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Wheeler, Jonathan Paul ***Designing the Future: Diegetic Sculpture & Literary Adaptation in Speculative Fiction Cinema***

Abstract

I researched the topic of cinema design from conception to post-production. In making short films, I tried to answer fundamental questions about the construction of digital narrative environments: How can sculptural practices be leveraged to create diegetic artifacts? How do visionary writers, artists, and architects conceive designs for the future? How are literary narratives translated into cinematic narratives? Investigating such topics has driven my design research, gathering information by reading literature and by traveling to sites around the country to experience narrative environments first hand. Using photography, drawing, painting, and sculpture to process the information, I move into the pre-production stages of film development by scriptwriting. Essentially, scripts are early prototypes that enable the visualization of specific scenes and shots. Later prototypes consist of short videos. Each of the films I've produced as a graduate student is connected through visual aesthetic, genre, and theme. The earlier films directly inform the last two films I've produced as a part of my research: The Arconaut and Liminal. In addition to including links to videos in the appendix, I have also included links to samples of the narrative writing process for Liminal and photography collected in the early stages of pre-production.

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Chapter I: Introduction

A design practice that values speculation can lead to experiments that reach beyond constructed artifacts. By embracing the "realm of possibility," (Dilnot, 2015, p. 120) a designer working within a fictional narrative can move into a conceptual reality that may affect visual culture as much as it affects design projects. By feeding historical research through the filter of speculative fiction, designers produce outcomes that both reflect and influence reality. By connecting narrative elements to the past as they formulate visions of the future production designers can alter the direction of a culture. Manifesting fictional societies, building technological prototypes, and illustrating possible futures in a film can immerse audiences in a designed reality. Stories can define the future for cultures by creating the vision of the future in cinema. Production designers working with screenwriters build an "iconography for a new landscape" (Kirby, 2010, p. 48) within a narrative environment. To explore this aspect of filmmaking, I will discuss how fictional narratives in both speculative literature and film have formed a framework on which designers may build visual constructs informed by non-fictional topics in history that include both culture and science.

Context: Purpose & Motivation

I became a graduate student to find ways to contribute to some more extensive cultural understanding of reality. The Polish writer, Stanislaw Lem, played a significant role in inspiring me to pursue such high-minded questions such as "What is real?" and "How do we know what is real?" He wrote that "Science explains the world, but only art can reconcile us to it" (Lem, 1964, p. 22). Paradigms shift in science and a new, more precise understanding of reality emerges (Khun, 1962, p. 150). But such explanations can seem too abstract to be compatible with a widely accepted worldview. How could I, an artist, help make these paradigms take hold in the

minds of those who are disconnected from the vanishingly small community of scientists who make discoveries that are often perceived as iconoclastic (Sagan, 1994, pp. 3-12)?

Lem (1986) chose to apply the lens of science fiction literature to humanize the seemingly undigestible flood of technological advancements that occurred after the second world war (pp. 33-40). The Visionary Soviet film director, Andrey Tarkovsky, adapted one of Lem's novels, Solaris, into a motion picture to reconcile an audience with the notion of extraterrestrial contact. Such visual storytelling can offer the audience a chance to see themselves within a hypothetical situation that may lead to a shift in thinking. Cinematic narrative has the unique property of making abstract ideas and imaginary technology seem real by showing a fictional world where such assertions are readily accepted and hypothetical technologies are always in working order (Kirby, 2010, pp. 43-50). This is where the designer steps in.

Objectives

My design research consists of producing short speculative fiction films that afford the creative freedom to embed potential technologies and the cultural effects of such technologies. Cinema, as described by Andrey Tarkovsky (1988), is the “one art form where the author can see himself as the creator of an unconditional reality, quite literally his own world” (p. 176). The fictional worlds constructed for sci-fi narratives can be seen as a kind of prototype for a proposed future where bleeding-edge science research has developed into consumer products and services (Kirby, 2010, p. 66). As a graduate student I've made a series of short films; vignettes or glimpses into a possible future reality from one character’s narrow perspective. Each film explores production design practice with the overarching goal to answer an initial research question: How can I leverage my Fine Arts background in production design and narrative writing in speculative fiction cinema?

As a way to address the culmination of my design research, I reached out to creative collaborators with whom I've developed rapport. By including a writing partner, Amanda Schroeder, I was able to experience the collaborative atmosphere of a writers' room or the partnership between directors and authors. By working with a musical director, Howard Rakes, I was able to consider acting beats and editing in a more orchestrated way. By working with actors like Gemma Weston and Chris Meng early in the writing process, I was able to play to their particular strengths as performers. Each of the two films I produced as a part of this thesis projects are connected to each other through the team of people who have worked to make the two stories become a cinematic reality.

Chapter II: Background & Influences

Andrey Tarkovsky enlisted a production designer named Mikhail Romadin to bring the future world described by Stanislaw Lem into cinematic reality (Tarkovsky, 1972). As a graphic designer and illustrator, Romadin shaped the visual production elements that served to open Lem's concepts to a broad audience who could empathize with the characters living in a world not wholly unfamiliar to them. Production designers like Romadin create visual frameworks that contextualizes and model potential futures (Kirby, 2010, pp. 64-66). Romadin and other designers such as Erich Kettelhut who worked on the film Metropolis in 1923 and Douglas Trumble who worked on the film *2001: A Space Odyssey* in 1968 have greatly influenced my work as a graduate student. It is through the lens of production design that I see art and architecture which comes to influence both my narrative and sculptural practices.

Reflecting on Narrative Environments: Wisconsin Mythology

Scattered throughout Wisconsin’s landscape there are dozens of sites where seemingly ordinary people have established sculpture gardens. These so-called outsider artists include farmers, teachers, bartenders, and priests who inexplicably started to make sculptures from the materials readily available to them like glass, rocks, concrete, and trash. Between 1948 and 1964, Fred Smith, who owned and operated a bar on the edge of a small town called Phillips, used concrete and broken beer bottles to create hundreds of monuments. A similar accretive technique was employed by Paul and Malinda Wagner, Nick Engelbert, Mary Knowels, and Father Matthias Wernerus. Others like Clyde Wynia, a former a lawyer, work with scrap metal to create rusty creatures that populate his rural Marshfield property; Jurrustic Park. He took me on a tour of his park, sharing with me a fictional story about nearly every sculpture. Wynia is a storyteller who invents fictional narratives about his artwork. When I asked what drove him to pour so

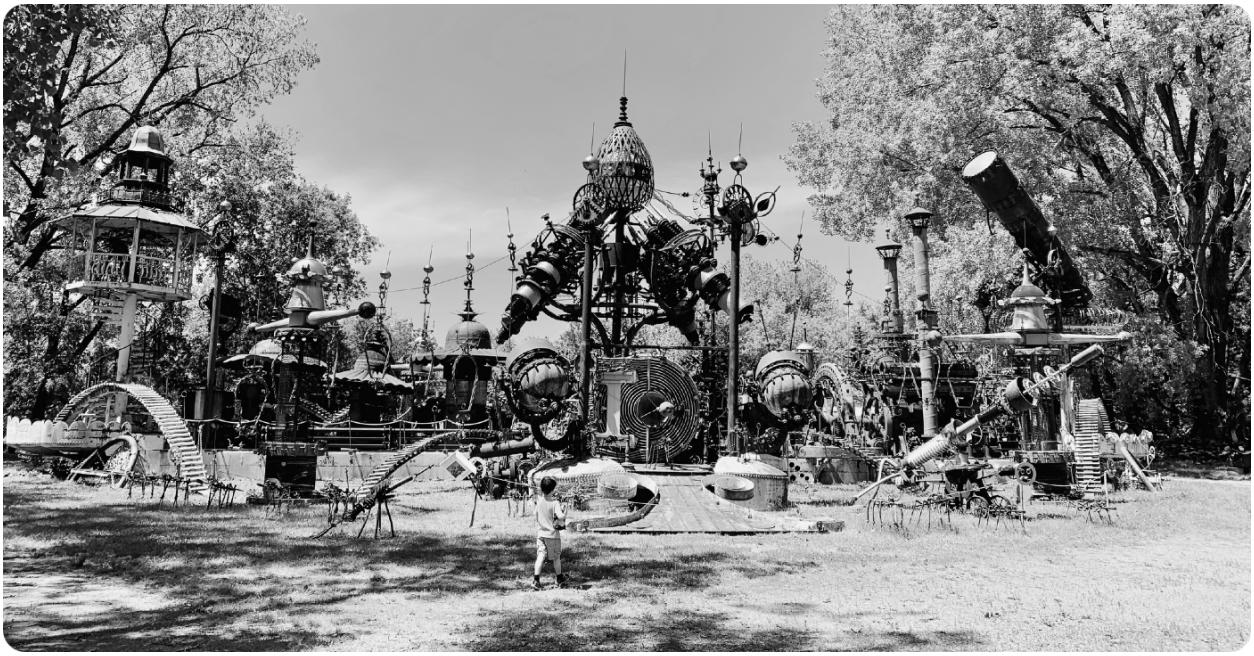
much time and effort into making his own world, he told me that he was inspired by another Wisconsin artist: Tom Every.

After several hours of driving around rural Wisconsin I missed the hidden entrance to Tom Every's art environment called Forevertron Park. After a 30-minute detour, I finally found the sign for Dr. Evermore's property and made my way down a pitted dirt road to an opening in the trees. There is no established parking area, just a dirt trail leading into what looked like a scrap yard at first glance. A rusty sign made clear that professional photography was not permitted, so I sadly left my camera in the car and anxiously checked my phone to see that it was down to a 20 percent charge. Walking into the property, I came upon a massive insect constructed from corroded scrap metal. It was the size of a bus. As I moved closer to the park's nucleus, I approached the Forevertron, a positively massive machine-like sculpture with protruding devices. It was as big as an elementary school and radiating from it were other free-standing large metal sculptures. Here I could find all artifacts from another fictional world like archeological evidence of some alternate reality.

To my great honor, I was able to speak with Every's former wife and collaborator, Eleanor, who was sitting in the shade of an umbrella at the foot of the Forevertron. She invited me to investigate the camper that Tom Every used as an office. Drawings and plans covered the walls and small metal models lay on well-worn tabletops. Eleanor spoke with me very frankly about her former husband and his dedication to constructing the park. She said that Tom had recently died of Covid 19 and that his funeral was sparsely attended due to the ongoing pandemic. Biographer Tom Kupish (2007) described Tom’s drive to create as “mythic obsession” (p. 27). Standing in the park, looking around at the world he created, I saw a fitting memorial to the life of the artist who brought such mythic objects into existence.

Figure 1

Entering Forevertron Park



Like other Wisconsin creatives who came before me, I have an undeniable urge to tell stories that go on after I die. I have a desire to build art environments that future generations might witness the evidence of my imaginary world. Increasingly, such environments are digital, existing in the virtual space. The objects that occupy the diegesis of my narratives are a part of visual vernacular that becomes a part of the myth. Tom Every named many of his re-occurring aesthetic elements “dynamos, exciters, and resistors” (Kupish, 2007, p. 89); recognizable stylistic objects are the hallmark of his fictional world. In reflecting on the production design of the films I created as a graduate student, I recognize how common themes are reflected in diegetic constructions such as sets, props, graphic design, and costumes.

Studio Practice

As an undergraduate art student, I was drawn to sculpture because it seemed authentic in a way that painting was not. In those early days, I considered myself a painter as my training

focused on painting from an early age. Indeed, I entered art college on the merit of my painting portfolio. My family and mentors expected me to take up my grandfather's mantle; he was a painter. As I reflect on that time, I can see that I was gravitating toward narrative in my painting in a way that almost led me to study illustration as a profession. Storytelling was important to me then as it is now. In making a painting, I felt like I was trying to manifest a world by opening a window (Masheck, 1991, p. 35).

Figure 2

The Fountain

Sculpture felt like bringing an artifact from an imaginary world into existence. The object itself felt like evidence of a fictional world even when sculptural elements were derived from our world, as in the case with Marcel Duchamp's Readymades (Schwartz, 1924, paras. 1-2). In his iconoclastic sculpture, The Fountain, Duchamp elevated a mundane manufactured object, a urinal, to an art object. Inspired by this revolutionary act, I decided to pursue sculpture as a student and practicing artist. Exploring concepts through the act of making objects continues to play an integral role in producing films. They can be treasured or discarded, but the material

things, whether human-made or natural, seemed to seep into my creative process consciously or not.

Objects can trigger memories, degrade environments, signify stature, memorialize events, generate wealth, inspire crimes. But as we enter an age when things are transformed into information, can they still play the role of artifactual evidence of a culture as they have since the very beginning? In contemplating a potential post- object future, I often reference the significance of the objects that mark the past, which has led to this moment. My studio is a cluttered collection of such seemingly mundane artifacts. Incorporating these objects into my work is like imprinting glimpses of the past into something, an artwork for present-day consideration. I intend for these objects to be seen not only as singular pieces but as a conglomerated whole. Each sculpture is a knot of forgotten artifacts from the phenomenological record, drowned out by the present noise of life. The artworks included in this paper, created as a graduate student, is informed by my research into film production and serves to influence the aesthetic and narrative of the films I have produced.

Sculpture

Accretion: objects in space attract other objects in space, becoming denser and therefore attracting more and more objects. Such a process throughout eons can produce planets or stars or black holes (Abramowicz & Fragile, 2013, p. 1). To mimic this process, I built *Chew* over a decade by gluing or melting disparate objects such as toys, lawn ornaments, hoses, and bones to each other as I encountered them as detritus; litter. The result was a ball of trash that took on the aesthetic quality of a broken machine. I painted it pink to unify the form and incorporated a speaker that played a series of toy commercials from the 1950s. In the case of *Chew*, the story relates to consumerism and the planned obsolescence that characterizes late-stage capitalism.

This premise

Figure 3

Chew

indirectly led me to produce two films: Sweep and Spin, where the process of accretion to make larger, sphere-like forms play a role in the narrative that leans toward anti-capitalism.

While making *Nerve*, I researched the utopian architectural concepts adopted by Paolo Soleri (1969) and R. Buckminster Fuller (1969). They both considered how natural habitat could be preserved by reimagining how we build cities. I spent time living in Soleri's Arcology Project in Arizona's high desert, which influenced my film work (Wheeler, 2021) and this sculpture concurrently. Accretion of artifacts underlie *Nerve's* construction as it did in *Chew*, but I became more influenced by set construction and installation techniques. Nerve is essentially a relief sculpture; one side faces the audience while the other is inaccessible. With its many lenses and wires, *Nerve* resembles an artifact of surrealist technology, a diegetic prototype (Kirby, 2010, pp.

41-47) from an obscure movie. Light is also incorporated into the piece, as it would be in cinema

Figure 4

Nerve

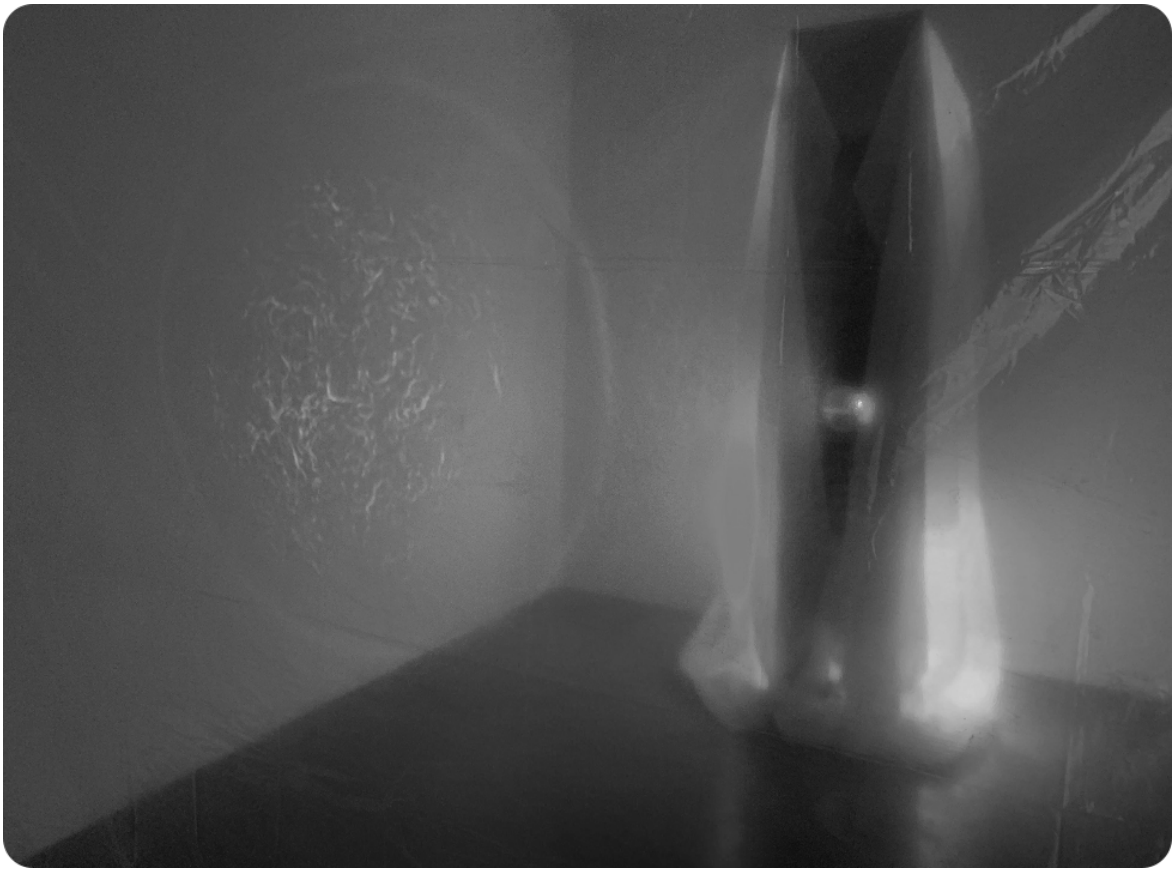
or architecture. Three spotlights representing the primary colors spill pigment onto the sporadically reflective enamel of the accretive object that is itself embedded into a dull gray wall.

The video artist, Bill Viola, has informed my understanding of how so-called new media such as video, audio, and light technology can be utilized to create impactful works of art. He believes that in addition to art as a job, it is also a daily discipline “based on action with the

greater goal of self-awareness" (Lion's Roar Staff, 2004, para. 2), which perfectly describes my studio practice up to 2014. I've since become more concerned with an awareness outside of myself. In making *Synaptic*, I was inspired by the idea that light can be a glare, causing temporary

Figure 5

Synaptic



blindness, but light can also be a glow that illuminates, letting one see more clearly (Thurber, 1962, p. 115).

Synaptic is an installation; a thin curtain of plastic separates the viewer from a black obelisk draped in light with a hole that projects bright, white light. Against the curtain and wall behind the viewer, a slow-motion animation of a blue sun is projected. When viewers stood

before the plastic curtain, their bodies cast a crisp shadow on the sun's projection against the back wall of the installation. Initially, I considered the film Shift while making this piece; the narrative related to an oppressive sun as an element of the plot and visual style. Watching viewers' silhouettes cast by Synaptic's projection led me to make a subsequent cinema project, Liminal, which centers on a character who watches projections. Synaptic's obelisk became the first iteration of a projection device prototype that I featured in the diegesis of the *Liminal* short film.

Chapter III: Methodology

At a convention for the Modern Language Association, renowned historian and scholar H. Bruce Franklin (1968) presided over a forum entitled “Science Fiction: The New Mythology” (Sutton & Sutton, 1969, p. 230). Science fiction stories may represent contemporary versions of the stories that were once told around ancient cook fires. Stanislaw Lem (1986) describes science fiction as a story that relies on logic or, as he puts it: “It is the premise of science fiction that anything shown shall in principle be interpretable empirically and rationality” (p. 35). In science fiction, there can be no inexplicable marvels, no transcendences, no devils, or demons. The pattern of occurrences must be verisimilar” (p. 68). Some books and films that include magic or inexplicable events are often presented as science fiction but Lem (1986) would put them into the category of “pseudo-science fiction” (p. 68). I might call them fantasy. Such a definition would exclude a film like Star Wars from science fiction because George Lucas incorporated the 'Force,' essentially magic. Some might argue that 'anything could happen in an infinite universe,' but such a statement cannot be accurate in a purely mathematical sense. Lem (1986) further defines science fiction as the “art of putting hypothetical premises into the very complicated stream of sociopsychological occurrences” (p. 69). He points to HG Wells as the master of this particular artform.

Defining Science Fiction

A prolific writer, Wells (1895, 1896, 1898) established many of the themes that science fiction authors and filmmakers still re-create, such as time travel (The Time Machine), alien invasion (War of the Worlds), and biotechnology (The Island of Doctor Moreau). An outspoken socialist, Wells used the lens of science fiction to comment on societal inequities (Brome, 1951, p. 99). Marx said that authors' tendency to persuade readers of their own belief must be hidden so

that it did not “stick out like springs from a sofa” (Tarkovsky, 1988, p. 56). In The Island of Doctor Moreau, which was adapted later into a film titled Island of Lost Souls in 1930, the title character wears the costume of a slave plantation owner complete with a whip. The genetic experiments that Moreau performs is a hypothetical premise, but the larger context of such a premise relates to Francis Galton's emerging theory of eugenics (Kirby, 2008, p. 83) that was gaining popularity in Europe at the end of the 19th century (Tanner, 2012, pp. 458-479). Wells expertly illustrated the horror of such a theory by imagining its potential applications on marginalized populations.

In writing The War of Worlds in 1894, HG Wells constructed a scenario in which extraterrestrials invade the Earth, bent on humanity's total annihilation. In the book, Wells (1894) offers an epitaph from the 17th-century astronomer, Johannas Kepler: “But who shall dwell in these Worlds if they be inhabited? … Are we or they Lords of the World?” (p. 2). Kepler was asking a question that Wells seems to explore in his novel: Is humanity really at the top of the evolutionary food chain? His Martian invaders treated humans in much the same way humans have treated animals. The Martians exploit terrestrial resources without regard for native inhabitants in much the same way that modern industry exploits those same resources. The fictional narrative constructed by Wells in War of Worlds illustrates a reality where a more technologically advanced society threatens humanity; a society that has no regard for the wellbeing of those creatures it finds under its control. Wells describes a version of humanity that turns toward equality because class and station ultimately lose meaning in the face of the existential crisis presented by a Martian invasion. The hierarchies that govern 19th century England are no longer relevant as humans are now seen as food. Wells asks readers to consider our dominion over the creatures and classes we consider beneath us:

> Surely, if we have learned nothing else, this war has taught us pity—pity for those witless souls that suffer our dominion. I felt as a rabbit might feel returning to his burrow and suddenly confronted by the work of a dozen busy navvies digging the foundations of a house. I felt the first inkling of a thing that presently grew quite clear in my mind, that oppressed me for many days, a sense of dethronement, a persuasion that I was no longer a master, but an animal among the animals, under the Martian heel. (Wells, 1894, pp. 45-46)

HG Wells explored the effects of technologically advanced devices and practices on greater society as a whole in science fiction. He used the story to construct a “hypothetical premise” (Lem, 1986, p. 22) or a “narrative environment” (Kirby, 2011, p. 43) that could bring into sharp focus a potential future affected by the introduction of variables based on science. Such premises are perhaps unlikely, but not out of the realm of possibility. After all, War of the Worlds may describe in metaphor a situation that continues to exist as people in pursuit of capital exploit species and labor they see as commodities.

War of the Worlds has become an integral part of our popular culture. The alien invasion scenario is played out repeatedly in cinema from Mars Attacks (Burton, 1996) to Independence Day (Emmerich, 1996), both adaptations of Well's novel. While his books were considered fantastical escapism most popular among children of the era, Well's impact as an author is wide-ranging. Seventy-one years after Wells wrote War of the Worlds, Robert H. Goddard developed the liquid-fueled multistage rocket, which resulted in the Apollo 11 Moon landing. He credits the novel with inspiring him to pursue space exploration (Bolden, 2016, p. 2). Science fiction authors like Wells and Lem may have directly influenced the course of scientific study throughout the last century.

> Many scientists deeply involved in the exploration of the solar system (myself among them) were first turned in that direction by science fiction. And the fact that some of that science fiction was not of the highest quality is irrelevant. Ten-year-olds do not read scientific literature. (Sagan, 1978, p. 7)

Design Research: Fritz Lang and Paolo Soleri

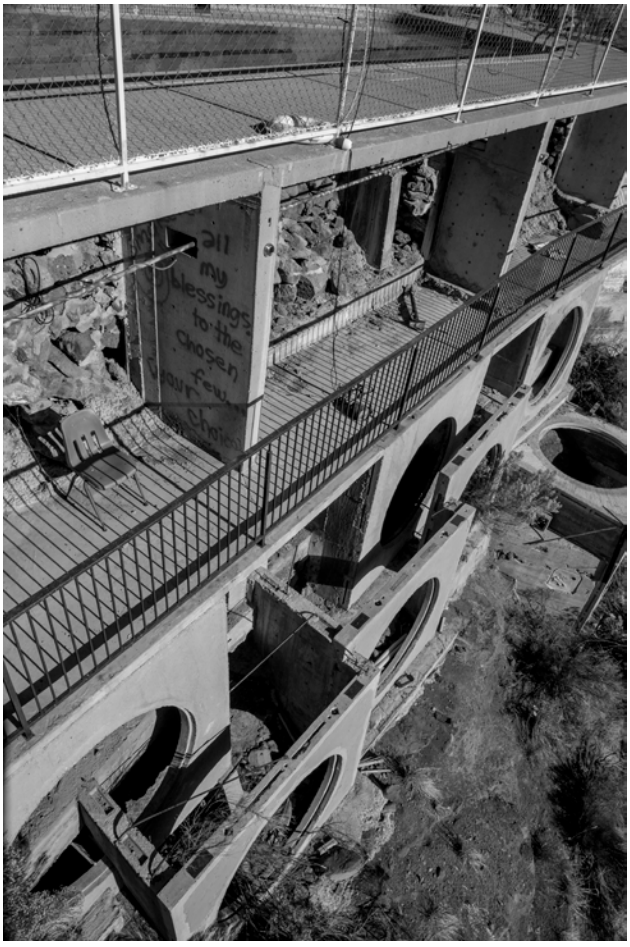
Italian born architect, Paolo Soleri (1969), imagined a building the size of a city called Arcology, a portmanteau derived from architecture and ecology (p. 2). It was to be a city built as one gargantuan structure encompassing all which is vital to human habitation. Arcology dwellers (self-described Arconauts) will live within the massive self-contained system for their entire lives across generations. His design goal was to counteract the adverse effects of environmental degradation by reducing human habitation's footprint by the concentration of shared municipal services. In 1970, Soleri began constructing an Arcology in the high desert north of Phoenix, Arizona: Arcosanti. “Cosanti” is derived from “Cosa,” meaning “thing” and “Anti,” meaning “before.” The term reflects Soleri’s concern about hyper-consumption in modern Western society. Arcosanti, therefore, can be defined as anti-materialist architectural prototype. The purpose of my research and my visit to Arizona was to learn about the application of Paolo Soleri's utopian ideas in urban planning and how his ideal city may evolve. Winning a research grant allowed me to live as an Arconaut within the physical manifestation of an idea. I also sought to relate that experience through the writing a screenplay.

To ensure that humanity would persist into the deep future, Paolo Soleri imagined a system that would dispense with urban sprawl. In his future, people would live, work, learn, and play in one enormous structure called an Arcology. Soleri's Arconauts would not have a commute. Nor would they convert natural spaces into neighborhoods. Public services like water

and power distribution would be localized to lessen the stress on the natural environment. In his many writings, drawing, and models, Soleri struck an almost religious tone when describing these future communities. His zeal won over the support of many collaborators in his effort to build an Arcology. With hundreds of volunteers, Soleri began constructing his own narrative

Figure 6

The Unfinished Arcosanti



environment, Arcosanti, 70 miles north of Phoenix, Arizona. That spirit of volunteerism persists in the residence. Nearly 8o years after the first stone was laid, construction continues with the help of individual artists, students, and true believers who live and work in the desert to manifest Soleri's vision of the future.

I knew that I wanted to tell a story about a person living in an Arcology, and I was in Arizona to study the design style of Paolo Soleri, but I was impacted more by those living around me. Whether visitors or permanent residents, they shared with me their thoughts about the Arcology project and why they'd chosen to spend time at Arcosanti. The fervor in their testimony struck me as it seemed to carry spiritual overtones. These Arconauts were initiates in a belief system devised by Soleri himself, which elevated environmental sustainability to a pseudo-religious directive. Dedicated to such an ideal, an Arconaut could look past the visible dilapidation of the Arcology's superstructure and the decay of abandoned building projects to see the imagined Metropolis of Soleri's vision. One such resident shared with me his belief that the architecture itself is irrelevant: “It is all about the land around the building.”

While pretending to be an Arconaut, I traveled to nearby cliff dwellings. After climbing up a steep path in the sage-laced heat of the desert, I stood with my back to the crumbling adobe structures to look out over a wide burnt umber valley punctuated by enormous green cacti as tall as Wisconsin pines. The human effort to build such communities embedded into the cliff's side was remarkable, but such an effort may be undertaken exclusively for the vista. Centuries ago, these ancient people seemed to fully understand the modern era's fundamental tenets, exemplified by Soleri and his teacher Frank Lloyd Wright, who also constructed his iconic Taliesin West in the same arid landscape that features the ancient cliff dwellings. Taliesin means ‘brow' in Welsh. It describes how a building should be embedded into the 'brow' of a hill rather than its top. Such an axiom could describe Wright's work as it could the ancient cliff dwellings or my cell at Arcosanti. On the grounds of Taliesin, there are scattered relics from the native people, petroglyphs, that indicate that Wright was fully aware and perhaps influenced by the archaeological ruins that dot the high desert. Taliesin itself stands like an artifact to him, a

Figure 7

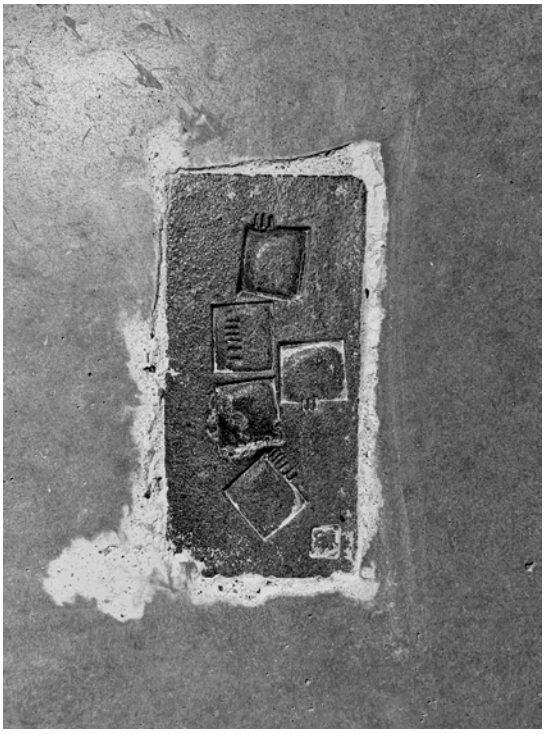
Cliff Dwelling

testament of his legacy as an architect. It is like an echo of an earlier era in much the same way that the cliff dwellings echo an ancient time.

The construction at Arcosanti has a different aesthetic flavor. Like Taliesin, Arcosanti is based on its creator's intense, almost fanatical vision, but it is a work-in-progress that continues beyond the death of Paolo Soleri. Taliesin West's employees work to curate or maintain Wright's building, whereas the Arcosanti volunteers, the Arconauts, work to build upon and change the Arcology. They often put their creative stamp on the project without the architect's approval. Such a scheme is messy, almost haphazard, which makes parts of the Arcology look abandoned. Virtually no effort is made to gloss over Arcosanti's rusty, decaying, and broken details because the focus is on incremental construction, not curation. Reminders of Soleri's vision hand on walls as posters depicting miles-high towers, but there are almost no structural manifestations of such lofty goals on the site. Indeed, after 80 years of construction, it seems unlikely that Soleri's

Figure 8

Tile in Arcosanti



dream of a city-sized building will ever be realized. The effort was too disparate for such a massive project. The Arconauts themselves valued individual creative expression but lacked the unified collective force to undertake a genuine Arcology construction.

In 1923 German film maker Fritz Lang described a rigid caste structure that would make up a future city of densely packed populations and industry in his landmark film, Metropolis. The workers in his movie were but cogs in a greater machine, while the upper echelons were reserved for managers who profited from the lower castes' toil. Certainly, Lang's fictional futuristic narrative is a metaphor for post-industrial life in Western cities like Berlin and London. Soleri worked hard to bring such a centralized concentration of human habitation into reality. Lang painted a picture with his film of humanity divided. The rich lived like gods, while the poor lived as slaves in service of greed. Those divisions are becoming more a part of our global reality

as immensely potent entities build arcology-like structures designed to insulate their activities and minimize waste to pursue higher quarterly statements.

The city in the diegesis of Metropolis (Lang, 1927) also acted as a symbolic character. In one memorable scene, a giant machine prototype makes up much of the massive set in which workers are toiling. Actors dressed in drab coveralls diligently attend to their section of this colossal prop, checking gauges, turning cranks all in service their mechanical overlord. Throughout the scene, the gauges indicate a building pressure as the music crescendos. An explosion kills some of the workers as the machine transforms into the pagan god, Moloch, who demands human sacrifice. Workers shuffle into the fiery maw of the god, dehumanized by the industry under which they toil. Lang has a heavy hand in visual symbolism throughout the film, but the religious overtones combined with mechanical elements in this set design are almost cartoonishly blunt. But the message is clear within construction: Labor is the fuel for industry. Moloch was constructed in much the same grand way a theatre. At the time (1930's), filmmakers like Lang took cues from theatre productions, placing the camera in the position of an audience watching a play performance. Moloch also had to convey, visually, a complex narrative without the benefit of dialogue as Metropolis is a silent film. The scene inspired me to make an effort to construct my own, much smaller version of Moloch.

Translating Research to Production

Soleri derived meaning from philosophical ideals throughout his life that came to inform his creative endeavors, as many designers have done in the past. I set out to construct a narrative that demonstrates how such noble intentions can lead to dystopia over time. The reinterpretation of ideals by subsequent generations of leaders who regularly change and transform according to cultural evolution may ultimately subvert the dream of a movement's originator. Designers like

Soleri engender a dedicated following, but his philosophy bends toward dogma, which may culminate in a static, rigid society. A perfect version of the future can exist inside a designer's mind, but when tested by unconsidered variables such as climate, shifting cultural norms, or evolution, the proposed utopia is corrupted in unforeseen ways. Inhabiting a massive system like and Arcology can be perceived as a kind of confinement. I researched the nature of such a confinement by considering Soleri's utopian vision of a mega-city. By visiting the site of Soleri's Arcology, I lived as a citizen of this urban planning experiment who dreams of a future when society splits into clearly defined castes after generations of such confinement. I translated these speculative ideas through cinema and sculpture to produce short narrative films using Arcology as the backdrop of a fictional story.

In my re-creation of Lang's Moloch set, a single worker lives, works, and sleeps in the same cramped place inspired by my experience in Arcology. The character's tasks are menial and seemingly pointless as he collects detritus to feed his own personal Moloch, which is represented by a small door in his cramped sleeping compartment. The set/prop also incorporates a touch screen interface and a feeding tube that dispenses unappetizing meals. In Sweep (Wheeler, 2018), Moloch also has a robotic voice that demands offerings from the worker character dressed in drab coveralls like Metropolis's workers. The worker spends his days fashioning trash into sculpture, which he must eventually feed to the furnace. At one point in my story, the worker refuses to comply with a directive. He chooses instead to sacrifice his own life rather than submit an object he finds sacred to the fire of Moloch. My design of Moloch was intended to be much less illustrative than Lang's version. Still, I incorporated symbolism perhaps more recognizable to contemporary viewers, such as the recycling logo, which connotes environmental sustainability and expressive emoticons that indicated Moloch's ‘moods.’

Sweep's protagonist represents a lower caste worker in a system that does notrecognize human individuality. Like the workers of Metropolis, he is a cog in the massive machine that is the city itself. In the worker's compartment, I incorporated an element designed to stand in opposition to the furnace door: a window that let in a bright white light. He places his sculptures in this window to elevate his creations before being relegated to the recycling furnace. Its light illuminated the worker's compartment in cycles like the sun, which was much different than the hidden fire of the Moloch door. In building the set, I was inspired by the American humorist Jim Thurber (1962) who claimed that there were two kinds of light- “The glow that illumines and the glare that obscures” (p. 115).

In his writing, Soleri (1969) talks about generations of people living within and contributing to an Arcology (pp. 3-16). Indeed, Arcosanti is in a constant state of change as volunteers fluctuate in and out of the complex. Its bronze foundry and kilns are in continuous use as artisans produce the bells that the complex sells to tourists. Those same artisans modify the site's superstructure in myriad ways by stacking stones on the grounds, tagging walls, or constructing new outbuildings.

In producing Sweep, I often contemplated Soleri's vision of a city in man's shape and was interested in making another narrative exploring a future where an Arcology exists. While living as an Arconaut, I considered how an Arcology might come to exist according to Soleri's original vision and how such a structure would evolve over subsequent generations of inhabitants. Such considerations led me to write about such a future from the perspective of one who lives there. I also began sketching the visual elements of the film, set pieces, and props. If Arcosanti can be considered a prototype of Soleri's imagination, I imagined how such a prototype would evolve, which became the premise for the movie I produced after Sweep.

Figure 9

The Protagonist at the Window with Sculpture

Figure 10

Arcosanti

In the narrative I developed for The Arconaut (Wheeler, 2021), those inhabitants of the

city who do not comply with the controlling administration are cast out into the desert that surrounds the Arcology. The protagonist's grim task is to collect the corpses of banished dissidents that litter the grounds outside the city walls. The protagonist delivers these bodies to a furnace where they are incinerated. The set-piece includes a door that opens to accept offerings and an interface that depicts a bull's image intended to invoke a pagan god in the spirit of Fritz Lang's (1927) Metropolis. The protagonist must feed the Arcology with the bodies of those divergent humans who would threaten its domination over the citizens of the massive city.

Soleri's vision of a city made in the image of man has the veneer of environmental sustainability. But such an enterprise may require a singular focus to maintain viability over generations. Order and stability may become indispensable to a functioning Arcology, so any deviation from established norms would have to be minimized. If an Arcology is a city built in man's image, how do we define 'man'? This question led to a screen prop in The Arconaut (Wheeler, 2021) incorporated into the Moloch/Furnace set-piece to measure the 'mutation' of a sacrifice. With simple numbers, I could indicate to the audience a deviation from a prescribed mean. In my film the administrator of the Arcology was working to keep the city homogenous.

My experience in Arizona also inspired me to set my fictional Arcology in a desert. Conservation of natural resources in a climate where water and arable soil are scarce is vital to human habitation of the arid landscape in and around Phoenix, a city of over a million people. As I flew into the Valley of the Sun, I could see a topography nearly devoid of green except the occasional golf course lay on the sand like a child's sticker collection. A few inches of rainfall on the city each year, yet each human requires gallons a day to live. A typical golf course needs a few gallons of water per minute to stay green. Such a situation struck me as precarious. In my fictional narrative, I wrote about a walled city that turned inward away from the harsh

environment baked by an angry sun. Hiking through the desert helped me imagine what the protagonist of my story might experience, but it also helped me understand why an Arcology-like city would be born of such a hostile place. Being outside of the city's safety would be dangerous, so that the threat of banishment would be existential.

In The Arconaut (Wheeler, 2021) the sun represents Moloch's god-fire like the furnace in Sweep (Wheeler, 2018) or the industry of Lang's (1927) Metropolis. The sun in my film represents the ever-present expression of danger as it scoured the Arcology planet's surface. If Soleri dreamed of an Arcology to save the natural environment, I imagined the Arcology as means of protecting humans from a climate toxic to life. Shift's protagonist is ultimately forced to walk into the desert, but his mutation makes him able to tolerate the day. The imposing sun reflected the furnace in the earlier scene and, of course, Lang’s Moloch. The sculpture, Synapse, which I discussed earlier was also an exploration into combining monolithic structure with digital elements to create an aura of threat. Such juxtaposition of physical objects and digital animation came to form framework onto which I built the Arconaut’s fictional world.

I wrote The Arconaut (Wheeler, 2021) to design a future where physiological deviation from an arbitrarily established norm is culled from the shrinking gene pool to maintain a humanity that we would recognize as human. This aspect of the story stems from the traditional thinking around the design of utopian architecture such as Soleri's Arcology and perhaps remedied by Arcosanti's ongoing construction. Building something like an Arcology intended to persist for eons should consider that the inhabitants of such a structure will change both culturally over generations and physiologically as they adapt and mutate. There is ample attention paid to the needs of humans as they are now. But humans, and indeed all organisms locked in Darwin's selective struggle, are in a state of constant adaptation.

Making Diegetic Sculpture

In The Arconaut (Wheeler, 2021) narrative, Soleri's ghost informs an antagonistic character called HRAI, who is an overseer, a voice that directs the main character to accomplish tasks. HRAI is surrounded by screens that show different parts of Arcology. She monitors residents and punishes those who would break the rules of a rigid caste system. HRAI is the ghost of an idea benign in its inception that evolved into a malignant system. The HRAI was also heavily influenced by HAL from Stanley Kubrick and Arthur C. Clarke's (1968) motion picture *2001: A Space Odyssey*.

Kubrick's groundbreaking movie narrative covers a few million years of human evolution. The species' significant advancement is marked by the appearance of an extra-terrestrial object called 'The Monolith.' According to Arthur C. Clarke (1951), the Golden Age Sci-Fi Author of the series, the Monolith was a machine designed by an ancient race of aliens (p. 33). It was meant to teach humans. Clarke and Kubrick worked collaboratively to make the story that would eventually become the film; their early iterations included a monolith fitted with a screen, which inspired me to put a projector into the belly of the obelisk I made for *Synaptic*.

In the Fall of 2020, I made another monolith based on the version from 2*001: A Space Odyssey* (Kubrick & Clarke, 1968). Kubrick's Monolith looked very alien in the environments in which it was depicted on film. It appeared, at first, in rocky terrain characterized by jagged cliffs and ocher-colored sand. In such a place, the sharp, carbon black geometry of the Monolith stood out starkly. It looked like it did not belong. Intrigued by that aspect of the Monolith, I conceived of a similar minimalistic form made of light.

Figure 11

Monolith

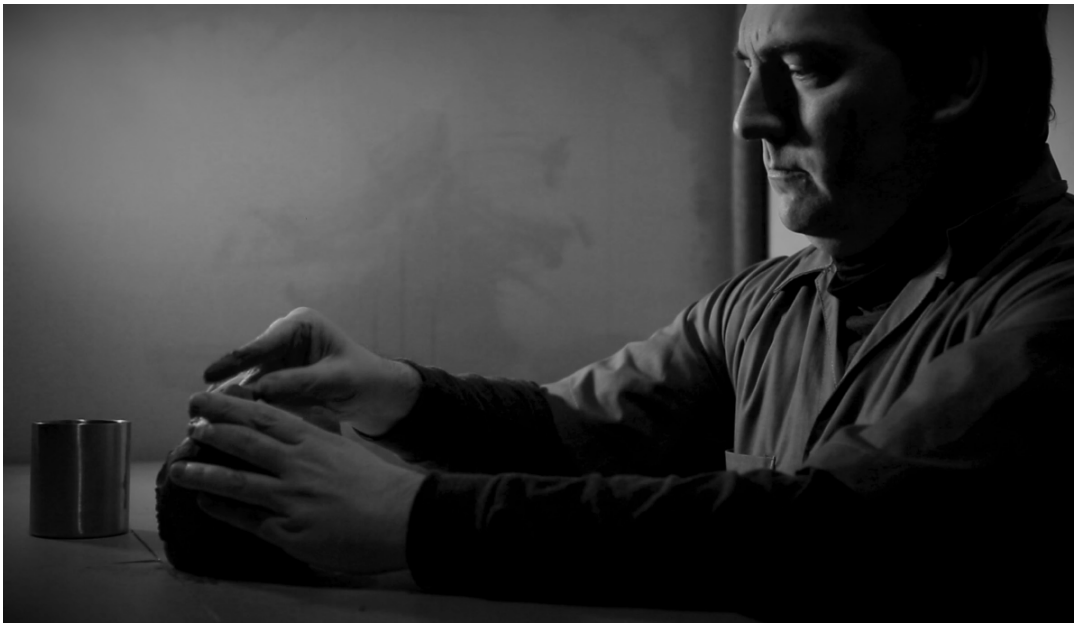
The form itself is constructed of a wooden frame wrapped with layers of plastic film. Inside of the structure, I placed several lights. I also wanted to include a figure in the photograph to show scale and imply a loose narrative. Waiting until nightfall, I took a slow 5-second exposure of the scene to overexpose the object and wrap the figure with light. I also made a very short video (see appendix A) where I included a slowed-down version of the choir vocals used in the Kubrick film. Including a figure also gives viewers a point of entry into the narrative. In re-

creating the Monolith, I made connections between my sculptural practice and the production design that has come to define the visual world of the short films I've made as a graduate student. By incorporating light in the diegesis of sets and prototypes and considering the photo/cinematographic techniques to produce 'in camera' effects, I have learned how to use time and light in much the same way that I used to paint and brushes as a young painter.

I constructed the two sculptures depicted in *Sweep* (Wheeler, 2018) in the same way as *Chew* and *Nerve* with a process of accretion. *Sweep*'s protagonist is the sculptor of these works. He collects litter from the seemingly abandoned corridors of his world to create these small pieces of artwork that he alone appreciates. His purpose in making these sculptures is never overtly stated in the film, but I imagine that he makes them for the same reason the Wisconsin brutes make their art environments: The urge to create. Like those self-taught Wisconsin artists who sacrificed time and family in the pursuit of their creative obsessions, so too does *Sweep*'s protagonist ultimately sacrifice his own life for the sake of his creation.

Figure 12

Protagonist Sculpting



The accretion process that I used to construct *Chew* led directly to the construction of the 'Strange Object' artifact featured in my film, *Spin* (Wheeler, 2019). I imagined an object in space that had accumulated litter throughout eons that would stand as a testament to an age of hyper-capitalist overconsumption. Like the massive floating island of flotsam in the Pacific Ocean, cold fused into a sphere-like form. Within the narrative, I could imply the object's enormous scale using compositing techniques and some low-tech physical effects. I filmed it at 60 fps (frames per second) to depict the trash artifact in space as I spun it on a wire like a holiday tree ornament against a black backdrop. I could even physically move the spinning ball toward the camera to suggest a spaceship approach in the film. A flashlight played over its shiny surface mimicked the searching lights of the approaching craft.

Figure 13

Approaching Strange Object

Figure 14

Generation Ship-Kinetic Set

The concept for the generation ship depicted in Spin was inspired by the Discovery model and kinetic set used in the production of *2001: A Space Odyssey*. In Kubrick's film the primary habitat of the ship was a centrifuge that simulated gravity. The massive 38 feet diameter set rotated during production despite weighing 30 tons (Bizony, 2014, p. 24). My version of a rotating kinetic set was scaled down to a one-foot diameter, but I intended for the cylindrical model to look several miles long, big enough to hold a forest. I would also cut back and forth between 'outer space' and the interior forest, so it was important to make the cylinder's surface resemble a fallen log; I used silicone and sand.

In designing the spacecraft in *Spin*, I considered its utilitarian purpose in the narrative. Essentially, it was a tow truck made to pull big objects into a hangar. Its form should include a prominent rocket for acceleration and a massive tank for fuel. Solar panels similar to those found on contemporary spacecraft such as Voyager were incorporated but diminutive against the fuel tank's bulk. The film's narrative required that I make two versions of the 'tow ship'. One 'real'

Figure 15

Protagonist & Toy

ship would move through outer space while the other would be a toy that one of the characters would play within a forest. To maintain the film's industrial versus natural theme, I made the 'real' tow ship look metallic while the toy was manufactured from rough-hewn wood.

Like the protagonist in *Sweep* (2018), the protagonist in *The Arconaut* (2021) was a creator. In this short film's narrative, the protagonist makes a small robot that plays music and dances. I fashioned a fully articulating puppet from bits of mechanical trash that might be available to the character in his fictional world to accomplish this. Like in *Sweep* (2018), I filmed the character making the prototype before he sat back and watched his little automaton's performance. To achieve this effect, I used a combination of techniques. First, I screwed the puppet's feet to the surface on which it 'danced' and inserted a wooden dowel into the back of its head. This arrangement allowed me to move the puppet by articulating the dowel. Later, I digitally paint myself and the dowel out of the shot.

Figure 16

Arconaut Fixes Puppet

Writing for Cinema

The narrative arc of stories shares an underlying structure that transcends the delivery method; stories can be told by word of mouth, in text, or as a play or in film (Campbell, 1948, pp. 3-16). But what is the process by which a story is translated from one method like literature to another method like cinema? How is a book adapted into a movie? To answer these questions, I will focus on modern mythologies developed by speculative fiction writers and explore the differences and similarities between literature and cinema. I will also present case studies that represent collaborative efforts between filmmakers and writers of fiction. Lastly, I will reflect on my effort to collaboratively write a short film based on established narrative structures and inspired by source material in the form of a science fiction novel written by Greg Bear.

In 1948 literary scholar Joseph Campbell disseminated his research of multicultural mythic structures in a book entitled *The Hero with a Thousand Faces*. After studying folklore

and religions worldwide, Campbell (1948) concluded that the protagonists of such narratives go through 17 stages of character development: The Monomyth. His discovery went on to influence later storytellers working in both literature and cinema as it defined in greater detail a narrative structure that went beyond simple three-act structure. Based on Campbell's work, The Hero's Journey was further articulated by the screenwriter Christopher Vogler (1992) who established a precise series of 12 steps that a protagonist takes to complete the narrative arc (pp. 8-10). Screenwriter Blake Snyder (2005) built upon Campbell's Monomyth to create his 'Beat Sheet' that breaks down a three-act screenplay into 15 sections called beats (p. 160). Another well-known screenwriter, John Truby (2007), breaks narrative structure into even more pieces; he calls them steps. Truby draws connections between stories told in many films to establish a process by which a successful screenplay can be written. TV writer Dan Harmon adapted the Hero's Journey into a tool he calls a Story Circle, which follows a protagonist through 8 stages of a narrative arc. “Storytelling comes naturally to humans, but since we live in an unnatural world, we sometimes need a little help doing what we'd naturally do” (Milamoto, 2018, pp. 3).

Researching the mythological narrative structure of science fiction in film and literature has become an academic obsession for me, but in disseminating this research, I will narrow my focus with a rubric. In the following case studies, I will highlight authors who began writing in the so-called golden age of science fiction, in which the genre gained a broad audience from 1938-1946. Famed sci-fi author, Isaac Asimov, claimed that the dropping of the first atom bomb made the genre “more respectable” to mainstream audiences (Asimov et al., 2012, p. 120). I will also focus on instances where well-known filmmakers collaborated with authors to adapt the literary narrative to create a cinematic narrative.

Like the work of HG Wells, Stanislaw Lem's stories have been interpreted again and

through film, radio, and even theatre. Inspired by Wells, Lem carried on the practice of science fiction while maintaining a critical position of the genre as it developed through the golden age by maintaining a strict adherence to the purpose of such a genre. Lem (1986) describes Wells as a master of the art form, “putting hypothetical premises into the very complicated stream of sociopsychological occurrences” (p. 61). In the book *Solaris*, Lem posits a hypothetical premise of contact with an alien species, which aligns with the hypothetical premise of Well's War of the Words. But Lem pushes the narrative into a distinctly more psychological, almost surrealistic direction by creating an exobiological consciousness that cannot be fathomed by humans. He explores the vast divergence from humanity that an alien species would represent by centering the narrative on a protagonist who seeks to understand the alien intelligence. Ultimately, the effort proves futile. Lem expertly weaves a story that pits our human need to explain reality with an aspect of reality that cannot be fathomed by a human mind. That struggle is lost as the characters in Solaris succumb to the inevitable failure to grasp the nature of the alien intelligence they are tasked to research.

How does one translate such an uncomfortable narrative into film? The first attempt happened in 1968 in the form of a TV play. The Soviet writer and director Boris Nirenburg followed Lem's story to produce a show that focused on the alien planet more than the characters living in the research station (Brinkhof, 2020, para. 2). In 1972, visionary film director Andrey Tarkovsky took another crack at Lem's story. Instead of focusing on the astrobiological minutia of Solaris, Tarkovsky leaned into the development of the protagonist, Kris Kelvin, and his interactions with other characters in the narrative. He focused on relationships. Tarkovsky spends long minutes with Kelvin from the very beginning, where we watch him silently walking around his terrestrial farm. The scene is a meditation on Kelvin's appreciation of nature, which leads to a

subsequent dialog that introduces his chilly relationship with his father. The implication is that Kelvin can commune with the natural environment better than he can understand his father. Such emotional concerns were not well received by Lem, who held sentimentality in low regard in the presence of science. But Tarkovsky, informed by film history, argued that cinematic narratives that adhered to the source material were relegated to obscurity. Despite Lem's criticisms, Solaris went on to win the coveted Cannes' Grand Prix in 1972 (IMDb, 2019).

In 2002, Jim Cameron produced another version of the Solaris story starring George Clooney and directed by Steven Soderberg. More palatable to western audiences, that film took inspiration from Tarkovsky's sentimental approach more than it made Lem's scientific approach to the story of extraterrestrial contact. Soderberg claimed that he intended to make a movie that was more informed by Lem's original novel. Indeed, he's said that he did not intend Solaris to be a remake of Tarkovsky's film but rather a new version of Stanislaw Lem's novel, but that intent was not evident in the movie, and Lem himself remained critical of the film. He called it a “remake of the Tarkovsky movie” (Levy, 2010, p. 1).

Solaris's underlying premise hinges on the unknowable thing, or what Kant (1896) calls “ding an sich” (p. 129). The characters who study the alien intelligence can observe the phenomenon produced by the object of their study but cannot fathom the alien itself; it is “noumenon” (Kant, 1896, pp. 192). In 2016 director Denis Villeneuve and writer Eric Heisserer made a science fiction film based on a 1998 short story written by Ted Chaing (2018) entitled “Story of Your Life”. Like War of the Worlds and Solaris, Arrival centered on the contact between humanity and extraterrestrial visitors. Like Solaris, its narrative used the protagonist's desire to understand the alien intelligence to drive the plot. The audience was presented with an enigmatic alien race with mysterious intentions wrapped in observable phenomenon. Throughout

the film, the protagonist learns how to read the alien language, which leads to a unidirectional understanding of time.

Arrival (Villeneuve, 2016) and Solaris (Tarkovsky, 1972) both discuss the ding an sich that alien contact would present, but Villeneuve gives the audience a puzzle which the protagonist solves in a way that is intentionally absent from *Solaris*. Lem and Tarkovsky showed an audience (or reader) the protagonist as unequipped to come to any understanding; his resolution came in the form of accepting, not knowing. Such a finale is profound. Solaris posed more questions than answers, which audiences who are accustomed to the idea that films follow a closed-loop, mythic structure can find unsatisfying. Tarkovsky saw himself as an artist who used film (time) as his medium of choice to produce creative works that make social/emotional impacts on audiences. He was less concerned with leading a viewer through a narrative and more interested in transporting the viewer into an altered state of consciousness.

> Everybody asks me what things mean in my films. This is terrible! An artist does not have to answer for his meanings. I don't think so deeply about my work - I don't know what my symbols may represent. What matters to me is that they arouse feelings, any feelings you like, based on whatever your inner response might be. If you look for a meaning, you'll miss everything that happens. Thinking during a film interferes with your experience of it. Take a watch into pieces; it does not work. Similarly, with a work of art, there's no way it can be analyzed without destroying it. (Tarkovsky, 1988, pp. 13-14)

Tarkovsky saw his work as impressionistic, meant to be experienced or felt rather than analyzed. Solaris was subject to scrutiny from its very conception with Stanislaw Lem, who openly criticized the adaptation. Through the lens of the Cold War, Solaris was also analyzed by critics, often described as the Soviet's answer to Stanley's Kubrick's *2001: A Space Odyssey*

released just a few years prior. Tarkovsky bristled at the comparison, admonishing Kubrick's focus on the story's technological aspects that he saw as tertiary to the human relationships. Indeed, Kubrick's film seemed to intentionally tone down his actors' performances to present dull personalities. The characters in 2001 were at work, experiencing a diegetic world that was commonplace to those who lived there. The most colorful character in 2001 was HAL, an artificially intelligent piece of technology that seems to prove Tarkovsky's point that the film relies too much on "technological invention" (Marshall, 2015, p. 2).

Despite the many differences between technological depictions, 2001 and Solaris share many similarities stemming from the writing itself and the literary connection to HG Well's War of the Worlds. Both films explore extraterrestrial contact, and both films are derived from literature. In 1951 another famed British author, Arthur C. Clarke published a short story about an alien teaching machine called Sentinel of Eternity. Like Lem, Clarke was writing in Wells's tradition to describe hypothetical, scientifically accurate confluences within a social context. Clarke's (1968) faithful adherence to science is perhaps inspired by his practice as an engineer who famously proposed geosynchronous satellites (pp. 85-86). Inspired by the Sentinel short story, Stanley Kubrick reached out to Clarke to write a feature film (Benson, 2018, pp. 3). Unlike the contentious relationship between Lem and Tarkovsky, Kubrick and Clarke seemed to develop a collaborative partnership in writing 2001. For three years, they met with one another to discuss and develop Sentinel's screen adaptation, which came to be titled *2001: A Space Odyssey*.

The story centers on a series of alien artifacts that would somehow teach humanity how to move onto a new, more advanced epoch of technological advancement. One such artifact on earth transformed homo habilis into hunters that sparked an age of innovation that leads to space

travel in the narrative. The second artifact, its importance established, is discovered on the moon in a future where space travel is commonplace. Normalizing the diegetic technology of the future seemed like an essential part of the film; long sequences establishing the flight of spaceships set to classical waltzes stood in stark contrast to the fast-paced, high-drama space operas of the period. If watching action-packed films like Star Wars or Flash Gordon are like riding a roller coaster, 2001 is more like waiting for a flight in an empty terminal. I believe that Clarke and Kubrick intentionally created a vision of the future that seemed dull despite depicting advanced technology regarded widely as dangerous. “Movies can show audiences how a technology works, why it is safe and why they need it” (Kirby, 2010, p. 45). The drama entered the story when technology defied understanding.

Clarke famously claimed that any sufficiently advanced piece of technology would appear indistinguishable from magic. This characterization borders on Lem's (1986) definition of pseudo-science-fiction by suggesting that science may be fantastically omnipotent rather than bound by physical law, but I believe that Clarke is making more of an observation about human perception rather than the seeming boundlessness of science. The homo habilis in the opening sequence of 2001 was presented with an alien artifact that they could not understand in any logical way. They saw the massive, black obelisk as a curious and inexplicable phenomenon rather than as a device. Centuries later, when modern humans looked at a similar object, they knew it to be extraterrestrial in origin, but such an understanding lacked closure or proper understanding regarding the monolith's function or purpose. *2001: A Space Odyssey* suggests that humanity must evolve to gain enlightenment. That evolution could be literal in a Darwinian sense, but it may also be cultural.

Then she got into the lift, for the good reason that the door stood open; and was shot

> smoothly upwards. The very fabric of life now, she thought as she rose, is magic. In the eighteenth century, we knew how everything was done; but here I rise through the air; I listen to voices in America; I see men flying — but how it's done I can't even begin to wonder. So, my belief in magic returns. (Woolf, 1933, pp. 492-493)

David Kirby (2010) argues that "popular cinema allows audiences to 'virtually witness' disasters in the hopes that such movies will stimulate public action as to prevent the disasters occurring in real-life" (p. 45). Clarke and Kubrick present such a scenario in 2001 with the introduction of the character, HAL, an advanced artificially intelligent computer that malfunctions, murdering much of the crew of a spaceship. The protagonist must defeat HAL to survive. The threat posed by artificial intelligence is a common theme for science fiction literature and cinema, from Isaac Asimov's iRobot to Jim Cameron's Terminator series. Such tropes are so prevalent that they can appear a little repetitive if not derivative. With the rush to develop artificial intelligence, it can feel that such cinematic warnings may gone unheard, making the dystopian scenarios posed by science fiction seem inevitable. In 1965, Frank Herbert published a story in a future where humanity is emerging from a generation of subjection by intelligent machines: *Dune*.

In his novel, Dune, Frank Herbert describes a humanity spread out over hundreds of planets in 10,191. The historical revolt impacts this fictional universe against 'thinking machines' in which humans wrested control from robot overlords. Notably, Herbert never shows the reader what life was like under the yolk of the authoritarian "thinking machine," but it echoes in every aspect of the story, from a prohibition against computer technology to the seeding of worlds a humanity that looks human by present-day standards. Treated like cattle by the machines, human beings were selected for breeding. Herbert uses this directed genetic selection as an aspect of

Dune's narrative by describing a secret breeding program undertaken by one of the dominant cabals that shape the story's world's power structure, which is affectionally named 'Duneverse' by fans. This incorporation of genetic mutation into Dune's characters relate directly to the environments and technologies of any given subculture within the Duneverse.

Frank Herbert collaborated with David Lynch in the making of a screen adaptation of the *Dune* story. Lynch took on the monumental task of translating thousands of years of background to a two-hour movie. I'll refrain from discussing the film's mixed reception, but I will point out that I was creatively inspired by the exhaustively detailed mythology created by Herbert. So complete was his research that dozens of books have been written within the Duniverse years after Herbert's death. A massive Dune Encyclopedia (McNelly & Herbert, 1984), a tome in excess of two thousand pages that includes maps, histories, technologies, and detailed descriptions of societies and political structures. This Tolkien-level world-building inspired me to consider common threads between my sculptural practice and each of the narratives I've written as a graduate student. I sought to write a new speculative fiction narrative that could tie together my films in an anthology.

Chapter IV: The Liminal Project

Link to Liminal Short Film: https://jonathanpaulwheeler.com/2020/12/26/liminal-time-capsule/

Greg Bear is an illustrator and author of science fiction who works in the 'hard' tradition of the Golden Age. His stories rely on events that are verisimilar in accordance with prevailing scientific theory. In other words, there is no fantasy in Bear's novels, which puts his narratives firmly in the realm of science fiction, as Stanislaw Lem (1986) defines it. I looked to Bear's (1990) short novel ***Heads*** for inspiration in producing a cinematic narrative. The story is a political thriller on the moon where a few scientific experiments are taking place simultaneously. The first and primary experiment is to attain absolute zero. The second is attempting to read the memories of cryogenically frozen human heads called “corpsicles” (Bear, 1999, p. 12). In writing my cinematic narrative, I imagined that the second experiment had worked and become standard practice. I hope to connect my film to Bear's world, but after corresponding with him and his lawyers, I realized that my story would have to deviate substantially from the source material. There could be an opportunity for a future collaboration with Bear, but for this research project, I would work to write a narrative inspired by, but not based on his novel.

Collaboration in Writing

To explore the practical application of collaboration in developing a cinematic narrative, I reached out to a fellow graduate student and artist, Amanda Schroeder. We met virtually to discuss the project and schedule regular meetings to write the story. Early on, we knew that we would have to plan for social distancing and masking as the Covid 19 pandemic was in full swing. Our characters would not be filmed together in the same room. We also decided that our plot should use the “memory reading” technology as a story engine (Landau, 2013, pp. 84-90) for a potential series of episodes in modern long-form narrative style. We considered how such a

story could be told via a streaming platform such as Netflix, Amazon, Youtube, or Hulu rather than a traditional movie theatre as theatrical releases were being postponed due to the pandemic.

Figure 17

Liminal's Corpsicle

We considered runtime and episodes per season based on shows in a similar genre currently featured on streaming platforms. We aimed to write a pilot episode that would introduce the main characters and a narrative device inspired by the "watching" of memories. At this early stage, we also considered locations and casting. Such considerations often sparked ideas for scenes.

Once a week, for two months, we met virtually for an hour. In the first few meetings, we spit-balled in a process that mirrored the "fuzzy front end" in the design thinking process (Laurel & Lunenfeld, 2003, p. 22). Reserving judgment, we listed random or connected ideas that we recorded into a shared Google Doc. We constructed an outline based on specific beats (Snyder,

2005, pp. 17-30) and began fleshing out a rough version of the story with some of the ideas from the brainstorming phase. Initial thoughts that did not fit into the developing narrative were archived. In Dan Harmon's (2019) writers' room, there is a box where they store ideas that don't fit into the story circle. Amanda and I used a virtual version in the form of a shared drive folder. We added potential scenes to the outline between meetings, commenting on each other's additions in writing on the page or as an aside. Our goal was 30 pages of script as each page would roughly equate to a minute of runtime.

After hitting the 30-page mark, I recorded each scene separately onto a notecard. Considering the plot structures of each of the experts discussed earlier, I settled on a simple, 4 act structure that resembled the monomyth and Blake Snyder's Beat-Sheet:

Act 1: Establish the ordinary world.

Act 2: Introduce the extraordinary world.

Act 3: Show characters paying prices for knowledge.

Act 4: Reconcile the ordinary and extraordinary world.

Indicating each act in a row on a bulletin board, I tacked scenes into place. In this way, I could see if the scenes were in the right place and if each scene accomplished specific plot goals. I could ask questions like: Is this scene necessary? Do we need another scene to establish reconciliation or prices paid? These questions formed the basis of our virtual meetings as we worked out dialogue and in-scene structure.

We could look at the bulletin board as a comprehensive view of the story, but we also looked at the modular elements, the scenes as smaller mini stories. Each notecard indicates a main character and a building and releasing of tension. Each scene had its own narrative structure that reflected the overall story structure. Each scene could be broken up into four acts.

This method allowed Amanda and I to zoom into each element during our meetings. We could answer questions like “Who scene is this?” and “What is the problem introduced by this scene?” We also considered how each scene's end would lead to the next scene, like an arrow. In dissecting each scene, we could work line-by-line to construct a cohesive narrative.

In the later meetings, we were presenting rough versions of the script to one another. Reading lines out loud, considering acting beats, and making notes on-screen direction. In this stage, we were also sketching designs for wardrobe, sets, and props that would play integral roles within the visual narrative. Perhaps the most challenging part was killing our “darlings” (Field 1994, pp. 289). In other words, we had to rather savagely cut out lines, scenes, and even whole characters to maintain a straightforward overall narrative. We could save the cut scenes for subsequent episodes or seasons, but it was tough to look at the work with an objective eye. We also started sending material to actors and photographing potential locations. One of the last meetings included a complete virtual read-through of the script by the actors, which allowed me to give specific direction regarding the delivery of lines. Amanda and I were also able to communicate each character's motivations to the actor playing that character.

Months after shooting and editing the story Amanda and I made (Wheeler & Schroeder, 2021), I've gleaned many lessons about the cinematic adaptation of a sci-fi story. Stanley Kubrick and Arthur C. Clarke worked together for four years to develop the script for *2001: A Space Odyssey* while Amanda and I took a summer to come up with the short film we entitled Liminal. A few more years of writing would benefit our project, but our final product is a glimpse into a larger story; a teaser. As a research project, our film establishes the potential for an anthology streaming series based on the 'memory watching' story engine.

Conclusion: A Design Statement

For me, the power of objects is undeniable, but I find myself living in a culture that increasingly pressures me to discard objects. Indeed, there is some satisfaction in throwing away things due to perceived obsolescence or even space limitations; it feels like a lightening of a spiritual load. The impulse to purge and discard the past trappings to grow into a future is strong, but some artifacts hold a special significance in my creative process. Those objects that clutter my studio are like anchors that tie me to my humanity and populate my reality with familiar touchstones. Those objects can also weigh down my creative process by inhibiting forward progress. Being too reminiscent or sentimental can block new understanding or exploration into new regions of expression.

The tension between the past and the future informs the output of my studio practice as it constructs fictional narratives. Each work, sculptural and cinematic, is a puzzle. Without knowing what the finished product will look like, I plan only for the next step; I see an opening for an unusually shaped item, seek, find, and place the piece that fits that niche. Often, each element's appropriateness is judged according to parts around it, but I will also consider the candidate object's conceptual implications. When I can't find the right object in my studio, I will actively scour the world, hunting for the right element. With saws and drills, light and lens, I modify each object before affixing it to the story's growing superstructure. In constructing my designs, I effectively destroy the objects that embody the past to build something new. In physics, a phenomenon is inevitably changed when it is considered. While working, I often find myself observing objects that make up an artifactual record of the phenomenon invariably changed by my observations. This line of thinking leads me to build up layers of things, often wholly covering elements added earlier. These buried objects will, I am aware, be lost to the

audience. But they will still play a role in the finished design as a foundation, both literal and metaphorical. Those hidden objects will also remain unchanged, protected from the influence of the observer effect.

In some ways, objects seem to mean less and less as technology shifts to digitizing things. Objects can be transformed into information and even transformed back into objects by printing them. Drawing connections between digitized objects and the mass production of objects in the sense of devaluation is apt on many levels. Still, we are moving into a time when objects can take up no more space than an idea. Objects may become as ethereal as thought. This progression may be good news for the ecosystem. No seabird ever choked to death after eating a memory in a literal sense. If we shifted our physical reality to a digital reality, we could conserve this planet, but the shift would make a drastic departure from how humanity once operated. We will no longer surround ourselves with physical objects; instead, we will fulfill that urge with virtual analogs.

Paolo Soleri's ambitious dream of constructing a structure the size of a city may never come to pass, but the idea can inspire a vision of a possible future. Such a concept can manifest beyond creating a literal, physical space and exist in a digital space as it may have existed as an idea, ethereal, noncorporeal. This lack of counter indication represents a need for connective tissue to bridge the gap between physical and digital spaces that I'm currently exploring in the Liminal narrative. In my design practice, I work to give sculptural forms a digital life through narrative filmmaking. As an artifact can hold a story, I feel that my sculptural work can lead me to a story, a fictional narrative informed by experience and research. The story is the connective tissue between the tangible object and the digital object. In producing my sculpture and my films, I want to draw a line between my sculptural studio practice and the ethereal, digital world

of ideas.

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Appendix A

Links to Videos

Short Films

Liminal Short: https://jonathanpaulwheeler.com/2020/12/26/liminal-time-capsule/

The Arconaut: https://jonathanpaulwheeler.com/2021/01/09/the-arconaut-latest-edit/

Spin: https://jonathanpaulwheeler.com/spin/

Sweep: https://jonathanpaulwheeler.com/sweep/

Cindy: https://jonathanpaulwheeler.com/2020/11/14/cindy-chodchrome/

Sculpture

Orb & Septre: https://jonathanpaulwheeler.com/2020/04/08/adv-sculpture-4-orb-septre/

Monolith: https://jonathanpaulwheeler.com/2020/05/03/monolith/

Synaptic Installation: https://jonathanpaulwheeler.com/2021/01/09/synaptic-installation/

Stack Sculpture: https://jonathanpaulwheeler.com/2020/03/08/stack-sculpture/

Other

SciFi Demo Reel: https://jonathanpaulwheeler.com/2021/01/09/scifi-demo-reel-former/

Testing a Green Screen: https://jonathanpaulwheeler.com/2020/05/07/king-of-the-hill/

Arconaut Test Sequence: https://jonathanpaulwheeler.com/2019/09/02/cave-test-sequence/

Strange Object Test Shot: https://jonathanpaulwheeler.com/2019/09/16/adv-sculpture-presentation/

Appendix B

Links to Pre-Production Artifacts

Liminal 2-Sheet Pitch: https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-2-sheet-pitch.pdf

Liminal Character Development:

https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-character-development-.pdf

Liminal Early Thoughts: https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-early-thoughts-.pdf

Liminal Overarching Plot Points:

https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-overarching-plot-points.pdf

Liminal Pilot Script: https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-pilot-script-.pdf

Liminal Pitch: https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminal-pitch.pdf

Liminal Episode Structure: https://jonathanpaulwheeler.files.wordpress.com/2021/01/liminnal-episode-structure-.pdf

Liminal Stills: https://jonathanpaulwheeler.com/2020/11/11/liminal-stills/

Arcosanti Images: https://jonathanpaulwheeler.com/arcosanti/

Taliesin West Images: https://jonathanpaulwheeler.com/taliesin-west/

Sound Design in ID4: https://jonathanpaulwheeler.com/2020/04/10/the-sound-design-of-id4/