe the behaviours of various styles of virtual cameras. These metaphors include the *eyeball in hand*, *scene in hand*, *vehicle in hand*, and *airplane metaphor*. Each of these metaphors describes a different style of virtual camera embodiment. "Our aim," the author ultimately writes "is to define a camera motion metaphor as if a camera operator were manoeuvring the camera in reality, by using the motion rules consolidated in filming practice."²¹⁰ The article outlines a

²⁰⁹ Jeffrey D Weekley and Don Brutzman, "Beyond Viewpoint: X3D Camera Nodes for Digital Cinematography," *Proceedings of the Web3d 2009 Symposium* (March 2009) 71.

²¹⁰ Patrizia Palamidese, "A Camera Motion Metaphor Based on Film Grammar," *The Journal of Visualization and Computer Animation* 7:2 (April 1996) 63.

number of camera effects including tracking, panning, framing, and zooming, and describes how these can be applied to 3D animated environments.

Another more recent trade article reiterates this importance, with the authors urging software developers to include preset nodes that easily apply nuanced camera movement, field of view, f-stop and aperture control, focal length, focus distance, and camera aim to their virtual cameras.

Practical cameras and lenses can only move according to physical restraints....One hundred years of exploration and practical application of cinematography ought to be respected and emulated....Virtual cameras still need to behave in ways that we understand.²¹¹

These animators seem to agree that in order to design a feasible world, it must be presented through an established cinematic language, structured by the camera. In an almost paradoxical way, this type of computer animation reflexively acknowledges its own aesthetics—aesthetics that are originally meant to be invisible and therefore more “real.” Lev Manovich identifies this as an emerging style of realism that he sees in visual media today.

Manovich argues that new media are comprised of fluid instances of illusion and auto-deconstruction (although he does argue that this cycle does not distract the viewer from the reality effects applied by the medium.)²¹² Manovich writes on the dynamic of

²¹¹ Weekley and Brutzman 72.

²¹² Manovich, Language 187.

digital media as constantly shifting between “illusion and its suspense.”²¹³ He exemplifies his theory by indicating the many computational limitations present in digital media that remove users from any sense of immersion. Such limitations include slow Internet speed, graphical shortcomings, and video game loading screens. Manovich argues that digital media constantly breaks illusionism by revealing the medium’s material constructs to the subject. These dynamics cycle between illusion-building, *transparent* aesthetics, and “auto-deconstructing” *opaque* aesthetics.²¹⁴ This echoes Bolter and Grusin, who describe new media as oscillating between immediacy and hypermediacy.²¹⁵ Manovich suggests that this foregrounding of material elements does not disrupt the spectator’s realist illusion (the way a Brechtian play might). Instead it upholds a new *meta-realism* that relies on the revelation of its own materiality in order to bring credence to its object. *Old-world realism*, as described by Manovich, is the realism described by Bazin, and merely accounts for “totalization of a semiotic field, ‘false consciousness,’ complete illusion.”²¹⁶ Meta-realism, on the other hand, recognizes that realism is constructed and exploits this construction to build credibility. *Wall-E* displays meta-realistic tendencies, creating realism with reflexive stylistic technique.

While many fear that digital technology will only bring about the death of photographic technology, one must remember that death is no stranger to photography. At one point, not too long ago, photography itself was the supposed Grim Reaper, casting death on its preceding visual art forms. According to a popular myth, the painter Paul

²¹³ Manovich, *Language* 185.

²¹⁴ Manovich, *Language* 187.

²¹⁵ Manovich, *Language* 19.

²¹⁶ Ibid.

Delaroche is supposed to have said (upon the advent of photography) that, “from today, painting is dead!”²¹⁷ As I briefly discussed in Chapter 1, the medium itself is dependent on morbid desires often described with deathly imagery. Viewed as a document of the past, Victorian families would often go so far as to photograph dead loved ones in the desire to preserve their spirits for memory. It is no wonder André Bazin referred to this technology as a form of mummification.²¹⁸

Is digital technology “killing” photography, or merely carrying on its legacy? With such nostalgic investment in the medium, one can understand why a threat is perceived. Those with epistemological concerns rue the end of photographic objective truth.²¹⁹ It is conceivable that the level of manipulation that digital technology provides would encourage distrust of the image, shaking its truth-value. The industrial push towards more economic digital practices only furthers the perception that traditional photographic practices are extinct (at least on a mainstream scale).

However, one can also view digital technology as the latest technology to fulfill humanity’s representational needs. Photography has never been one unchanged technology, and since its inception it has always been a heavily manipulated medium. Indeed, even the transference of a 3-D subject onto a 2-D surface is an un-ignorable manipulation. Geoffrey Batchen insists that in this capacity “photographs are no more or

²¹⁷ Batchen 9.

²¹⁸ Bazin 14.

²¹⁹ Batchen 10.

less “true” to the appearance of things in the world than are digital images.”²²⁰ The digital is simply a simulation of the “guaranteed reality promised by the photograph.”²²¹ Digital technology really only carries the torch for photography, filling a role that has been left void by changed industrial standards. “Even if a computer does replace the traditional camera,” Batchen reminds us that the “computer will continue to depend on the thinking worldview of the humans who program, control, and direct it.”²²² And the computer seems to be a very adequate representational medium for a culture so obsessed with manipulations—prosthetic surgery, genetic engineering, cloning, and artificial intelligence all seem to pre-occupy our greatest minds. Photography will only “die” when “the desire to photograph, and the peculiar arrangement of knowledges and investments which that desire represents, is reconfigured as another social and cultural formation.”²²³

And what better film is there to exemplify this than *Wall-E*, a film in which its robotic characters all seem more “human” than their homo-sapien counterparts. While the film’s human characters loaf about in space, tied to synthetic instruments, the audience cannot help but identify with Wall-E the most, moved by his displays of compassion, determination, and intense humanism. As “human artefacts,” Wall-E and Eve serve to “ease viewers from an earlier mechanical stage of technological development to a ‘more mature’ rapprochement with the electronic.”²²⁴ In this film Wall-E is a human character,

²²⁰ Batchen 18.

²²¹ Batchen 19.

²²² Batchen 19.

²²³ Batchen 22.

²²⁴ Sobchack, “Animation” 388.

even though he is only a machine. Similarly, the digital serves as photography, despite its virtual foundations.

Conclusion:

Camera technology has gripped our imaginations since the moment we conceived of it, evidenced by the millions of photographs taken each year. As a technology, photography holds an important place in our hearts and minds, opening the doors to distant times and places. It is therefore unsurprising that as a culture we may feel unsettled by the recent technological transformations that photography has undergone. Through the pages of this thesis I have described a cultural reluctance to abandon photographic technology as digital technology becomes dominant.

In Chapter 1, I confirmed this reluctance by demonstrating some key theories surrounding photography and photo-realism. Many theorists take a stance that acclaims the material foundations of photography, arguing that the medium's unique analog properties afford it a strong indexical relationship with its referent. Significant figures such as Roland Barthes, André Bazin, and Susan Sontag championed the photographic image, attributing to it a unique relationship with reality. And while this theoretical standpoint seems a bit over-stated, it begins to indicate why realism is so often perceived in photography. Subjective investment in the photographic image can lead one to believe in its inherent "reality." This investment is of course informed not only by personal nostalgia and desire, but by numerous historical forces as well. We can agree though, that material-specific photo-reality is largely a myth, propagated by theorists of film, and by photographic culture as a whole.

Chapter 2 furthers the charges I set in Chapter 1, continuing to revoke photography's privileges over digital representation. In this chapter I looked at the photographic medium's ability to behold a sense of embodied presence to the viewer. Accordingly, many theorists pit digital media against photography in this regard. Vivian Sobchack, among them, argues that while photographic media offer viewers uninterrupted, embodied experiences, digital media cannot help but to inherently provide the opposite. I resisted the claims made by Sobchack, arguing that any visual medium is capable of both embodied and disembodied viewership. I furthered this argument by challenging the very idea of the photographic camera itself as an embodying instrument. By citing Edward Branigan, Mike Jones, and Stephen Heath, I revealed that the material filmic camera is not necessary in creating embodied visual effects, nor does it guarantee them. This was seen in a number of films and video games that I use as examples. Ultimately I propose that embodied spectatorship relies on the viewer's cognitive perception of anthropomorphic stylistic techniques.

By critiquing myths of photographic medium-specificity in Chapters 1 and 2, I set the stage for Chapter 3, which demonstrates the industrial application of photographic style to the digital medium. As Chapters 1 and 2 showed, photography is most often associated with reality, and digital media with virtuality. By translating photographic stylistic devices to the digital medium, filmmakers attempt to transplant the myths of photo-realism into the digital medium, thus heightening its reality effect. This only reveals the fluidity of the concept of realism and exposes the fact that photo-realism is a culturally-based phenomenon, and nothing more. The re-mediation of photography by

way of digital technology is only another case in a long-standing lineage of cultural re-mediation. Media must constantly lend and borrow from each other as they are appropriated. A film like *Wall-E* re-mediate photographic artefacts in an attempt to ground itself in reality—a task largely achieved by appropriating the photographic myths outlined in Chapters 1 and 2. Like the robot Wall-E’s assumption of human characteristics, digital media *become* photographic by assuming its visual style.

Through the malleability of the digital language, we have continued the photographic tradition in digital media. This tradition, anchored in the observational representation of reality, thrives despite the widespread critical rejection of new media. On the whole, digital representation bears “the truth” no more or less than its photographic precursor. Both can be manipulated in a way that foregrounds the subjectivity of an author or artist, and both can be perceived and interpreted subjectively by a viewer. Nevertheless, people *do* tend to trust photography more, partially because of the established realist discourse surrounding it. As a product of this, digital media has transformed, tapping into this discourse. This is evidenced by the number of camera and lens effects seen in purely digital media today. To paraphrase Marshall McLuhan, photography has become the message of the digital medium—stylistic content that signifies reality and truth in a represented object.

While I have attempted to provide a comprehensive illustration of the various scholarly positions regarding photo-realism, embodiment, and their presence in contemporary digital media, I could by no means provide an exhaustive survey. For this reason, there are many directions in which one *could* proceed on the basis of this account.

For one, further consideration could be given to the animation medium as a whole. While my focus has been dedicated to camera effects in computer animation, the truth is, traditional animation has always been more-or-less a camera-less medium. While I touch on this medium briefly in Chapter 2, hand-drawn animation truly deserves its own separate consideration. While Dudley Andrew and Edward Branigan both use examples of traditional animation in their own commentaries on the cinematic camera, these are nevertheless only fleeting treatments. It is in fact very difficult to find sources that investigate the conceptual camera's "presence" in hand-drawn animation. However, this "presence" was indeed felt. In the 1930s and 1940s, Walt Disney Studios, deeply committed to advancing the "realism" in its animations, popularized a multi-plane animating technique that generated a powerful three-dimensional effect in its images. When applied, this animating technique could create the sensation that a camera was moving through the z-axis of the animation's diegetic space. Such a technique suggests the presence of a moving camera within an animated scene, thus furthering the artistic claim that we are seeing is "real." Siegfried Kracauer in fact criticized Disney for this, recognizing the studio's attempts at reality through illustrated illusions of depth and camera movement.²²⁵ Kracauer believed animation to be an art meant to achieve that which cannot be photographed, and felt Disney had abandoned its avant-garde roots, conforming to the conventional realist arts.²²⁶ As seen by Kracauer's judgement of Disney, an entire discourse surrounding realism in hand-drawn animation has been in

²²⁵ J.P. Telotte, "The Changing Space of Animation: Disney's Hybrid Films of the 1940s," *Animation 2* (2007) 247.

²²⁶ Ibid.

development since animation itself. Developing alongside film, animation holds a contentious political function as cinema's surrealist little cousin. Accordingly, it is the cartoon's task "to mock photographable reality"²²⁷ therefore abandoning conservative, bourgeois notions of "realism." This can be seen in the many humorous attacks on nature seen in so many famous animations (such as the defiance of physics in just about any Roadrunner and Coyote cartoon). When animation imitates photography, however, this is lost. While such a discourse does hold importance in my thesis, it is difficult to fully represent without steering my argument away from its focus.

Another area of interest that could afford further research concerns the levels of interactivity that many digital media allow the viewer (or *user*, as they are now often called). While digital media often stylistically imply the practical presence of a material camera, some digital media interactively place a user in control of said camera through the use of an interface. Video games often place an in-game virtual camera within the control of the player, whether directly as a secondary avatar, or indirectly, through the movements of the game's protagonist. Just as with cinema, interactive cameras can be anthropomorphic, or non-anthropomorphic, depending on how they move through space. Thus, interactivity brings new questions to bear when viewed within the context of spectator embodiment. When a viewer is put into control of the camera, one must consider how well the control interface conforms to human mediation (a concept J.R. Parker calls *natural interfaces*).²²⁸ Interactivity introduces new apparatus to the viewing

²²⁷ Esther Leslie, Hollywood Flatlands: Animation, Critical Theory and the Avant-Garde (London: Verso, 2002) 202.

²²⁸ J.R. Parker, "Buttons, Simplicity, and Natural Interfaces," Loading... 2.2 (2008) 3.

experience, thus philosophically complicating the ways in which viewers become immersed with visual media. Since many digital media offer interactive dimensions, it is important to recognize this complication when investigating the medium.

In a world dominated by images, it is imperative that we adopt a critical mindset. When images govern what we do, what we buy, how we feel, and where we go,²²⁹ one must remember that these images *always* represent a subjective point-of-view, regardless of what machinery is used to create them. Thus, I feel that my study holds great relevance within contemporary culture at large. My identification of photo-realist aesthetics in digital media not only reveals the ways in which objectivity is implied in a prominent mode of representation, but also challenges myths of objectivity in another. And while many believe that digital media has killed the objectivity of photography, I insist that anything that made photography “objective” lives on in the digital image, and within the mind of the spectator who views it.

²²⁹ Who we vote for, who we convict, who with invade...

Films Cited:

2001: A Space Odyssey. Dir. Stanley Kubrick. MGM, 1968.

Arrival of a Train at La Ciotat. Dir. Auguste and Louis Lumière. Lumière, 1896.

A Trip to the Moon. Dir. George Milies. Star Film, 1902.

Blow-Up. Dir. Michelangelo Antonioni. Bridge Films, 1966.

Breathless. Dir. Jean-Luc Godard, Les Productions Georges de Beauregard, 1960.

Cloverfield. Dir. Matt Reeves. Paramount Pictures, 2008.

Culloden. Dir. Peter Watkins. British Broadcasting Corporation, 1964.

Death By Hanging. Dir. Nagisa Ôshima. Art Theatre Guild, 1971.

Hello, Dolly!. Dir. Gene Kelly. Twentieth Century Fox, 1969.

Jurassic Park. Dir. Steven Spielberg. Universal Pictures, 1993.

King of Jazz. Dir. John Murray Anderson. Universal Pictures, 1930.

Mothlight. Dir. Stan Brakhage, 1963

O Brother, Where Art Thou?. Dir. Joel Coen. Touchstone Pictures, 2000.

Paranormal Activity. Dir. Oren Peli. Blumhouse Productions, 2007.

Porco Rosso. Dir. Hayao Miyazaki. Studio Ghibli, 1992.

[Rec]. Dir. Jaume Balagueró. Castelao Producciones, 2008.

Saving Private Ryan. Dir. Steven Spielberg. Universal Pictures, 1998.

Speed Racer. Dir. Andy and Lana Wachowsky. Warner Bros. Pictures, 2008.

Spider-Man. Dir. Sam Raimi. Columbia Pictures Corporation, 2002.

Star Trek. Dir. J.J. Abrams. Paramount Pictures, 2009.

Star Wars. Dir. George Lucas. Lucasfilm and Twentieth Century Fox, 1977.

Star Wars: Episode III: Revenge of the Sith. Dir. George Lucas. Lucasfilm and Twentieth Century Fox, 2005.

The Boss of It All. Dir. Lars Von Trier. Canal, 2006.

The Jazz Singer. Dir. Alan Crosland. Warner Bros. Pictures, 1927.

The Lord of the Rings: The Return of the King. Dir. Peter Jackson. New Line Cinema, 2003.

The Maltese Falcon. Dir. John Huston. Warner Bros. Pictures, 1941.

Wall-E. Dir. Andrew Stanton. Walt Disney Pictures, 2008.

Bibliography:

- Andrew, Dudley. What Cinema Is!: Bazin's Quest and its Charge. Chichester: Wiley-Blackwell, 2010.
- Allan, Robert. "The Digital Domain." *Local 600 International Cinematographers Guild*. <https://www.cameraguild.com/member-resources/techtips/the-digital-domain.aspx>
- Armstrong, Richard. Understanding Realism. London: BFI Publishing, 2005.
- Arnheim, Rudolf. Film as Art. Berkeley: University of California Press, 1971
- "Artefact." Def 1. Oxford Dictionaries. On-Line. 2011.
- Barthes, Roland. Camera Lucida: Reflections on Photography. New York: Hill and Wang, 1981.
- Batchelor, John. H.G. Wells. New York: Cambridge University Press, 1985.
- Batchen, Geoffrey. "Ectoplasm: Photography in the Digital Age." In Over Exposed: Essays on Contemporary Photography, edited by Carol Squiers. New York: New Press, c1999.
- Bazin, André. "An Aesthetic of Reality: Cinematic Realism and the Italian School of the Liberation." In What is Cinema?: Volume II. Los Angeles: University of California Press, 1971.
- Bazin, André. "The Ontology of the Photographic Image." In What Is Cinema?: Volume I. Los Angeles: University of California Press, 1967.
- Bazin, André. "The Myth of Total Cinema." In What is Cinema?: Volume I. Los Angeles: University of California Press, 1967.
- Bolter, David and Richard Grusin. Re-mediation: Understanding New Media. Cambridge: The MIT Press, 1999.
- Bordwell, David. "Another Pebble In Your Shoe." *Observations on film art*. <http://www.davidbordwell.net/blog/?p=202>
- Benjamin, Walter. "The Author as Producer." In Understanding Brecht, trans. Anna Bostock. London: NLB, 1973. 85-103

- Black, Joel. The Reality Effect: Film Culture and the Graphic Imperative. New York: Routledge, 2002.
- Branigan, Edward. Point of View in the Cinema. Berlin: Mouton Publishers, 1984
- Branigan, Edward. Projecting a Camera: Language-Games in Film Theory. London: Routledge, 2006.
- “The Brownie Camera @ 100 Years: A Celebration,” *Kodak Brownie @ 100*, Kodak. n.d. Web. Feb. 2011. <<http://www.kodak.com/US/en/corp/features/brownieCam/>>
- The Camera: Life Library of Photography. New York: Time-Life Books, 1970.
- Elsaesser, Thomas. “World Cinema: Realism, Evidence, Presence.” In Realism and the Audiovisual Media, edited by Lúcia Nagib and Cecília Mello. New York: Pelgrave Macmillan, 2009.
- Foucault, Michel. The Order of Things: An Archeology of the Human Sciences. London: Routledge, 1989.
- Furstenau, Marc. “The Ethics of Seeing: Susan Sontag and Visual Culture Studies.” In Post Script: Essays in Film and the Humanities 26.2, (2007): 91-104.
- Gernsheim, Helmut. The Origins of Photography. London: Thames and Hudson, 1982.
- Gillespie, Tarleton. “Narrative Control and Visual Polysemy: Fox Surveillance Specials and the Limits of Legitimation.” The Velvet Light Trap 45 (Spring 2000): 40.
- Gombrich, E. H. Art and Illusion. Oxford: Phaidon Press, 1959.
- Green, Tom and Allen Rucker, Hollywood Causes Cancer. New York: Crown Publishing Group, 2004.
- Hansen, Marc. New Philosophy for New Media. Cambridge: The MIT Press, 2004.
- Henning, Michelle. “Digital Encounters: Mythical Pasts and Electronic Presence.” In The Photographic Image in Digital Culture, edited by Martin Lister. London: Routledge, 1995.
- Hume, David. Enquiries Concerning the human Understanding and Concerning the Principles of Morals, edited by Selby-Bigge. London: Oxford University Press, 1961.

- Jones, Mike. "Vanishing Point: Spatial Composition and the Virtual Camera." Animation 2 (2007): 225-243.
- Kember, Sarah. "Surveillance, Technology, and Crime: The James Bulger Case." In The Photographic Image in Digital Culture, edited by Martin Lister. London: Routledge, 1995.
- Kracauer, Siegfried. "Cult of Distraction: On Berlin's Picture Palaces," New German Critique 40 (Winter, 1987): 91.
- Lastra, James. Sound Technology and the American Cinema. New York: Columbia University Press, c.2000.
- Laybourne, Kit. The Animation Book. New York: Crown Publishers, Inc. 1979.
- Leslie, Esther. Hollywood Flatlands: Animation, Critical Theory and the Avant-Garde. London: Verso, 2002.
- Lowell, Percival. Mars. Charlottesville: University of Virginia Library, 1996.
- Loiperdinger, Martin. "Lumiere's Arrival of the Train: Cinema's Founding Myth," The Moving Image 4:1 (Spring 2004): 89-118.
- Macnab, Geoffrey. "I'm a control freak – but I was not in control," The Guardian. <http://www.guardian.co.uk/film/2006/sep/22/londonfilmfestival2006.londonfilmfestival>
- Manovich, Lev. "What is Digital Cinema?" *Lev Manovich*. <http://www.manovich.net/TEXT/digital-cinema.html>
- Manovich, Lev. The Language of New Media. Cambridge: The MIT Press, 2001.
- "Mars Exploration Rover Mission," *NASA Jet Propulsion Laboratory*. <http://marsrovers.jpl.nasa.gov/overview/>
- McLuhan, Marshall. Understanding Media: The Extensions of Man. New York: McGraw-Hill Book Company, 1963.
- Monaco, Paul. The Sixties: 1960-1969. New York: Charles Scribner's Sons, 2001.
- Palamidese, Patrizia. "A Camera Motion Metaphor Based on Film Grammar," The Journal of Visualization and Computer Animation 7:2 (April 1996): 61-78.
- Parker, J.R. "Buttons, Simplicity, and Natural Interfaces." Loading... 2.2 (2008).

- Peirce, C.S. "Logic as Semiotic: The Theory of Signs." In Philosophical Writings of Peirce, edited by Justus Buchler. New York: Dover Publications, 1955.
- Prince, Stephen. "The Emergence of Filmic Artifacts: Cinema and Cinematography in the Digital Era," Film Quarterly 57 (Spring 2004): 24-33.
- Raftopoulos, Athanassios. Cognition and Perception: How Do Psychology and Neural Science Inform Philosophy? Cambridge: The MIT Press, 2009.
- Rodowick, David. The Virtual Life of Film. Cambridge: Harvard University Press, 2007.
- Ruby, Jay. Secure the Shadow: Death and Photography in America. Cambridge: The MIT Press, 1995.
- Silberman, Marc. "Brecht, Realism and the Media." In Realism and the Audiovisual Media, edited by Lúcia Nagib and Cecília Mello. New York: Pelgrave Macmillan, 2009.
- Sobchack, Vivian. "Animation and Automation, or, The Incredible Effortfulness of Being," Screen 50:4 (Winter 2009): 375-391.
- Sobchack, Vivian. "The Active Eye: A Phenomenology of Cinematic Vision," Quarterly Review of Film and Video 12:3 (1990): 23.
- Sobchack, Vivian. Carnal Thoughts: Embodiment and Moving Image Culture. Los Angeles: University of California Press, 2004.
- Sobchack, Vivian. "Toward Inhabited Space: The Semiotic Structure of Camera Movement in Cinema," Semiotica 41:1-4 (Jan. 1982): 317-335.
- Sontag, Susan. On Photography. New York: Anchor Books Doubleday, 1977.
- Stern, Lesley. "Paths That Wind Through the Thicket of Things," Critical Inquiry 28:1 (Autumn, 2001): 317-354.
- Tagg, John. The Burden of Representation: Essays on Photographies and Histories. London: Macmillan Education Ltd, 1988.
- Telotte, J.P. "The Changing Space of Animation: Disney's Hybrid Films of the 1940s." Animation 2 (2007): 245-258.
- Tucker, Jennifer. Nature Exposed: Photography as Eyewitness in Victorian Science. Baltimore: The Johns Hopkins University Press, 2005.

- Uricchio, William. "Television, film and the struggle for media identity." Film History X:2 (1998): 118-127.
- Virilio, Paul The Vision Machine. Bloomington: Indiana University Press, 1994.
- Virilio, Paul. War and Cinema: The Logistics of Perception. London: Verso, 1989
- Weekley, Jeffrey D. and Don Brutzman, "Beyond Viewpoint: X3D Camera Nodes for Digital Cinematography," Proceedings of the Web3d 2009 Symposium (March 2009): 71.
- Wells, H.G. The War of the Worlds, *Project Gutenberg*.
www.gutenberg.org/files/36/36-h/36-h.htm
- Witmer, Jon. "A Bold New Enterprise." American Cinematographer 90.6 (2009).
- Woerner, Meredith. "J.J. Abrams Admits Star Trek Lens Flares are 'Ridiculous,'" *io9*.
<http://io9.com/5230278/jj-abrams-tells-us-why-star-trek-has-so-many-lens-flares>
- Wynter, Kevin. "Towards a Theory of Virtual Pornography," Cineaction 72 (2007): 16-22.
- Young, Paul. The Cinema Dreams its Rivals. Minneapolis: University of Minnesota Press, 2006.
- Zeman, Adam. Consciousness: A User's Guide. New Haven: Yale University Press, c2002.