In Present Past: Sun Tunnels and the Historic Reconstruction of Vision

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In Present Past: *Sun Tunnels* and the Historic Reconstruction of Vision

by

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Introduction

“As an artist [my work is] primarily an exteriorization of my own interior reality . . . they’re also made so that people can be a part of them and become more conscious of space, of their own visual perception and of the order of the universe. But also, I think the work is about ‘time’—a sense of time that is more universal.”

-Nancy Holt

Nancy Holt’s Sun Tunnels occupies a unique place in art and world history coextensively, in that it rests on the juncture of extreme past and present. As an artwork it functions to render time visible, empowering viewers to become conscious of the surrounding landscape in a manner that is evocative of a prehistoric observatory. Today, we live in a rapidly developing world in which our visceral connection to the landscape has been disrupted, and for many, severed. Not unlike those who came before us, over the last century our societal intentions have been set on discovery: the conception and execution of progress in its many forms and iterations.¹ Space travel, nuclear weapons development, the Internet, mass communications, and technological innovation, to name a few. Moving from this mentality has propelled us into a reality that truthfully, our forbearers might have thought improbable. And while this forward momentum is undoubtedly and remarkably expansive for humanity as a global culture, it has also played a role in limiting our physical engagement with the earth and its daily, seasonal, and yearly cycles.

Our not so distant ancestors lived with their eyes on the horizon, walking about their daily and seasonal lives in patterned harmony with the earth and celestial cycles. Their personal, familial, and cultural lives were deeply entwined with the celebration of timely seasonal passage and ritual celestial events – including but not nearly limited to the summer and winter solstices, and vernal and autumnal equinoxes – while commemorating their interplay with the earth’s

¹ The societal focus on forward motion and progress highlights the unique juxtaposition between this mentality and contemporary artists like Nancy Holt, whose art strives to stimulate the opposite.
landscape. Early sky watching prompted later generations’ large-scale construction of observational structures and celestially aligned complexes, where observers could behold the transits and alignments of celestial bodies against the landscape. When we visit these sites and place ourselves in the mindset of these cultures, we can begin to understand how this type of visual experience in nature through time-based practices had the ability to prompt feelings of interconnection and an awareness of our place within the universal system.

Over the last century, we have come to experience the world as it is framed through a lens or screen: cameras and television, computers and cell phones. We are a society tied less to the earth than to the cycles of production and consumption. One that for the most part lives behind four walls and gives little pause to acknowledge how the passage of time and changes in sky and landscape punctuate our lives.

Many and more works of art have been and continue to be created in order to illustrate and narrate these circumstances. While Land Art may not have been intended as an explicit response to the rapid changes of the 20th century realities, these forms function in a way to mitigate this reality. Instead of creating art that was informed by and further supported society’s state of forward thinking and progress, these artists reacted in opposition by creating art that reflected on the past. This juxtaposition allowed viewers to settle into the landscape and observe time’s effect on their surroundings in a manner that is similar to the practices of countless cultures across history. Land artists specifically, and Nancy Holt’s Sun Tunnels in particular succeeds in doing so by creating what I have come to call the historic reconstruction of vision. This modality harnesses perceptual viewing devices [like enframement and sightlines], commonly utilized by builders of ancient observatories and astronomically aligned structures, in order to revitalize the ways we have come to observe and connect with the landscape and the time-based cycles of nature.

In the 1960s a group of predominantly New York and Los Angeles-based artists began to relocate their artistic practice to rural, and often deserted, areas of North America. These artists –
Robert Smithson, Michael Heizer, Nancy Holt, Charles Ross, Walter de Maria, Robert Morris, James Turrell, Agnes Denes etc. – would come to produce forms that would later be dubbed Land Art. Their art redefined the limits and expectations of monumental and large-scale sculpture, while also acting as progressive departures from accepted artistic convention.

During the sixties and seventies, Land Art practitioners were working amidst an array of factors that facilitated, even necessitated, this move to the drylands of the western United States. The constructive and destructive collision of human energies during this period fueled explosive social, political, and artistic shifts in the years to follow. Stimulated by the American ethos of post-war prosperity and collective optimism, the United States entered a decade colored with powerful leaders, politicians, social and environmental movements, war, and technological advancements. In the art world, the events of the sixties helped ignite this new artistic paradigm that blurred the traditional lines and limits of artistic production that had been built and maintained for hundreds of years by the Euro-centric Beaux-Arts and preceding systems.²

The early 1960s saw the first international boom in contemporary art making. With the American ascension to domination in world power and politics, the art world grew in tandem.³ New York became an influential center for the art market, and the exponential growth in measurable resources devoted to art allowed American artists to emerge from the remnants of European art history with a new American aesthetic. The creative movement now known as Land Art formed as a logical outgrowth of Minimalism and Conceptual Art in 1968. The beginnings of environmentalism and the unbridled commoditization of art in the late 1960s influenced experimental ideas and works that were, effectively, divorced from the art market.⁴

⁴ It is imperative to point out that these works were funded by the same system that influenced their relocation to the American West. Thomas E. Crow. The Rise of the Sixties: American and European Art in the Era of Dissent. London, England. Laurence King, 2004. Page 1-200.
As Land Art filtered through reductive Minimalism, a substantial group of semi-permanent works had broken ground and been constructed in the American deserts by the late 1970s. These include *Spiral Jetty, Sun Tunnels, Double Negative, Star Axis, Roden Crater, The Lightning Field*, etc. In the Hirshhorn Museum and Sculpture Garden’s 1977 exhibition catalogue, *Probing the Earth: Contemporary Land Projects*, John Beardsley remarked that it was, “appropriate that land projects emerged just at this time when many of us are trying to take stock of the natural environment, to assess what we have done to it and determine what is left of it.”\(^5\) Land Art emerged during the counter culture movement, and alongside the very first observation of Earth Day on April 22, 1970. The growing interest in ecology as a public issue and wide-spread return to nature between 1965-1972 can be observed fundamentally as a widely participated revolt against the machine. The spirit of this cultural outlook can be seen reflected in the works of many land artists practicing during this period. In *Art of the Postmodern Era: From The Late 1960s to The Early 1990s*, art critic Irving Sandler considers the synergy between earth artists and this interest in protecting and conserving nature:

> Earth artists were in sympathy with the counterculture’s glorification of nature, ecological concerns, and back-to-nature rhetoric. Many shared a romantic vision of America’s wide-open spaces, whose roots lay in nineteenth-century paintings of the West such as those of Albert Bierstadt and Thomas Moran.\(^6\)

This sweeping desire to return to nature seamlessly feeds anti-capitalist sentiments and rhetoric in art. Due to its intentionality as non-commodifiable works of art, Land Art expands into previously unforeseen limits, which played a critical role in attempting to disrupt the capitalist market economy of the art world, which thrives on the circulation of artworks as transportable and exchangeable commodity goods. As Julie Reiss extrapolates in her book, *From Margin to Center: The Spaces of Installation Art*, “…creating a work that could not be commodified was a political

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gesture aimed at the entire art system.” Site-specific Land Art works by definition cannot be removed from the situation of their placement. They cannot be bought or sold for display in private collections or institutions. This simple idea assembles the suggestion that land artists attempted to forge a new methodology that aspired to dismantle the prevailing economic structure by creating static and immovable forms that speak to and underline the landscape. Thus, this form deals not just with the expansion of the space of experience, but also the radicalization of art by opening its boundaries to the infinite horizon of landscape and earth.7

In addition to the employment of monumentality and simplicity, Land Art was largely an American aesthetic that favored natural materials, such as soil, rocks, water, and gravel, to create wholly site-specific structures, forms, and sculpture.8 Earth artists intentionally left their work exposed to the elements, and their eventual entropic deterioration placed them further outside the realm of mainstream art objects that subsisted in controlled, white-walled environments. The choice of materials and selection of site highlights and honors the deployment of landscape as a framing device about which viewers experience and interact with land-based sculpture.

On the canvas, landscape painters of the seventeenth, eighteenth, and nineteenth centuries showcased sweeping horizons and panoramic vistas to convey the sublime complexion of our earthly realms. By making it a medium and the very substance of art, earthworks became a means by which the viewer enters the landscape, for, “the works elaborate the landscape; [while] the landscape reveals the works.”9 Thus, land artworks open the threshold between art and the earth, and their physical location places the viewer in the world. Land artworks were made in such a way that they are fixed to the site of their installation, to move them from their situation would destroy the work. Site expresses a particular presence that is integral to the work. Often times these

8 Which were also analogous to Europe’s burgeoning Arte Povera movement.
structures were planned and constructed to align with celestial spheres with such exactitude that to move the work, even a small amount, would destroy its effectiveness as an art piece. By creating art that is tied to a specific landscape, and to a specific place within that landscape, Land Art effectively gives itself up to its environmental context, creating a system in which the site is the main tenant around which art, the artist, and the spectator are organized.10

Site-specific Land Art can lead to the unearthing of cultural histories, due to the nature of their functional, and often aesthetic comparability with pre-historic and historic observatories. This provides greater visibility into the lives of cultural groups across history as well as their artistic and ritualistic customs. This allows us to rediscover facets of history that have been long forgotten or ignored by our dominant culture. Thus, the site becomes a place for natural confrontation between history and sculpture, forging the basis for Land Art’s connection to prehistory.11 The correlation between Land Art and prehistory was struck almost immediately following the opening of the first exhibition of land artworks, shown at Dwan Gallery in Manhattan in the fall of 1968. This subject has been touched upon and researched in different iterations over the last half-century, and the relevant line of comparison for this study in particular lies in the similar functionality of Sun Tunnels and prehistoric observational structures. Sun Tunnels has the ability to facilitate this change in sight and perception, while making historic connections visible in the landscape. The sculpture guides us through physical responses to topography, leading us toward alternate, and historical relationships to landscape and nature.12

Along with many of her Land Art contemporaries, Nancy Holt grew her creative practice in the remote fringes of the American landscape [before moving into the public forum – community parks and university campuses], where she created sculptural forms as well as time-based media art

that evoke a cosmological sense of prehistory. Through her art, Holt is known for bringing the sky down to Earth, and within this *Sun Tunnels* specifically remains one of her most highly regarded and discussed artworks of this period.\textsuperscript{13} Using light and site, her work embodies a sense of historical cyclical time, which harkens back to architectural designs and viewing modes utilized by the ancients and their celestially aligned observatories.

Holt conceptualized *Sun Tunnels* in 1973 while in Amarillo, Texas during the height of Land Art creation. Three years later in 1976, she presented a completed sculpture in the heart of the Great Basin Desert, centered far from the reverberations of societal empire. Since then, *Sun Tunnels* has offered pilgrims navigating through the Great Basin landscape with a site-specific experience that is entirely responsive to its environment – one that cuts through desert dissonance and weaves together cosmos, land, and viewer.

Like much of Holt’s artistic output, *Sun Tunnels* was a distinctly personal response to the landscape. She recalls, “…the idea for *Sun Tunnels* became clear to me while I was in the desert watching the sun rising and setting, keeping the time of the earth.”\textsuperscript{14} The sculpture stems as a reflection of the artist’s very first interaction with the spaciousness of the desert. It developed as a means to rediscover humanity’s biological and metaphorical connection with the land, while placing focus on the concept of time and time-based practices cultivated by cultures across history. Simply put, by focusing on and revealing the effects of time on the land, her work manages to achieve these ends by extending an observer into the vast western landscape and further into the world, striking a revitalized earth-body relationship as a result.

The large cylindrical culverts that make up the sculpture rest on the Great Basin’s desert floor in alignment with the four-part horizon. As referenced by its title, the sculpture heeds the sun while highlighting its cycles through the observatory’s precise calibration with the summer and

winter solstices. During these days of seasonal marking, *Sun Tunnels* presents the various ways that one can physically experience and commune with the landscape and the artwork by approaching it at certain times of the day or year. Multiple viewpoints into the sculpture and outward toward the land, coupled with a multiplicity of scenarios to perceive them, presents the opportunity to revitalize the viewer’s perception.

This, and other iterations of Holt’s architectural sculptures, are reminiscent of ancient astronomically aligned cities, buildings, and monuments, including Pueblo Bonito in Chaco Canyon, Teotihuacán outside Mexico City, and El Caracol at Chichén Itzá. It’s significant to note that while many land artists do pay explicit homage to these constructs of prehistory [Michael Heizer’s *City*, for example], others including Nancy Holt find this connection to be less direct (*Figure 1*). In Holt’s eyes, her work revolves around her interest in the cyclical passage of time, and the way in which it can be observed in a shared landscape. In doing so, she contributes to a narrative that highlights how marking the earth to chart the celestial passage of time has been a cultural commonality across millennia. Thus, her work allows us to view the landscape in categories of the past through time-based landscape observation, presenting a new, yet old, way of perceiving the landscape of the western desert.

The intentionality behind *Sun Tunnels* lies in a concern with perception, and with a propensity to approach the mediation of the environment through participatory structures. The work places emphasis on the viewer’s process of perceiving the landscape, to expose the idea that observing is not just looking, it is identifying the human relationship between the natural and the man made. It is gaining perceptual truth through sight, an idea that is reminiscent of Denis Cosgrove’s writings in *Social Formation and Symbolic Landscape*. The following pages serve to determine how the artist uses land, sight, and perception to reprogram the modern viewer’s eye in order to present a historic reconstruction of vision.
Chapter One will lay the primary foundations for this study by contemplating the concept of *land* and defining the role it plays in our world physically, culturally, and philosophically in an attempt to understand the significance of the word *landscape* as it applies to cultural and historic land marking, Land Art, and *Sun Tunnels*. As it is the primary setting for many Land Art sculptures of the period, further inquiry will be made into desert landscapes of the American West in order to shed light on the environment’s symbolism as it parallels the ocular and perceptual shifts that occur in the parched climates of the region. This section will consider how humans come into contact with the drylands, reflecting on the ways in which the arid topography upsets our innate sensory processing, most notably our capacity to maintain fully-functional visual perception. Visual devices that create order in landscapes that present optical dissonance – enframement and sightlines – which are present in land artworks including *Sun Tunnels*, will be introduced. Concepts in this chapter act as a spring board for later discourse outlining the comparable qualities of *Sun Tunnels* and archaeoastronomic monuments.

Chapter Two will view landscape and Land Art in categories of the past by first charting the paths of human engagement with the Earth, introducing the study of archaeoastronomy and acknowledging its parallel engagement with the 20th century Land Art movement. In order to elucidate how Nancy Holt’s *Sun Tunnels* frames a historic reconstruction of vision within the landscape, this section seeks to introduce the ways in which the artwork resembles and makes a model of ancient sites. To open this narrative, this chapter will investigate the role and functionality of astronomically aligned structures and their predecessors, introducing artifacts that represent early time reckoning alongside more developed, large-scale, land-based complexes.\(^\text{15}\) Previously discussed instruments of visual observation – enframement and sightlines – will be

reintroduced to cultivate a strong line of comparison between prehistoric observatories and other astronomically aligned structures and their modern Land Art relatives.

Chapter Three will combine major themes relative to visual perception in desert landscapes, archaeoastronomic structures, and observational visual devices and apply them to an analysis of Nancy Holt’s seminal work, *Sun Tunnels*. This section will concretize the sculpture’s connection to prehistoric observatories by delineating how the relation lies not only in its alignment with celestial bodies and the magnetics of our planet, but in the way the artwork acts as a framing device for us to perceive and study our natural surroundings while acknowledging the cycles that operate therein. Incorporating Holt’s views on astronomy and the effect pre-history has on her work, this chapter will conclude that while evoking pre-historic monuments was not a creative intention in the making of *Sun Tunnels*, it succeeds in using viewing devices present in ancient observatories and aligned structures in order to cut through desert dissonance found in the Great Basin. This ultimately creates a system that allows one to witness the patterned passage of time in the landscape and gain a higher sense of perceptual awareness within their surroundings as a result.

…
Chapter One

“[Earth artists] have been at the forefront of the movement to challenge the definition of art according to either its objecthood or the fixity of medium.”

-Amanda Boetzkes

The integration of the landscape into fine art practice developed in fifteenth-century Flanders and Upper Italy in paintings by notable artists including the likes of Giorgione and Vermeer.¹⁶ Deeply entwined in Western artistic tradition, scenic terrain was incorporated into commissioned portraiture and genre paintings in both the Dutch and Italian schools, where it was often utilized as an aesthetic backdrop or elemental imagery that played a role in communicating human kind’s supremacy over the natural domain. In its fullest expression, nature stepped into its role as the artist’s sole subject matter. Landscape painters of the eighteenth and nineteenth centuries showcased sweeping horizons and panoramic vistas to convey the sublimity of nature, often focusing on specific locations and featuring the dynamic visuality of natural weather patterns and events. Works by Thomas Cole, Asher B. Durand, and Albert Bierstadt come to mind when thinking of recognizable iterations of the romantic casting of the sublime. By the eighteenth-century Immanuel Kant, along with his contemporaries, was also producing written works delineating the aesthetics and incomprehensibility of nature, pairing philosophical thought on the sublime with the period’s artistic output.¹⁷

In retrospect, one can observe this rolling trajectory as loose beginnings of tenets that surround twentieth-century Land Art, whose practitioners fuse an artwork to its natural surroundings, furthering the artistic narrative. Still, historical landscape paintings remain

¹⁷ Observations on the Feeling of the Beautiful and Sublime is an example of one of Kant’s works related to this subject.
undeniably separate from the places that they depict. They exist in frames and on the boundary between art and the outdoors. They hang on gallery walls and highlight the awe of nature yet do not go so far as to provide viewership with an opportunity to experience the raw connection that exists between the body and its environment. In retrospect, one can recognize that the complete manifestation of landscape as an aesthetic subject could not have been realized so long as the work remained on the wall. In her book, *The Ethics of Earth Art*, Amanda Boetzkes describes this tension: “In contrast to landscape painting, which attempts to mask human presence or naturalize human dominance, earth art explores the point of contact between the body and the earth.”18 To reinforce her point, Land Art aims to reveal the body’s connection to the earth and to art, continuing from the exact place where landscape painting faltered.

Land Artists and its practitioners forged the movement’s union of art, cultural history, and landscape. Their artwork and writings challenged the definition, materiality and placement of art objects. Absorbed in the sociopolitical upheaval of the late 1960s, artists were looking around more and more for a sense of place and universal connection, ultimately settling their sights further outside of the gallery structure and into nature where they began erecting Land Art sculpture into the 1970s. Most often, they sought artistic refuge in the desert. This utilization of land as a sculptural medium and an inextricable element of the artwork made the distinction that landscape was, “no longer a mere backdrop for human activity,” and it began to hold its own presence.19

Nancy Holt and her contemporaries collapsed the barrier that existed between art and the land, pushing us beyond the geographical depiction of a site that had been the prevailing artistic method for centuries. She used her art to guide us through physical – predominantly visual – responses to native topography and lead us toward historic, and alternative, relationships to

landscape and nature. Through her desert art practice, Holt succeeded in rekindling a revitalized connection between the human body, nature, and celestial cycles by harnessing the functionality of the human eye and deploying visual devices used in prehistoric observatories and celestially aligned architecture. A pared down, historic reconstruction of vision that reconstitutes the way we perceive the landscape, its physical elements and forms, and the cyclical rhythms that weave it all together.

This chapter serves to lay a foundation for this discourse by focusing on the two most basic components that comprise Land Art: land and sight, while also coming to terms with how they converge to create a sense of physical and universal connection. With sights set on the horizon, this section examines the concept of land and defines the role it plays in our world physically, culturally, and philosophically in an attempt to understand the significance of the word landscape as it applies to cultural and historic land marking, Land Art, and Sun Tunnels. As it is the primary setting for many Land Art sculptures of the period, this chapter focuses on desert landscapes of the American West in order to shed light on the environment’s symbolism as it parallels the ocular and perceptual shifts that occur in the arid climates of the region. This abstraction becomes especially meaningful when looking at Holt’s work, as she considered herself a practitioner of Perceptual Art, which makes visual perception the “binding logic” behind her work. Using this as a jumping off point, this section delves into the human’s visual and perceptual apparatus, touching upon the historic evolution and scientific process behind our eye’s movements, calling attention to sight navigation in desert landscapes. Visually surveyable systems practiced by Holt – enframement and sightlines – are also introduced to present the creative methods used in Sun

Tunnels to restore an intimate bodily experience while viewing the landscape, an approach that evolves throughout the coming chapters.

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The Earth is the basis for all human and geological activity; a community in and of itself. American philosopher and humanistic ecologist Aldo Leopold’s vision of this community includes not only humans, but all other parts of our earth: soils, waters, plants, and animals. What he calls, the land. In order to understand the significance of land and thus landscape, ascertaining who or what is engaging with it, and under what circumstances is essential. 

The natural environment is a time structure that exhibits the array of responses to a particular landscape, extending from the geological forces that shape the ground itself to the cultural interventions that define a communal place. If we look close enough, we can see the layers of this record in the landscape around us. To put it plainly, the landscape is a visual device capable of highlighting an earth-body connection. Artistically, it is the framework around which art, the artist, and the viewer are organized.

The word landscape originates from the fifteenth-century German term, landschaft, which later entered into vernacular language during the Renaissance period. Cultural geographer Denis

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28 This is true, at least, from a Land Art perspective.
Cosgrove describes landscape as the external world mediated through human subjective experience. In *Earth-Mapping: Artists Reshaping Landscape*, Edward Casey describes it as, a bounded view of a scene of some sort. It is place or region seen from somewhere by a looking body, a somebody who is acting on his or her epistemophilic interest, a curiosity about and a wish to know better the surrounding world.

Lucy Lippard also designates landscape as a way of seeing, as she cites Alexander Wilson’s suggestion that, “landscape is a kind of ‘activity’ – ‘a way of seeing the world and imagining our relationship to nature.’” A landscape is a physical place in the world, this is indisputable fact. And by their definitions, they also suggest that the word itself designates a kind of dominion, or ownership over the land, persisting in a visual, epistemological, or monetary sense. However, what unites Cosgrove, Casey, Lippard and Wilson’s positions is the notion that the landscape is an active visual tool, one that allows a viewer to better understand their surroundings and their place within it. All things considered, there are few landscapes in the world that reveal this connection with such magnitude as the desert and, in the context of Land Art, the deserts of the American West.

In order to understand where humans stand in connection to the land we inhabit, a good place to begin is by looking toward an environment where we are most challenged by nature: when we are in the desert. Desert is a word with many meanings. Rooted in the ecclesiastical Latin *desertum* meaning, “an abandoned place,” it most often indicates a treeless, uninhabited territory. Over the last century this definition has taken on a more modern, climate-science based

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32 The notion that one is the master – through vision – of the landscape that they survey is a prominent subject of both Dutch and British landscape painting from the seventeenth and eighteenth centuries.
association, in which it describes a desolate bioregion with searing hot temperatures and little water or indigenous vegetation. Topographically speaking, it’s an environment of boundless emptiness. Harsh conditions leave vegetation reduced in size, clinging to barren valley floors among the dust and shattered rocks, their root systems extending far and wide underfoot, waiting patiently for the next rainfall. Most animals native to the region are nocturnal, while others live underground or thrive in dormancy, only to emerge after sundown or in tolerable, albeit rare, wet weather.

As stated, humans are most challenged by these desert environments, where we are fundamentally ill-equipped to cope with the extreme conditions. As a result, beginning with hunter-gatherer communities, humans developed adaptations and passed down necessary skills to thrive self-sufficiently in arid climates. This includes proficiency in carving hand-made weapons, tracking animals, foraging for plants and water, etc. But perhaps most importantly, these cultures grasped what the desert landscape did to their visual perception and used it to their advantage in navigational pursuits and architectural constructions. In the Americas, individual pre-contact cultures extending from the Upper Paleolithic period to the Early Modern Era – including but not nearly limited to the Inca, Mayan, Ancestral Puebloan, Navajo, Hopi, etc. – established complex societies built on the corner stone of a dual physical and spiritual connection to the land, sky, and cosmos. Community dwellings, cities, and ceremonial centers were intentionally built to be in sync with the landscape and aligned with the sun’s movement against the desert land. Archaeoastronomic structures located at sites such as Teotihuacán and Chaco Canyon, for example, endure today as reminders of this societal ethos (Figure 4 & 5).

When the first European settlers and frontiersmen explored the conditions of the American West centuries after these desert cultures flourished, they found and perpetuated the image of a predominantly trackless and thinly inhabited pass-through region – drylands that were the last stronghold of America’s indigenous peoples. The Great American Desert was seen in this manner for decades, and this shared [and very Western] attitude only slightly changed with the chauffeuring in of modernization; conveniences such has social and technological advancement in irrigation, vehicular and railroad travel, and air conditioning. Over the second half of the twentieth century land artists began to respond to this sense of loss through their art practice. When desert landscapes expressive of the past are filtered through these artist’s eyes – artists like Nancy Holt – visitors can begin to understand the very historical and ideological power of the desert, which underlies the physicality of the place, and allows us to come back to it.

The desert perpetuates a powerful visual image, the likes of which are repeatedly reproduced in visual art, poetry, film, and other forms of creative media. As a trope, it most often connotes themes of death, religion, war, extreme past, and desolate future. Visually it is parched, boundless, and empty. Pamela Lee rightfully states that, “the apparent scalelessness of the desert frustrates description as it challenges perception.” The desert is an environment that scrambles the visual apparatus, requiring desert drifters to place more reliance on other internal biological senses or utilize external visual devices to make sense of their place within their surroundings. The terrain itself is a topographical manifestation anchored in the complex codependence of nature, culture, and history. Here, physical time melts away while geological history becomes evident in the encroaching rocks and ridges. These mountains hold caves and trails that once sheltered nomadic indigenous peoples and their Paleo Indian ancestors, dusting off historical narratives that can still be seen today, which creates a visible connection to history and earth that permeates the

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spectorial experience. Through this it can be understood that landscape in general and the desert in particular elicits the raw, original standpoint into the world that enables the earth-body connection to be felt with great vividness. But more than anything, it invites us to open our eyes to recognize this union.36

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While the desert does a novel job disrupting the visual process, it remains the predominant responsibility of our eyes to highlight and communicate. Our understanding of the world around us is framed primarily through our vision. In order to conceptualize and further explore the visual devices incorporated into perceptual land artworks like Sun Tunnels, it becomes necessary to ask: what happens to our visual and perceptual apparatus in the desert? In order to answer this question, we must first consider the optical functionality as well as the visual evolution of the two unique globes that allow us to see and navigate through our surroundings.

Homo sapiens as a species finds its origins just 200,000 years ago, and we have matured with more or less the same brain that we have today. In our evolution we developed five neurological senses that make it possible for our bodies to function efficiently in their natural environments. These qualities include: sight, touch, hearing, smell, and taste.37 While we can rely on our other senses when necessary, we engage with the space around us most effectively through our vision. This is the case, in part, due to the fact that sight conveys more information from the exterior world to the brain than any of our other senses, while also contributing substantially to memory and other normal human functions.38 In fact, our brains’ possess a cortex with more than

half its mass and processing power devoted to the system of visual perception. Coded visual information received through both eyes are transferred to each corresponding visual cortex [which are located in the brain’s left and right hemispheres] where they are interpreted into unique images that reconstruct a colorful, three-dimensional view of the world.

The mechanism of seeing is akin to the operational aspects of a camera, which focuses and captures light, imprinting an image on light sensitive paper or gelatin sheets. Similarly, the human visual process begins when light enters the eye through the cornea and intersects the pupil (Figure 6). The magnitude of light that enters the eye, known as luminescence, is regulated by the iris, or the uniquely colored part of our eyes. Within a normal range of luminescence, visual acuity and focus reaches its peak. In instances of low luminescence – like at night – or high luminescence – like in the desert – visual acuity does not function at optimal levels, which in turn causes visual or optical dissonance. Regardless of the scenario, at this juncture, light then intersects the lens – a transparent structure inside the eye – and focuses it onto the retina. The retina is the light-sensitive layer that lines the back of each eye, upon which the translated image appears inverted. The optic nerve lives behind the retina, and transfers signals of light, dark, and color to our brain’s visual cortex, which sorts and reassembles these signals into the images that become our vision.

The functionality of human eyes and brains evolved some three million years ago when our distant ancestors descended from the forest and walked out onto the savannah. And still prior, approximately 1.5 billion years ago the generation of the visual processes that would ultimately grow into vision began when plants and animals gained the ability to distinguish light from dark.

This change provided all creatures with some of the first receptions to our planet’s cycles, which are recognizable in patterned feeding, sleeping, photosynthesizing, and the like. We evolved further, and our sight grew to be organized around the ability to distinguish boarders and outlines, shapes and figures. This development granted us with the capacity to define the space around us. We could identify predators and danger in tandem with prey and refuge, aggregating a crucial layer of our innate survival repertory. As a necessary by-product, it became natural for our eyes to seek order in visual chaos, and safety in physical danger.

Each day from the moment we wake until we close our eyes, we take in hundreds of millions of bits of visual information per second, information that is transferred from the eye to the occipital lobe and visual cortex for processing. We collect these details through every monumental and mundane moment of life. The vast majority of this data is filtered out and never retained, thanks to an evolutionary adaptation that keeps our minds from melting under the sheer volume of this visual information. One way we do this is by, “parsing everything we see into roughly twenty-four geometric forms, such as circles, squares, and polygons of varying kinds, as well as more open forms such as arcs and angles.” Historically, the ability to categorize and digest this array of shapes and patterns allowed us to identify predators – imagine high pressure scenarios where our eyes worked to distinguish the stripes of a tiger hiding in tall grass – and protect ourselves within our surroundings. This was one of, if not the most useful, survival tool in a predator vs. prey environment. Furthermore, it has grown so engrained in our visual process that we also imagine geometric shapes and lines where they do not exist naturally. This is a kind of optical dissonance known as pareidolia, in which we visually construct random patterns from unsystematic dots in

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space in an attempt to simulate visual order, familiarity, and safety. While we’re now far removed from this quality being a necessity in our daily lives, our eyes still maintain the process. We might notice its effects when we draw invisible lines between the peaks of a mountain or along the inside angle of a door frame, creating triangles. Perhaps even zig-zag lines that run between the parallel lines that divide lanes on a highway. This sense of visual order and safety habitually creates the notion that we understand what is around us in the landscape, even when in reality the shapes we conceptualize are not real. All the while, and through this visual dissonance, our eyes and brain continue to build a representation of the world in our minds. In neutral environments like the desert, this adaption also allows us to lose or misinterpret a great deal of the landscape’s particulars, an idea that will be discussed later in this chapter.

Our vision developed with human kind’s movement into different landscapes, and our perception of the land and world around allowed us to understand space and our place within it. All visual perception is evaluated in relation to the body, it’s how one makes sense of abstract ideas and forms, such as sky, space, planets, etc. Essentially, our vision is a mixed bag of physics, genetics, and social constructs. Our eyes, and by extension our brains, have been hardwired by hundreds of thousands of years of living and dying in one specific visual landscape. We operate well in environments that allow us physical protection and visual dynamics. Or, vistas with trees and other vertical structures to scale ourselves against while looking about our surroundings. When this neurophysiology fails in harsher climates lacking in visual markers, we’ve managed to compensate through learned cultural means. Using the cartographic model, we grid and map within the landscape. After all, it is likely the most effective way to organize the systems in our lives to bring order from chaos. William L. Fox expands this concept:

Ibidem.


Once you set out a straight line, even in your imagination, to measure how far it is from you to another point, you are only one step away from imposing a grid on the land. Just crossing one path with another is all it takes, and you begin to box in the world, to square up reality with a map of it. Our ability to grid off arid terrain in regular and measurable units is a way of bringing it within our cognitive reach, of making apprehensible shapes on the land, and it is one of the ways we attempt to locate our position.\textsuperscript{47}

We seek comfort in a framework that enables us to create visual and structural order, which allows us to locate our place simultaneously. Visual and structural gridding has become so synonymous with our society that we turn phrases like going “off the grid” when we travel to places that are vacant, unmarked, and far from societal norms. Places like the desert. Yet it’s no wonder that when we are confronted with optical dissonance [which is often what drives us to simulate pareidolia] that we still attempt to mitigate it. Historically, and presently, the natural human response is to create a grid, aligned with solar events, most often along cardinal directions, but sometimes offset to honor the equinoxes or solstices.

We can reasonably grasp the fact that our eyes work overtime, regardless if we’re in isotropic desert terrains with high levels of visual illusion or in the highland moors of the United Kingdom. Yet the greater question may be: how do we process and form congruencies amongst all of this visual information – information that flows in between the brain’s systemic visual mapping and pareidolia? When we’re in any landscape, we find our bearings by making two or three sweeping eye movements across our observable field. Our visual field comprises of two areas of cognition: foveal and peripheral vision. Objects and events seen in one’s foveal vision, located at the center of the visual field in one’s direct line of sight, can be seen with the greatest visual acuity and detail. Our foveal vision moves in correlation with our eyes as they travel around the

surrounding landscape. Objects and events seen with peripheral vision and outside this central area of focus, are not seen in detail. For example, if we look at the first word of a newspaper headline, we can’t read the entire headline without moving our eyes across the page. Likewise, if we are looking at a mountain’s peak, we will not be able to see the surrounding foothills with clarity without moving the focus of our gaze. Since the human eye can only see the detail of objects specifically focused on, we make a point to connect with markers in our visual field that grab our attention: the tallest tree or largest mountain, the brightest colored car or painted building. By doing this as we survey our surroundings, we locate ourselves in space via a neurological coding mechanism, which Michael L. Fox discusses in his essay, *Land Mark Making*. Understanding these innate functions is helpful as we aim to identify what our neurological process does naturally, compared to its capacities in the desert. Fox explains to readers how this process is carried out when we code one or more of the following four kinds of information.

The first, and most easily grasped is clue learning. This occurs when we see and remember where one object is in reference to another. Think about how we are inclined to put our keys in the same spot, likely on a hook by the door. When we leave the house, it becomes second nature to stop and pick them up before we step out the door. The second, known as place learning, arises when memorizing the distance and direction of landmarks within our surroundings. A common example might be the length of time it takes to drive from your house to the neighborhood grocery store. Both of these locational techniques are external reference systems, while the next and final two are, “driven by internal, viewer-oriented means.” With response learning, we retain

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sequences of motor movements. This transpires when we wake in the middle of the night to use the bathroom. It’s a jaunt we’ve learned to do with groggy eyes and in the dark, since we know just how many steps and turns to make in order to get there and back. Fox declares the fourth navigational tool to be the most powerful, what he calls dead reckoning: “…we code where we are as we move in reference to the distance and direction of landmarks, constantly updating the information. It is a workable system in most environments.”

The landscape gives us the opportunity to examine how our eyes attempt to cope with and make sense of a wide, diverse panorama. When we combine what we know about the eye’s visual process with the methodology behind Fox’s internal and external reference system and apply them both in context to the visuals we experience on the desert playa, we find that we have trouble seeing where objects are in relation to one another, and how we connect with and scale ourselves against them. The desert is a place where our eyes have trouble getting a grip, and it’s easy to become visually disoriented when there are so few landmarks in the observational field. This kind of visual dissonance occurs when the eye sees features that are completely out of alignment with its perceptual expectations and internal locating systems. This is a concept we might refer to as visual expectancy, and it is related to our subconscious reliance on the surrounding environment being normal or easily navigable both visually and physically. In the desert, this can happen for a number of reasons.

When we type desert into the image tab of any search engine, we see quite plainly that there are no great disparities in color gradient, and minimal to no visible landmarks in the observational field. This is a place where our eyes have difficulty picking up on any discernable reference markers or shapes from the site, aside from the silhouettes of distant mountains. The

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desert horizon encircles and overwhelms, unobstructed and unbroken as in other habitats, like rolling country sides and forest lands.⁵³ There is very little to nothing in the middle and foreground to scale ourselves against, as the environment works against all perceptual adaptations our brains have learned over millennia. Think about the Pacific Northwest, the Everglades, or even mid-Atlantic Appalachia, these are areas where we find visual comfort in the greenery. Now think of the absence of each, and you will begin to understand and relate to desert dissonance.

It’s been established that the Western terrain, like most arid climates globally, exhibit neutral shades of tan, sand, and clay. In any landscape, we naturally expect an amount of contrast and variance, which is what designates our ability to see scale, form, and shape with ease. We’re also used to a certain amount of moisture in the air so that light scatters and falls in predictable ways – yet humidity in these areas is so scarce that, “a color shift in the air may not occur within twenty miles, much less the two or three to which we’re accustomed in more temperate places.”⁵⁴ The intensity of luminescent sunlight washes out the color incongruencies in the desert, which then makes it difficult for our eyes to see with strong visual acuity to make any rapid visual connections when looking at the landscape. Even vegetation in North America’s four deserts – the Great Basin, the Mojave, the Sonoran, and the Chihuahuan – does not remotely resemble our familiar shades of deep browns and dynamic greens. Instead, they sprout muted browns and silver-grays. Without tall markers in space –trees, buildings, and other landmarks, that throw shade and grab our attention – we can easily lose track of time. And because there are no locating devices to help us calibrate our sense of scale, even our motor movements on the playa are skewed. All of these considerations

make it impossible to walk a straight line.\textsuperscript{55} In extreme cases we may even walk so far right that we eventually complete a large circle.\textsuperscript{56}

\textit{Sun Tunnels} is located in the Great Basin Desert, one of the four major deserts in the United States. Its environmental siblings include the Mojave, Sonoran, and Chihuahuan Deserts. The Great Basin Desert differentiates itself as the northernmost, highest, and coldest desert in the United States. In the scorching summer months temperatures climb well above 100°F, while winters are equally harsh as the climate dips below freezing, allowing for seasonal snowfall. Although the climate is variable for a desert, the Great Basin Desert possesses all the qualities that create and perpetuate visual dissonance: high luminescence, little color and/or texture contrast, and few landmarks for scale. A prime example of what Michael Fox might call a \textit{void}.\textsuperscript{57} After her first trip to the American West in 1968, Holt felt an immediate connection with the inexhaustible vastness of the land. She was attracted to the way the desert makes a person feel like a small cog in a great, overarching system: the universe as displayed by landscape and light.\textsuperscript{58} The Great Basin is no exception. The panoramic view of the sculpture’s surroundings – Lucin to the North, Rhyolite Butte, Bald Eagle Mountain and Pilot Range to the West, Graham and Cobb Peak to the South, Desert Peak to the East, and beyond it the Great Salt Lake – is enough to make a traveler want to move on from sensory overload due to the lack of color variance, visual markers, and the high

\textsuperscript{55} We tend to unconsciously walk clockwise and to the right, due to the fact that we keep our right hand nearer to the object that holds our attention.


\textsuperscript{58} Per the name of William L. Fox’s book: \textit{The Void, the Grid & the Sign: Traversing the Great Basin}.

\textsuperscript{58} James Meyer. \textit{Nancy Holt: Sightlines}. Berkeley, CA. University of California Press, 2011. Page 231. “I was there alone in the desert a lot, sometimes camping for five or six days in my VW camper van. After a while I was struck by the awareness of being an individual in the vastness of space. One reason I’m interested in building human-scale sculpture, rather than huge monolithic monuments, is that when you’re in the desert alone you just feel so small and already overwhelmed by the universe in landscape and the light.”
levels of luminescence (Figure 7). The landscape is too overwhelming to take in without the help of visual reference points that are incorporated into the work.\textsuperscript{59}

All things considered, most have the tendency to move quickly through these voids. The majority find the desert to be an uncomfortable place, both visually and physically, with little safety in, or connection to the surroundings. Yet, if these conditions are approached from an alternative mindset, viewers can choose to isolate their vision and break it down bit by bit, pushing through the tan-colored dissonance to examine each peak and valley individually. In \textit{The Void, The Grid, & The Sign} Fox considers this mental and perceptual shift:

Our vision penetrates the empty space, and our eyes attempt to focus, an automatic and uncontrollable reaction of the nervous system that is doomed to failure, there being nothing our binocular eyes can coordinate upon in space. All of this takes a few seconds before either we begin to move away from what has become an unsettling experience, or we settle down to see what happens.\textsuperscript{60}

Deserts are transformative spaces after all, and we can learn to alter our eyes despite our discomfort. On the playa, the human body becomes more flexible to its other senses. When our eyes are strained under desert dissonance, our other senses hold the reigns tighter to compensate. We look at the world in a different manner while also experiencing a deeper way of relating to it. Seeing is crucial to locating ourselves, but relating to the land calls for a physical connection with it. The results generate a dramatic increase of our haptic earth-body perception, as the mind expands to fill the space around us.\textsuperscript{61}

The next question that comes to mind is, what do we utilize to cut through this desert dissonance and cultivate an earth-body connection? And, what has Holt incorporated into \textit{Sun

Tunnels – that which is also variably woven into her other work – to create this kind of corporeal experience? The unpacked answer is, perceptual viewing devices – in Holt’s case, enframement and sightlines. The first portion of this chapter introduced how the human eye functions in desert landscapes, and the next step is to apply this knowledge to art historical thought on visual perception and the optical experience, and the role it plays in Sun Tunnels.

The kinesthetic response to postmodern art objects intensified in light of Minimalist artwork. In April 1969, Artforum published the fourth installment of a series of essays written by Robert Morris titled, Notes on Sculpture, Part 4: Beyond Objects. In this writing he discussed the apparent obsolescence of painting as a medium and explores Minimalism and the way in which relational ties to the human body entered the continuum of sculpture of that period. As Land Art is admittedly a close relative to many Minimalist objects, it’s appropriate to present the portion of his observations that regard sculpture that is situated in this new visual field. In the late sixties Morris recognized that much of the new art that was created over that decade seemed to take in the considerations of the visual field itself, using it as a structural basis for the art. He speaks of a concept of art that is allied with the visual field, which in turn ignites a change in the figure-ground relationship, evoking a bodily relation to the work. The article’s related image choices include work by Carl Andre, Robert Smithson, Rafael Ferrer, and Richard Serra. He writes, “…most of the new work under discussion is still a spread of substances or things that is clearly marked off from the rest of the environment, and there is not any confusion about where the work stops … in this sense it is separate from the environment.”

Morris felt that what was important about art in the 1960s was the necessity of reconstituting the object as art, and object art demands the preconception and consideration of a whole image or visual field it exists within. To open an artwork to include the nature of its surroundings is to bring about a different, more active mode of

viewing, perception, and bodily relation. At this juncture we are just steps away from the artistic thought that informs perceptual Land Artists, which includes Morris himself.

According to Oxford English Dictionary, perception can be defined as, “the process of becoming aware of physical objects, phenomena, etc., through the senses.” Its Latin root, percipere, translates figuratively, “to grasp with the mind,” and also, “to see, recognize, understand.” Perception takes the act of viewing a step further, by way of the observer’s comprehension of what they’re seeing, and why it is important. There exists a vast intimacy in perception as it restores the object [the viewing observer] to a bodily experience connected to and within the visual field. In Holt’s case, the landscape and the interplay of solar cyclical patterns. In *Phenomenology of Perception*, philosopher Maurice Merleau-Ponty explores what he calls the ‘mediation of bodily experience,’ which delineates how perception allows us to determine the significance of an object [or event] in the landscape. It’s important to identify that perception is a branch of vision that exists in the realm of consciousness and requires active awareness on the part of a viewing observer. With consideration for forthcoming discussions on historical perception, it’s also helpful to clarify the distinction in semantics between an observer and a spectator. In *Techniques of the Observer* Jonathan Crary highlights how, “…unlike spectare, the Latin root for ‘spectator,’ the root for ‘observe’ does not literally mean ‘to look at.’” He points out that the term spectator carries a connotation of an individual who is a passive onlooker of a spectacle. On the flip side, when considering the term observe, which means “to watch or examine, perceive, and make observations,” one might infer that an observer is actively seeing and understanding what is

being presented.\textsuperscript{67} Thus, from this point forward, this discourse will engage with a viewer of art, landscape, and natural cycles that is \textit{an active observer} of their surroundings.

Art is a specific form of visual communication. It uses and internalizes perception as its communicative medium.\textsuperscript{68} As mentioned, all perception is evaluated in relation to the human body, it’s how we view and conceptually break down scale and form in the landscape. Physical orientation and bodily perception is what gives us orientation in space and knowledge of the world around us.\textsuperscript{69} With this in mind, it is the earth and the landscape that are the origins for understanding higher levels of connectivity to place, to nature and its cycles. The land is the original standpoint, it is the basis from which we experience natural phenomena. Land Art sculptures and other works in nature intensify, even reveal, what is already happening in that landscape, which may have [or likely] escaped our notice.\textsuperscript{70} In some sense, these structures act as a tool to organize the visual field, and function as an intermediary into the larger framework of its surroundings. Amanda Boetzkes in \textit{The Ethics of Earth Art}, writes, “early earthworks demonstrate two essential aspects of perception as explained by phenomenology: first, a visual field is informed by the bodily sensation of being surrounded in space, and second, one is equally constituted within that visual field from other perspectives that inform one’s own perceptual experience.”\textsuperscript{71} In laymen’s terms, the artwork functions to an extent to make the viewing observer a part of the whole. This \textit{whole} Boetzkes references may indeed vary from artist to artist. But in the case of Nancy Holt’s work, and specifically \textit{Sun Tunnels}, that \textit{whole} the artwork seeks to connect an active viewer to is the entirety of the system that operates around and within the sculpture. This system comprises of the transient conditions of nature: the daily and seasonal cycles that are tied to the

\textsuperscript{69} Amanda Boetzkes. \textit{The Ethics of Earth Art}. Minneapolis, MN. University of Minnesota Press, 2010. Page 1-240.
movement of the sun, the change in light, weather, sound and smell, and the geological and cultural history of the landscape. She succeeds in conveying this kind of universal oneness through the incorporation of perceptual viewpoints into the sculpture, namely enframement and sightlines.

Viewing devices in Land Art sculpture provide an active viewer with observational cues that guide the eye to engage with predetermined sections of the landscape, horizon, and sky, thus transforming an individual’s relationship with the visual field. The eye is responsive to what is placed within its purview and, as we have determined, it is easily overwhelmed by the conditions of the desert. By paring down and framing areas of the horizon, the eye can exercise its energy on a smaller parcel of observable features, taking them in with greater depth and detail. The visual device described is enframement, and without it there is undoubtedly an uncomfortable overflow of the senses. When used effectively, it obstructs or demarcates portions of the visual field, allowing the viewer to retract into the observable space and open their senses to the entirety of the vista presented. The visual devices in Sun Tunnels, and in many other presentations of Holt’s work [and there are many], exist to be looked through. They create formal limits, that can be seen from many standpoints, and succeed in creating a designated space for natural phenomena to enter and become visible. Enframement is by no means a new or revolutionary concept, and we can see its implementation throughout recorded history. For centuries seafaring navigators made use of collapsible telescopes to search horizon lines for land or approaching vessels. Its modern cousin, binoculars, have become an essential travel companion for avid explorers and hikers. Both place formal limits on observable space, framing and magnifying simultaneously. When it comes to art production, we might also conjure up the image of a photographer framing a shot through their handheld camera. These are by no means off base, because conceptually the sculpture ascribes to a

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certain photographic logic. While *Sun Tunnels* and related works, including *Missoula Locators, Roden Crater*, and *Star Axis*, do not employ a lenticular apparatus, they nonetheless frame the visual field in a manner that is akin to a camera.\(^73\)

In addition to creating Land Art, Nancy Holt was a successful photographer and videographer. She was behind the camera, both physically and conceptually, for most of the films that pair with her own as well as Robert Smithson’s work. This includes *Pine Barrens, NJ, Spiral Jetty, Sun Tunnels, Mono Lake* etc. It’s interesting to notice how much of her art deals with enframing that is shaped in the round. Sculptures like *Views through a Sand Dune* (1972) to *Up and Under* (1987-98) are evidence of a continuous thread of intention that is marked by rounded features and enframed views through the decades of her active career. *Sun Tunnels*, likely her most iconic work, allows the viewer to experience instances of enframing within the sculpture and at a variable distance. Each culvert lies at precisely calculated positions facing the northern, southern, eastern, and western horizons and, when sat inside the entirety of the landscape’s field of vision is cut down and condensed into the rounded opening of the cement tunnel.

Holt’s use of sightlines works alongside and even within her deployment of enframing. A sightline is a straight line extending from the eye of a spectator to an object or area being watched.\(^74\) It creates a visual axis, which is more than likely an invisible line that the observer imagines running through their visual field. This reflects the concept of pareidolia, in which we visually construct random patterns from unsystematic dots in space in an attempt to simulate visual order, familiarity, and safety. But this connection in particular is less random in that it brings a viewer’s foveal vision to rest on an intended subject. Today, sightlines are incorporated into much of the design elements of our societal infrastructure, through the planning and construction of


theatres, stadiums, road junctions as well as urban planning. For example, historic cities worldwide, including London and Paris, observe regulations that limit the height and position of newly constructed buildings, so that they do not obstruct existing sightlines and historic landmarks.\textsuperscript{75} The ability to see and connect with marked objects or events in space – from viewing a performer on stage at a concert, to merging vehicles on the highway – is a necessary aspect of how we, as humans visually and physically navigate our world.

What is key in all sightlines, historical or modern, is the necessity for a retracted and non-variable vantage point for the viewing to take place. In nature this vantage can be identified by anything from a sign, a standing stone, or even a large structure or tower that marks the place to stand and observe natural phenomena. Luce Irigaray notes that it is this retracted mode of being and seeing that leads to an opening of the senses, and ultimately of awareness.\textsuperscript{76} Holt was able to create this kind of consciousness and recognition in \textit{Sun Tunnels} by creating many sightlines from which to observe the movements of landscape and sky. At the center of the complex lies a standing stone – a place representative of an axis mundi or center of a compass rose (\textit{Figure 8}). Standing from this point, the viewer can align themselves with one of each of the four tunnels, which face the horizon line and frame the exact point that the sun rises and sets on the summer and winter solstices. Sightlines also appear through each of the enframed rounds – in the openings at each end of each culvert, as well as the constellation holes that mark the concrete sides of the tunnels.

These enframements and sightlines are visual devices that allow an observer to forge a sense of intimacy with the connection and alignment of the earth’s natural cycles. At \textit{Sun Tunnels}, when one sits within the tubes of enframement and takes in the partially obstructed, and at times retracted views, the intimacy of land, light, and rhythmic cycles reveals itself. When the viewer

gathers back in this way, connections between the body and its surroundings are made visible, and
the true sublimity of nature unfolds. While these tools are in common use in established ocular
modalities to this day, it’s instructive to trace their lineage back to structures that look and operate
in a similar manner as Sun Tunnels. This requires looking back hundreds, even thousands of years,
of our—when civilizations lay standing stones, erected stone circles, and built astronomically
aligned great houses so that they might look at the landscape and sky and make similar, if not the
same, observations we do at Sun Tunnels today.

…
Chapter Two

“The study of landscape history contributes its share to the new approach by reminding us, among other things, that since the beginning of history humanity has modified and scarred the environment to convey some message, and that for our own peace of mind we should learn to differentiate among those wounds inflicted by greed and destructive fury, those which serve to keep us alive, and those which are inspired by a love of order and beauty, in obedience to some divine law.”

-JB Jackson

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When we look at the landscape through large scale site-specific sculpture, we are able to visually and mentally grasp aspects of the earth that lie outside of ourselves. With Sun Tunnels, the effects are heightened through the incorporation of reductive viewing devices – enframement and sightlines – that use optical deprivation to isolate specific areas of the desert landscape and sky for observational purposes. In this way, the land puts earth and the celestial rhythms that circumambulate it on display. Though we may be seeing a particular section of a particular terrain, the intimacy of the aesthetic experience brought forth by the artist intensifies what is already happening in that landscape. This is what further connects us to a larger totality, and we are able to locate ourselves within the greater framework as a result. Yet the persisting question remains: how did land artists do this? Even more specifically, how does Nancy Holt achieve this with Sun Tunnels?

In the late sixties, Robert Smithson, Nancy Holt, and gallerist Virginia Dwan were traveling around New York, New Jersey, and down into Virginia in an effort to locate parcels of land that Smithson could create art on. After preliminary searches proved unsuccessful, Smithson and Dwan were inspired to present an earth art show in New York City, dubbed Earthworks, which opened in
October 1968. The artists involved include Carl Andre, Herbert Bayer, Walter De Maria, Michael Heizer, Stephen Kaltenbach, Sol LeWitt, Robert Morris, Claes Oldenberg, Dennis Oppenheim, and Smithson. Among these artists, Andre, Bayer, Kaltenbach, LeWitt, and Oldenberg are generally not considered Land Artists, however, the natural materials used in the works they presented do relate to Land Art. Smithson, one of the earliest and most vocal proponents of the art form, presented a few of his non-sites, while Robert Morris worked with a pile of dirt and building materials gathered from the construction site of Dwan’s forthcoming Fifty-Seventh Street gallery, and Michael Heizer contributed a set of large transparencies of work he’d already completed in the landscape. For the most part, these works were the small-scale younger siblings to the larger land-based sculptures that would come to fruition in the years to follow, yet we can recognize this event as the initiation of the Land Art movement (Figure 7 & 8).

Critical comparison of earthworks to ancient sites and monuments grew alongside Land Art’s development. In November 1968, shortly after the opening of Earthworks, art critic Peter Hutchinson reacted to the show in a write up that was published in Arts Magazine. In it he made one of the first connections between Land Art and ancient sites:

Artists today are turning in this direction, taking their cues from meteoric craters and volcanic pits as well as dams, burial mounds, aqueducts, fortifications and moats, to build works that change the surface of the earth . . . Others bring to mind Indian burial mounds or those vast earth workings in Illinois and in South America, which are best seen from the air, and which some people think are of prehistoric or perhaps extraterrestrial civilizations.

Although his connection of ancient sites to extraterrestrial beings is highly improbable, this passage serves to exhibit that Hutchinson recognized the similarities that existed between the works on view at that time and ancient archaeological sites around the globe. In her thesis entitled *Land Art: Layers of Memory*, Iris Amizlev highlights Hutchinson’s comment, specifically the way in which artists were creating, “works that change the surface of the earth,” calling importance to the meaningful condition their very presence had on their surroundings, as Land Art effectively transforms the environmental landscape in which they are placed.80

The second major group show, *Earth Art*, took place just a few months later at the Andrew Dickson White Museum of Art [presently the Herbert F. Johnson Museum of Art at Cornell University] in February 1969. In the wake of these two exhibitions, additional writings appeared that drew even more connections between post-minimal art and the ancient sites that long preceded them. This school of thought has become such a customary association discussed when writing about Land Art that while a critic or scholar may be addressing alternative aspects of the art historical movement, the relationship is still frequently, if not always, mentioned in passing. Some critics are so taken with the topic that entire books have been dedicated to further conceptualizing it.81 Many shorter, but nonetheless analytical, articles have also been written.82 Many of these early connections helped spark and concretize Land Art’s anthropological association.

Academic considerations often focus on the more formal qualities of the relationship, noting similarities in the use of outdoor placement, material, size, shape, aerial perspective, etc. Amizlev ventures to conjecture that often times they, “are not specific about how landworks and

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ancient sites resemble one another, making their claims but leaving readers guessing about what [specific] aspects they are referring to. This chapter seeks to unravel the how by expounding upon the ways in which Sun Tunnels in particular resembles and makes a model of ancient sites. This section views landscape and Land Art in categories of the past by first charting the paths of human engagement with the earth, introducing the study of archaeoastronomy and acknowledging its parallel engagement with the 20th century Land Art movement. Considerations are made into the role and function of astronomically aligned structures, detailing the calendrical methods used to log the passage of time in prehistoric cultures in order to identify their overall societal importance. Previously discussed instruments of visual observation – enframingment and sightlines – are reintroduced alongside examples of prehistoric observatories and other astronomically aligned structures [placing particular focus on those that are located in climates similar to Holt’s Sun Tunnels], acknowledging their methods of visual and cultural utility. Finally, comparisons between these sites are made against Sun Tunnels to highlight the connections and disconnects between the two forms, considering Holt’s own relationship with monumental observatories and the personal effect she felt it had on her art. In its entirety, Chapter 2 weaves together the history, function, and visual processes behind prehistoric observatories and other astronomically aligned structures, ultimately drawing concrete lines of relation to Sun Tunnels and the threads of thought enveloping the Land Art movement.

Thus far, this thesis has examined the unique qualities and visibility of geologic and human history in the naked Western landscape. This terrain is genuinely singular and has shaped the reception of Land Art sculpture of the 20th century, especially works like Sun Tunnels. As

discussed, the space that we occupy and build upon says a lot about our culture and where we fit into the greater environmental order. The ways in which cultures have chosen to look at and engage with their surroundings is information about how that society perceived their own bond to the landscape they lived in. In thinking about these commonalities in ancient sites and Land Art sculpture, William L. Fox writes:

As such, they mark the meeting of mind and land, the body a complicit intermediary between and of the two. Every trace of every human act made in and on the land is an embodiment of how the two interact….Every trace has the capacity to be a symbol for a larger experience, a larger meaning. It is not just that humans embody ideas, but that the land embodies itself in us, and we are always speaking it. We are reminded that there are no degrees of separation.84

Though earth marking is a far-reaching cultural commonality, perception of the land and the ways in which we respond to it is, in broad strokes, evocative of our placement in history. To draw upon Bence Nanay’s studies and writing in *The History of Vision*, human visual perception toward art and our surroundings has changed over time, and moreover the, “visual experience [has] change[d] in various ways in the course of history.”85 This concept is relevant to unpack in order to understand how the ways we perceive the landscape today or, over the last century when sculptures like *Sun Tunnels* were erected, has changed when compared to cultures of pre-contact and ancient history. One might say that modernity has aided in the development of a divide between humans and nature on a very basic level. We now look inward instead of outward. We no longer look to the sky to keep time of daily, seasonal, and yearly passage. Neither do we travel by the stars or punctuate our lives by the daily rhythms of the rising and setting of the sun. The ways humans have understood and perceived artwork and man-made observational structures, including those like the great houses at Chaco Canyon, Teotihuacán, the Nazca Lines in Peru, or even Stonehenge

has changed considerably. Bence Nanay refers to this concept as the history of vision, an idea that is a necessary independent precursor to art history and runs parallel to other academic studies including anthropology and sociology. Walter Benjamin explicitly states, “…during long periods of history, the mode of human sense perception changes with humanity’s entire mode of existence. The manner in which human sense perception is organized, the medium in which it is accomplished, is determined not only by nature but by historical circumstances as well.”

The way we physically see the world, as described in Chapter One, has not changed, yet the way we perceive it has. One might say that the 20th century marked the inauguration of the long-time developing divide from the past. That the new world order operates in an entirely different mode of existence from civilizations of the ancient world: technologically, religiously, economically, politically, and artistically. This is a particular consideration that creates an interesting facet to the discussion that Nancy Holt creates a historic reconstruction of vision through Sun Tunnels.

In his writing, Nanay goes on to quote literary critic Frederic Jameson, who argues that postmodernism offers, “a whole new Utopian realm of the senses.” The premise of this view, though indeed a general blanket statement, can serve to elucidate that Sun Tunnels – along with other examples of postmodern Land Art – are understood, wholly or even partially, through the history of perception. More specifically, in putting land and sky on display via architectural Land Art, Holt presents historic perception i.e. a historic reconstruction of vision.

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Architecture may be the oldest, and most formal, construct of landscape. Celestially aligned architecture tells us definitively that ancient peoples have watched the skies accurately and

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systematically for millennia. In the mid-20th century two studies – archaeology and astronomy – were united under the premise of formally researching the astronomic roots of pre-historic artifacts and architecture. Known as archaeoastronomy in the US and astroarchaeology in the UK, the term[s] was coined by Gerald Hawkins in 1966 to, “encompass the study of the astronomic principles employed in ancient works of architecture and the elaboration of the methodology for the retrieval and quantitative analysis of astronomical alignment data.”

Hawkins is known for his analysis of Stonehenge, with which he became the first to definitively propose that the site was not just a place of ceremonial worship, but an astronomic observatory (Figure 16). First mention of this argument was made in 1740 by antiquarian William Stukeley, who pioneered the investigation of stone circles like Britain’s Stonehenge and Avebury. His preliminary studies revealed Stonehenge’s alignment during the summer solstice sunrise. In 1963 Hawkins published his observations in the British scientific journal Nature. Here, he presented newly generated computer analyses of midsummer sunrises and moonrises from ca. 1500 CE, proposing that together the stones must have served as an astronomic observatory capable of predicting other celestial events, including eclipses.

Hawkins was by no means the only active player on the field of archaeoastronomy. Scottish engineer Alexander Thom is known for his own theory on the megalithic yard, a standardized unit of measurement of approximately 2.72 feet that he believed was used in the construction of megalithic structures. He published his proposition in A Statistical Examination of Megalithic Sites.
in Britain in 1955, which was based off of hundreds of surveys of megalithic sites in England, Scotland, Whales, and Brittany. After retiring from academia in 1961 he devoted his time to site research that would go on to lay foundations for the discipline of archaeoastronomy. During that time, he solidified his research in the categorization of stone circles’ morphological types that include: eggs, ovals, true circles, flattened circles, etc. He made projections on the division of the megalithic solar year and the congruencies between these events – vernal equinox, summer solstice, autumnal equinox, and winter solstice – and alignments observed at various stone circles and megalithic complexes. He relayed these findings, among others, in some of his most notable books: *Megalithic Sites in Britain* (1967), *Megalithic Lunar Observatories* (1971), and *Megalithic Remains in Britain and Brittany* (1978).  

Archaeoastronomy is, as Lucy Lippard states, a “mongrel science,” as it involves the skill set of astronomers, anthropologists, archaeologists, physicists, photographers, engineers, comparative mythologists, and artists collectively. It’s interesting, and not at all a coincidence, that many of these revelations and connections were brought to light shortly before and during the height of the Land Art movement. It’s clear that at this time there was a larger cultural interest in uncovering the deeply rooted astronomic connections that exist at well-known sites and complexes across the globe. Thus, it can be inferred that contributions by Hawkins, White, Thom, Ruggles, etc. offered a new way for scholars, artists, and the public to explore ancient native practices of skywatching, which in turn had a clear effect on the creative output of artists like Holt, Smithson, Heizer, Ross, etc. who had relocated their artistic practice to the landscape. While connections can be drawn between *Sun Tunnels* and widely revered ancient sites including Stonehenge and Newgrange, Avebury Henge, etc., it’s more significant to shift emphasis to complexes built by

cultures thriving in desert communities in the United States and North America. These sites are strong examples in that they align with the same visuality that *Sun Tunnels* presents. Stonehenge and monuments like it, were part of the cultural zeitgeist of the 1960s and 1970s, and they serve as examples of a larger pattern.

... Archaeoastronomical sites and objects forge connections between the earthbound body and celestial events that occur against the landscape. But, what kind of structures or artifacts ascribe to these principles? What qualities do they possess, and what do they do?

Scholars have inferred that astronomic thought and positional understanding of the cosmos was present long before celestially aligned sites like Pueblo Bonito, Teotihuacán, and Chichén Itzá were built. The heavens touched nearly every aspect of early civilization and their habitual practices: myth, religion, hydrology, agriculture, astronomy, etc., and the development of non-migrant agrarian communities promoted a sedentary life that simultaneously afforded the opportunity to observe and develop concepts around the nature of the universe and landscape. Artifacts created under these circumstances were woven tightly into the fabric of social order, as historians conjecture that more refined methods of time reckoning developed in alignment with these agrarian societies.

The awareness of time brings about a fundamental human need to organize it. Early celestial calendars were used to dictate seasonal benchmarks important to sustaining society – most likely designating when to plant crops, when rivers overflow, the marking of monsoon seasons, harvest, and important days of celebration and festivities. Due to the nature of their function,

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calendars and other time keeping devices carried intrinsic religious, economic, and political power. They upheld a symbolic power that sustained society, punctuating daily, seasonal, and yearly life, while also providing a sense of renewal. This sentiment aligns with the calendars kept today, given the ways in which they help annotate and organize any and every aspect of daily life.

The oldest known calendar-like devices that record the passage of time are found on hand-held bones and antlers carved by Upper Paleolithic Ice Age peoples some 20,000-30,000 years ago. At this time, engravings were commonly made on small, portable objects such as stone and pieces of bone. According to archaeologist Clive Ruggles, thousands of examples are known, yet few specimens have been proven to feature carvings relative to celestial cycles. Paleolithic archaeologist and American scholar Alexander Marshak subjected many of these to microscopic analysis, concluding with near certainty that the seemingly random or decorative groupings of notches on select bone or stone samples can be interpreted as an intentionally designed notation system, or lunar calendars that mark the passage of time.

The most famous portable calendrical object from Marshack’s research is the Abri Blanchard Bone, found in the Dordogne Valley, France and dated to ca. 30,000 BCE. Carved from an eagle’s wing, the notched markings are arranged in a winding serpentine pattern that displays sixty-nine distinct pits engraved into one side of the bone that curve back and forth in five turns. The Abri Blanchard Bone remains one of the earliest indications of a symbolic notation representative of an astronomic cycle (Figure 18 & 19). Similar artifacts exist in the archaeological record, including the Täi plaque, which has been interpreted as a more sophisticated version of a

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notched lunar calendar (*Figure 20*). Another yet, the Ishango Bone, which was discovered by Jean de Heinzelin in 1962 (*Figure 21*).

A more recent example of this kind of time keeping device that also acts as a bridge between ancient calendrical notation and contemporary observational Land Art is located in the deserts of Chaco Canyon, New Mexico. In 1977, while acting as a volunteer recording rock art in the park, artist Anna Sofaer came upon a petroglyph and rock formation along a southeastern facing cliff of Fajada Butte that has since been named Sun Dagger (*Figure 22 & 23*). In ca. 950-1150 CE indigenous Ancestral Puebloans pecked the image of a spiral into the cliff wall, a geoglyph and rock arrangement that uses light cast from the noonday sun to mark the solstice and equinoxes. At the site, three stone slabs were intentionally laid against the cliff face to direct light against the spiral shaped petroglyph. Light that filters in through the rocks create a vertical dagger-like shape, which aligns with the spiral at different connection points. For example, at noon on the summer solstice, the sunlight line intersects the center of the spiral. Mirrored connections on either edge of the spiral occur during the vernal and autumnal equinoxes.

The early manifestations of small and sometimes portable time keeping devices, like the Abri Blanchard Bone and Sun Dagger, established recognition of the societal tendency to survey the surrounding world in order to mark and record celestial events that annotate the passage of time. The integration of this shared impulse’s importance on the culture’s everyday life is evident in large observational complexes and stone arrangements that exist all over the world. These celestially aligned sites include natural alignments like those found at Wijiji House Complex, Chimney Rock, as well as larger architectural structures like Taotihuacán and El Caracol at

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98 Note: it is very rare for calendrical markers to use the noonday sun verses the rising or setting sun.

Before exploring the observational structures that early time-keeping tendencies grew into, it becomes important to ask, what is an observatory? What do they do? What is being watched? And, why are they important? The word observatory is derived from the English observe, which itself is rooted in the Latin *observare*. To observe is to notice or perceive something’s significance, and register it as being so. An observatory is a place or building where the observing takes place, and it is equipped with and used for making observations of astronomical, meteorological, or other natural phenomena. In the modern sense, observatories command a wide view while using specialized tools to scientifically observe the landscape, sky, planets, and stars. When we think of a modern observatory, our mind might default to Los Angeles’ Griffith Observatory, or perhaps more well known, the Mauna Kea Observatory in Hawaii. Each of these observatories contain a vast amount of technology and instruments that allow modern-day astronomers to peer into the far reaches of space. As their distant relatives, archaeoastronomic observatories are less concerned with measuring the movement of celestial bodies, and more about providing fixed points of observation to contemplate the natural passage of time within the visual field and its reflection in the cyclical rhythms of nature. The first observatories, which are sometimes referred to as “proto-observatories” – “proto-” meaning original or first – descend from small objects or inscriptions like the Abri Blanchard Bone or Sun Dagger. When past cultures created observational buildings and structures, they intended to raise markers that create fixed position[s] to observe the interchange of sky and land. In this way, these structures create an indivisible relationship between a human and the celestial cycles that punctuate time, bringing us closer to the nature of our surroundings. Most, if not all observatories are aligned to major celestial events that annotate
cultural life. The summer and winter solstice, when days are at their longest and shortest, are favored alignments, along with the vernal and autumnal equinoxes. These are alignments that could be considered universally recognized across cultures, however each society observes the sky differently and may establish observational centers that are unique to their own daily life, the seasonal tasks and celebratory rituals they observe. The Mayan culture, for instance, erected a fair number of these observatories with alignments to the planet Venus. While researchers and scientists are not clear on the reasoning for this alignment’s importance, they are able to recognize it as so.

When we observe the landscape, we notice just how much vision is tied to the physical negotiation of sites and locations. Observatories function to enhance what is already happening in any given landscape in nature – enhancing the interchange of seasons, light, shadow, etc. They demand physical presence, as one may never wholly penetrate internal perceptual awareness without first experiencing the external observation that an observatory facilitates. Standing stones, buildings, doorways, and windows serve as visual tools to establish an enframed line of sight for the skywatcher to stand and observe events that take place on the horizon line or in the sky. This kind of experiential instrument gives an individual an understanding of themselves and what they are observing in the broader context, and a sense of place within the system. Through this, the sensation of understanding becomes an aesthetic experience dependent on the viewing observers’ surroundings.

Observatories of this kind are site-specific at their very essence. It’s important to place a brief emphasis on the site-specific nature of archaeoastronomical sites, for their alignments render them unable to be moved from the exact coordinates of their intended placement, lest their function

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100 Alignments to Venus can be found in the Palace of the Governor at Uxmal and in the Caracol of Chichén Itzá. See Figure 24.
be rendered void. In today’s art world, Miwon Kwon finds that the term *site-specific* has been, “applied rather indiscriminately to artworks, museum exhibitions, public art projects, city arts festivals, architectural installations,” etc.\(^1\) Yet the historical and theoretical grounds for site-specificity lies in the monuments that give themselves up to their environmental context, to the land and sky abounds. Structures that draw their significance from their surroundings. Thus, the true significance of these sites and complexes may not be in their immense age, but in the perceptual weight of their site-specific nature and observational modalities.

We perceive the world with greater clarity when our eyes are guided by visual devices. Archaeoastronomic observatories may not employ the kind of state-of-the-art technology that can be found in 20th and 21st century observatories, however they do utilize instruments for landscape and celestial observation that were integrated into their structure and contribute significantly to the overall observational experience. Viewing devices deployed in ancient, pre-contact observatories and Land Art sculpture alike are important because they provide an active viewer with observational cues that in turn guide the eye to engage with predetermined sections of the land, horizon, and sky, thus transforming an individual’s relationship with whatever lies within the visual field. The optical devices presented here – enframement and sightlines – were first introduced in Chapter One.

The eyes of an observing viewer – from ancient to present day – are responsive to whatever is placed within their visual field. The details of a landscape, or lack thereof, often overwhelms to an extent that the eye cannot retain or process important topographical or celestial details. Enframement acts to mitigate this disadvantage. This device uses sections of the structure to visually cordon off complete parcels of the landscape so that the eye zeros in on the area that will

contain the celestial event. In an archaeoastronomic structure or Land Art sculpture, this can manifest anywhere from the placement of a standing stone to the frame of a window. When engaging with the enframement, the viewer is able to retract into the observable space, open their senses and deeply connect with the entirety of the vista presented, bringing about the haptic earth-body awareness discussed in the previous section.

Many archaeological sites at Chaco Canyon, NM provide examples of astrological alignments that utilize enframement. Located between Farmington and Albuquerque, the remote canyon was cut into the earth by the nearby Chaco Wash, where it now lies within the San Juan Basin atop the Colorado Plateau (Figure 10). The park hosts an exceptional concentration of preserved pre-Colombian complexes and ancient ruins built and maintained by a long line of indigenous native cultures, more specifically and most recently the Hopi and Navajo tribes. These immense complexes and structures include Pueblo Bonito, Chetro Ketl, Casa Rinconada, among others (Figure 11, 12 & 13). Chaco Canyon is home to approximately 4,000 prehistoric and historic archaeological sites – which includes the sixteen great house complexes like Pueblo Bonito – that are representative of nearly 10,000 years of human cultural history in Chaco Canyon.

The density of Chacoan sites with astronomical alignments is evidence that the complexities of ancient astronomy and astronomic systems were diligently followed and tracked here by priest astronomers known as skywatchers. We cannot know for certain if skywatcher was a universal term woven into societal languages the world over, however today this phrase has been adopted by modern archaeoastronomers to describe an order of skilled observers who contemplated the day and night skies. We know of their existence and importance, not only from rare ancient codices and texts originating from Mayan and Pre-Columbian cultures, but from the presence of

102 The park is also the site for Sun Dagger, which was uncovered by Anna Sofiaer and discussed earlier in this section.
astronomically aligned structures, buildings [windows and doorways with marked observational points], and even cities (Figure 14). With the rise of a new interdisciplinary field dubbed archaeoastronomy, scientists discovered that the 800-room multi-story complex Pueblo Bonito was intentionally designed and built with precise alignments with the rising and setting sun at the vernal and autumnal equinoxes. Similar alignments have been recorded in the nearby complex, Casa Rinconada. It was here, and often from specific rooms or towers, that skywatchers would observe the landscape, calling attention to important celestial events in Chacoan culture. While, again, it may not be possible to concretely determine the level of importance of these events in their society, we know the significance persisted. Circumstantial thought points to the use of these events and their architectural alignments as timed reference markers for agriculture, travel and hunting patterns, and most simply, ritual ceremony.104

One particular Chacoan site that employs a prime example of enframement can be found at the Wijiji Great House Complex (Figure 15). Located south of the main great house complexes, Wijiji rests at the base of a mesa, overlooking Fajada Butte and its neighboring landscape. At the north east corner of the complex there is an observation point that makes a natural sight line with the landscape, where a distinct notch is visible on the horizon. According to GB Cornucopia, veteran Park Ranger and historian of Chacoan Culture, the sun rises perfectly within the notch when viewed from this vantage just days before the winter solstice, which would alert the skywatcher of the solstice’s impending approach.105

A naturally occurring example of enframement lies north of Chaco Canyon in southwestern Colorado at Chimney Rock (Figure 25). From the top of Peterson Mesa, the irregular horizon line

105 Cornucopia, GB. "GB Cornucopia on Wijiji Great House Complex." Interview by Patrice Capobianchi. June 11, 2017. Chaco Canyon, NM. GB Cornucopia has been a Park Ranger at Chaco Canyon National Historic Park for over 30 years and has even been nicknamed “Mr. Chaco.”
produced two chimney-like rock growths positioned close to one another – picture two large pinnacles sharing one mountain peak. While the enframement device – Chimney Rock and Companion Rock – were crafted by nature, the Ancestral Puebloan tribe that lived on the mesa recognized its potential as a celestial horizon marker and imbedded the framing alignment into their community’s design, much like Pueblo Bonito and Wijiji in Chaco Canyon. The site in particular is most known for its alignment with the Major Lunar Standstill – a celestial event when the moon’s range of declination reaches its maximum point, which occurs every 18.6 years. In 1987, Dr. J. McKim Malville, professor of Astrophysics at the University of Colorado at Boulder, demonstrated that at the northern Major Lunar Standstill, the moon will rise between Chimney Rock and Companion Rock when viewed from a section of the Great House Pueblo on Peterson Mesa. McKim Malville’s study also discovered that in 1093 CE – which is the approximated date of construction for the Great House – the moon rose between the rocks during a three-year long Major Lunar Standstill.\(^{106}\) While this may be a coincidence or circumstantial to assume that this alignment was recognized by the tribes that originally inhabited the site, it’s also not outside the realm of reason. What’s more, when observed from another great house at the site, the Chacoan C-Block Pueblo, the sun rises between the pinnacles just five days before the autumnal equinox, and at the time of the spring equinox. During the equinoxes, residents and visitors are also able to observe the full moon rise between the gap between Chimney Rock and Companion Rock, while during the summer and winter solstices, the moon aligns within the enframement at one-quarter and three-quarter phase.\(^ {107}\) All of this considered, we can assume that visually enframing the cycles


of sunrise and moonrise at Chimney Rock was likely invaluable to the Ancestral Puebloans for maintaining their ceremonial and agricultural calendars.\textsuperscript{108}

It’s possible for an observatory to create sightlines to engage with astronomical alignments without the precursory need for an established enframing device. For example, standing stones may be positioned flush to the ground or standing upright to measure positional astronomy in the landscape. They can function to create a point of reference within the horizon, and/or mark a place to stand to observe an event in the landscape.\textsuperscript{109} Astronomically aligned windows and doorways can provide similar visual opportunities: when standing in the intended position at a window or in a doorway, they can guide a viewer’s eyes to connect with natural sightlines that in turn point to an intended object or event in the land. These kinds of astronomic sightlines are present in most of the sites discussed in this chapter, and can also be found in larger constructs in the Americas including the Temple of the Sun at Teotihuacán and El Caracol at Chichén Itzá (Figure 30).

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In comparison, Holt’s \textit{Sun Tunnels} functions in a manner similar to both Wijiji House Complex and Chimney Rock, as well as many of the other artifacts and sites discussed in this

\textsuperscript{108} One of the most well-known pre-historic man-made examples of enframement lies at the site of Stonehenge located near Salisbury and to the west of London. The famed henge [which has been referred to as a Stone Age computer] was erected in a multi-phase construction that broke ground in approximately 3100 BCE. For centuries it was revered as a locus for Druidic worship and ritual sacrifice. Over the past century, research led by Gerald Hawkins, John B. White, Alexander Thom, etc. has reinterpreted the structure, highlighting the celestial alignments that were built therein. The alignment that, to this day, is likely observed by the most onlookers occurs during the winter solstice. On this day the sun rises between a collection of three standing stones – architecturally dubbed a post and lintel arrangement – that rest along the henge’s main axis [known as the Avenue] to form a keyhole shape. The stones enframe the first flash of light that marks the shortest day of the year. It is a popular spectacle to heed, as hundreds gather to the ancient site each year to witness the event (Figure 26).

\textsuperscript{109} Stonehenge was constructed with a large menhir standing within the axial Avenue, posted further outside the entrance of the main circular complex (\textit{Figure 27}). This semi-rectangular stone, known as the Heel Stone, rises almost five meters in the air and stretches two-and-a-half across.\textsuperscript{109} When we stand in the interior of Stonehenge at the center of the Sarsen Circle, we create a sightline between ourselves and the Heel Stone. Researchers found that on the morning of the summer solstice sunrise, the sun rises over this structural outlier, creating an alignment along the Avenue and marking the longest day of the year. This was among the first alignments discovered at Stonehenge, and is incorporated into the aforementioned work and writings of Gerald Hawkins.
chapter. The entire sculpture is oriented with extreme precision to align with the rising and setting sun during the summer and winter solstice. The repetitive deployment of circular enframement proves that the work exists to be looked through as an observational device. The circles at either end of each cement pipe create formal limits – like those at Wijiji or Chimney Rock – that can be seen from many standpoints. The culverts succeed in creating a designated space for natural phenomena to enter and become visible. Though Holt has insisted that *Sun Tunnels* doesn’t serve to emulate an archaeoastronomic monument or designate days of agricultural importance or festivities to our modern culture, it is plain that it functions in the same way as ancient observatories.

When celestial phenomena are enframed, naturally or by the hands of man, sightlines often form as a result. Most often these events take place on the horizon, and the viewing device exists to ensure that the skywatcher or viewing observer can identify where and how to orient themselves against the horizon. It also works to direct the human eye in such a way that its foveal vision rests on the intended point in space. For instance, if we stand in or near one of the cement culverts at *Sun Tunnels*, we can notice that the enframed scene also creates a natural sightline, a scene that can be observed during solstices as well as all other times of the year. The same can be said for many of the pre-historic and pre-contact sites discussed here.

We can see that sightlines are often created using markers – often made of stone – to determine where a viewing observer should stand and/or where they should direct their gaze along the horizon in order to view a recognizable celestial event or alignment. Sightlines can operate in tandem or independently of enframement devices, and they both succeed in manifesting similar visual perceptions. At the compositional center of *Sun Tunnels*, Nancy Holt installed a flat, circular stone that acts as a sightline marker for viewers to stand on or near and observe, from a short distance, the demarcated Utah desert landscape and underlined celestial events: the summer and
winter solstice sunrise and sunset. Again, to draw upon the expanded discussion of Chapter One, from a single point of view in the desert, a viewer cannot possibly take in the totality of the landscape on display. The optical complexity overwhelms and overrides the visual field and can further detach the viewer from their natural environment. By laying this center stone at the heart of the sculpture, Holt draws sightlines – which are often enforced by enframement – so that an intimate visual experience with the landscape and horizon is struck. The viewer completes the circuit of perceptual awareness, much like a skywatcher would in pre-contact Mesoamerica, absorbing and connecting with the landscape as well as the transient natural phenomena enhanced by the sculpture.

_Sun Tunnels_ succeeds in aligning itself with many and more of the ancient observatories discussed in this chapter, not because Holt intended to create art evocative of the past, but because it utilizes the same visual modes of observatories built throughout history. This kind of historical and perceptual relationship allows us to determine the significance of the sculpture and the event in the visual field. _Sun Tunnels_ has a good deal in common with many of the artifacts and structures outlined in this chapter, including [1] size and scale, [2] site-specific celestial alignments, [3] commentary with landscape, [4] remote location, and [5] materiality. Yet the significance of the work lies in the fact that it exists on the boundary between art and nature, and effectively sharpens our natural perception that has been dulled behind the lens of technology. Holt invites visitors of her sculpture to be a part of it – there are no velvet ropes or floor markers to separate a person from the land or the sculpture – and through this she changes one’s relationship to the art, and thus the landscape. At this juncture, it becomes impossible to mention connections without also identifying the disconnections: [1] physicality of the structure in relation to the industrial aesthetic of Minimalism, [2] process of fabrication using industrial materials and heavy machinery, and [3] the use of technology in aligning the sculpture with precision. These elements of disengagement have
everything to do with *when* the sculpture was created, and it does not take away from its primary function. As an artist, it was Holt’s task to use these tools of modernity to turn an undifferentiated material into an object of observation that internalizes and expands a viewer’s perceptual reality. The art becomes something else, a conduit of universal awareness that rests on a process that reconstructs a historic way of seeing the world, altering the knowledge of our place and role in it.

...
Chapter Three

“Perhaps there are always two landscapes: one which we physically perceive and one which we mentally construct. We could say, perhaps, that the successful earthworks are those which generated presence at both levels.”

-Martin Hogue

... At the height of Land Art creation, practitioners were working amidst an array of factors that facilitated, even necessitated, their move to the Western drylands. 1968 was the year of the first Earthworks exhibition, and a year of social and political unrest, as well as monumental cultural and technological change. The Black Nationalist Movement, Counterculture, Women’s Rights Activism, Vietnam War Protests, the inauguration of Earth Day, the Moon Landing, the list goes on yet the fact remains: the constructive and destructive collision of human energies during the 1960s – which came to a head in 1968 – fueled explosive social, political, and artistic shifts in the years to follow. The Land Art, or Earthworks, movement retained latent symbolism from this decade and the events therein.

Lucy Lippard remarks on just how the circumstances of 1968 effected the overall artistic ethos of the period:

These years were exhilarating for those of us just moving into our mature work at the time. The ‘ideas in the air’ seemed especially heady, despite the dryness of some of the products. There was a sense of possibility, of rebellion against the looming authorities and institutions of the recent past, a desire for a kind of tabula rasa that would allow not just a new art style or movement, but new ways of conceiving of, experiencing, and distributing art.\footnote{Suzaan Boettger. Earthworks: Art and the Landscape of the Sixties. Berkeley, CA. University of California Press, 2004. Page 28.}

So, in July 1969, while the world’s eyes were glued to television screens picturing Neil Armstrong and Buzz Aldrin succeed in being the first humans to walk on the Moon – the Final Frontier – the
first generation of Land Artists were conceptualizing, some already working in the deserts of the Western Frontier. Nancy Holt, Robert Smithson, Michael Heizer, James Turrell, Charles Ross, and Walter de Maria were among those creating the earliest reproductions of Land Art. These artists were united under weighty social and political influencers, and while each artist had their own vision and intention to communicate to an observer of their land artwork, a few still created works that share similar investigations into light, human perception, and cultural histories with Holt’s *Sun Tunnels*. These include *Roden Crater* by James Turrell, *Star Axis* by Charles Ross, and *Observatory* by Robert Morris. Each of these artists are involved in artwork that uses the sky, the land, and natural phenomena as creative media. As such, they require science to complete and bring form to the work – particularly astronomic cycles – but through a cross-disciplinary practice, these artists are creating art.

... 

Works of art pull significance from the site they are installed in, and *Sun Tunnels* is no exception. In Land Art sculpture, site acts as ground-zero. It is the means by which the viewer extends themselves into the landscape. The site-specific nature of an artwork means the site exists before the art, even existing in the mind’s eye of the artist before there is an established location in the world.¹¹¹ Holt also felt that a site is a location that precedes the object, and like *Sun Tunnels*, the work develops out of that site, making the two virtually inseparable. In a 1995 interview Holt recalls, “…when I go to a place . . . I am responding to the topography, the sociology, the psychology, the built environment, the natural, organic environment, and the history of the

¹¹¹ In Chapter 2 the term “site specific” was defined as an object or artwork that is unable to be moved from the exact coordinates of its intended placement, lest their function be rendered void. These are the parameters of site-specificity that apply to Nancy Holt’s *Sun Tunnels*.
By creating *Sun Tunnels* in the desert, her site-specific response was to emphasize the medium of time via the celestial alignments and visual coding of the landscape, realizing an earth-body experience not dissimilar from Archaeoastronomic constructs of ancient past.

*Sun Tunnels* is Holt’s best demonstration of perceptual relativity. It allows the viewer to witness durational time within the landscape, thereby adhering to a different quality of time through lived experience. Holt’s work during this period is primarily concerned with the way we perceive the world around us, particularly natural phenomena and cyclical rhythms. Her work orients the viewer in space, allowing them to observe the passage of time in universal, nonlinear terms. She is known for evoking a sky – ground relationship, and *Sun Tunnels* is the pinnacle as she brings the sky down to earth. The idea for *Sun Tunnels*, according to Holt, grew out of her travels to the deserts of western North America, conceptually taking form while in Amarillo, Texas in 1973. “The idea for *Sun Tunnels* became clear to me while I was in the desert watching the sun rising and setting, keeping the time of the earth. *Sun Tunnels* can only exist in that particular place – the work evolved out of its site.”

The Great Basin Desert, which houses Holt’s iconic work, is one of the four major deserts in North America, accompanying the Sonoran, Mojave, and Chihuahuan deserts. The Great Basin is the northern most, highest, least inhabited, and in the winter, coldest desert in the States. Lying between the Rockies and the Sierras, the Great Basin gets its name from the area’s natural hydrology. Shaped like a basin, all the region’s water drains inward or evaporates out in extreme temperatures. Because of this, we might consider it to be a self-contained geographic anomaly of


sorts. The distant mountains and remote vastness of the area produces a primary example of desert dissonance.\textsuperscript{115}

Since 1976 \textit{Sun Tunnels} has offered pilgrims to the Great Basin site an experience that is entirely responsive to its environment – cutting through the desert dissonance and weaving together cosmos, land, and viewer (\textit{Figure 31}). Reductive viewing devices appear as experiential tools, connecting practices linked to past cultures with contemporary ones and grounding a continuum of all the of these place-based practices (\textit{Figure 32}). With this in mind, the following chapter serves as a culmination to the previous installments of this study, combining major themes relative to tenants tied to visual perception, cognitive dissonance, desert landscapes, archaeoastronomic structures, and observational visual devices in order to apply them to Nancy Holt’s seminal work, \textit{Sun Tunnels}. This section draws attention to other works by the artist – made before and after \textit{Sun Tunnels} – that act as thoughtful precursors and evolving outgrowths of this thread of aesthetic consciousness. These are discussed in conjunction with two particular desert artworks that were built or began to be built during this period of earth-centric output by Holt’s colleagues – specifically \textit{Roden Crater} by James Turrell and \textit{Star Axis} by Charles Ross. Upon sketching commonalities, an encompassing visual analysis of \textit{Sun Tunnels} follows to highlight the elements woven into the sculpture that are often used in archaeoastronomic and modern-day observatories, bringing attention to the individual threads of site pilgrimage, the relevance of the site and the quality of desert surroundings, and the visual functionality of observational devices therein. Incorporating Holt’s views on astronomy and the applicability pre-history has on her work, this chapter deduces that while evoking pre-historic monuments was not a creative intention in the making of \textit{Sun Tunnels}, the sculpture succeeds in utilizing viewing devices from ancient observatories and aligned structures to cut through desert dissonance, creating an experiential

system that brings the observer’s eye to focus on the landscape, where one can witness the patterned passage of time through celestial cycles, effectively piercing the layer of earth-body awareness.

Holt’s interest in looking at science-based practices through an artistic lens developed well before she established her presence as an artist. Born in Worcester, Massachusetts, she received an undergraduate education studying biology at Tufts University outside Boston. In a memorable interview with curator James Meyer, she described these developments:

... at that time I was interested in unusual plants and animals and the systems that kept them alive. I was trying very hard to bridge the gap between art and science which was difficult then because Tufts didn’t offer cross-disciplinary courses. But Tufts is near Cambridge, so I went to a few lectures at MIT where they were making those kinds of connections. I remember unusual juxtapositions of Abstract Expressionist paintings projected alongside images shot through high-magnification microscopes of various tissues and cells, and through telescopes of the universe.116

Science did end up serving her artistic output, as evidenced by Sun Tunnels and most [if not all] of her future works. Interestingly, this early exposure to the formal parallels of art and science also points to her later preoccupation with roundness as form. Again and again, Holt deploys round enframements to obscure and restructure the visual field, just as a microscope enframes and magnifies glass sample slides. The impulse to merge these two fields into physical form was present early on in her academic career. Even before graduating, Holt made frequent trips to New York to see art and to meet artists.

In 1958 Holt met fellow artist Robert Smithson, whom she married a few years later in 1963. It’s nearly impossible to speak of her early pursuits in the art world without acknowledging

the collaborative impact they had on one another’s life and creative career. Holt recalls the atmosphere of their early relationship as a freely flowing interchange of creative and academic concepts, “...at that time he was central to my awareness of art. We were sharing ideas, and he was devouring my science books. Our intense exchange influenced his 1962 solo exhibition, ‘BioIcons, Specimens, Chemicals, Diagrams’ at the Castellane Gallery, New York.”117 Her matriculation into Land Art, and as Holt classifies her work, Perceptual Art, developed after years of emersion in the New York art scene. This period of inactivity and growth afforded Holt the time to draw inspiration from a wide umbrella of sources, until she gained a clear vision of the direction she needed to take.118

Holt developed an early tendency to mediate the environment through mediating structures or devices, utilizing photography, film, and recording technologies throughout the 1960s that would allow her to see direction she would take her work, ultimately leading to her Locators series and after, Sun Tunnels. For Holt, photography operated much like her sculptures –like a viewing apparatus. Film was a fundamental tool in her working process, as it surveys space as well as time.

During this period of her career she worked solo and alongside various artists [most notably Smithson] to produce personal photo series and film documentation of artwork and travel excursions. During their frequent trips abroad and to the West, Smithson asked her to, “shoot the earth’s history,” which produced material that would later culminate in documentary films circumambulating artworks like Spiral Jetty as well as travel experiences that the pair undertook in the ancient Mayan city of Palenque and at Mono Lake, CA. This work made it possible for there to be direct contact and visual connection between the artist and public, which effectively brought the

117 Ibidem.
landscape into communication with the viewer through cinematic and televisual means. Retrospectively, we’re able to notice how the use of photo and film cameras initiated a theme of *roundness* in Holt’s art, that would carry on throughout her career (*Figure 29 & 30*). The range of disciplines and complexities in her early work teed up a career-long engagement with unfolding and returning cyclical processes alongside the interest of human intervention in the landscape.119

By 1972 the artist began to transfer views that formerly were enclosed within a camera frame to outdoor spatial arrangements. In October of that year, she created *Views Through a Sand Dune* at Narragansett Beach in Rhode Island while acting as artist-in-residence at the University of Rhode Island in Kingston (*Figure 33*). The five-and-a-half foot-long cylindrical pipe used in the work was made of a composite of cement and asbestos and seemingly injected into a nine-foot tall dune. As an artwork, it solidifies her use of roundness as form, as well as the implementation of enframement and sightlines to present the viewer with a concentrated view of the seaside landscape. The sculpture itself actually offered visitors two distinct ways of connecting with their immediate and distant surroundings, by observing the work from either side of the sand dune. The observational effect is distinctly related to what can be found at *Sun Tunnels*, as it revitalizes the viewers connection to their immediate surroundings, in this case the landscape where land meets ocean.

This kind of progressive complexity sourced in Holt’s sculptural work assumed an even greater scale in her May 1972 installation, *Missoula Ranch Locators: Vision Encompassed* (*Figure 34 & 35*). Predating *Views Through a Sand Dune* by five months, *Missoula Ranch Locators* marks one of her first major sculptural interactions in the landscape. Holt notes that the pivotal nature of

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this sculpture brought about a self-awareness that she had found, “the key that led to [her] later sculpture.”

The Locator series began in Holt’s West Village studio apartment in 1971 (Figure 36). Looking out her window, viewers will come into contact with rooftops, chimneys and flues, and a great deal of water towers. Unaided, the eye wouldn’t have the capacity to take in particulars. When Holt set up a series of locators stationed at eye-level and arranged at varying angles by her window, she noticed how when extraneous information was excluded from the visual field and she virtually collapsed the distance between the viewer and the object, the eye was able to zero in on the specifics presented. This experimentation opened a, “testing ground for spatial construction and the exploration of perceptual relations,” in her work that would translate to the countryside of Montana a year later.

According to Alena Williams, Missoula Ranch Locators: Vision Encompassed transforms, “one’s understanding of scale – a lesson learned from Minimalist sculpture … [allowing] the viewer [to become] consummately aware of the relationship of one’s body to the object of observation.” Located on a ranch some twenty-two miles north of Missoula, Holt installed a total of eight locators lined in a circle forty feet in diameter. Each locator was fabricated from two steel pipes, measuring one-and-a-half to two inches in diameter. Fabricators welded the two pieces together to form a T shape, which allowed the viewer to look through the horizontal pipe at eye-level, much like a naked eye telescope. The locators were positioned according to cartographic principles; distributed and aligned to the four major compass points – North, South, East, West – and four minor points – Northeast, Northwest, Southeast, Southwest.

The Locator series anticipates the cosmological engagements found in Sun Tunnels and Holt’s later work – Anne Wagner, described the forthcoming Sun Tunnels, “as resembling oversized locators, suggesting that they ‘form a cumbersome camera, an enormous viewing device to record nothing less than the passage of celestial time.’” Missoula Ranch Locators functioned similarly, if on a comparatively smaller scale, which allowed Holt to emphasize the role of the observer as an active factor in the overall presence of her work.

In the years after completing Sun Tunnels, Nancy Holt continued a life-long career laying predominant focus on revealing celestial systems and cycles through the engagement with the land and areas easily accessible to the public. In 1974, one year after fully conceptualizing Sun Tunnels, she unveiled Hydra’s Head while completing an artist residency at Artpark in Lewiston, NY (Figure 37 & 38). The significance of Hydra’s Head lies in the fact that it sets the standard for Holt creating public art that also operates within a cosmological context. It consists of six three-foot-long concrete culverts of varying diameters, which were sunk into the ground. Each pipe’s base was poured with concrete and filled with water to create a series of reflective pools. They are oriented in alignment with the loose configuration of the six stars that make up the head of the constellation Hydra. Each of the star’s magnitudes are proportionally related to the corresponding pool’s diameter. The combination of roundness and astrological references is a quality of her work that is seen in Sun Tunnels, something to be addressed later in this chapter.

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On the eastern edge of the San Francisco Field [representative of 1,800 square miles of Arizona], lies an extinct cinder cone that is currently undergoing transformative construction to

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morph the site’s former ecological marvel into an observatory featuring a system of rooms, passageways, and lookout points intended to guide light from celestial events and from different areas in the sky inward, creating “atmospheres” of transitional light-based experience for visitors.\textsuperscript{124} After years of site searching, in 1976 Turrell secured a preliminary lease, and the following year received a grant from Dia Art Foundation which allowed him to purchase the crater and its surrounding land. After the land’s purchase, about a decade passed before construction began. Today, the site is not yet open to the public, however when finished, Roden Crater will become an observatory where, “each component, including two major tunnels, is precisely aligned to capture light and allow for the observation of celestial events” (Figure 47).\textsuperscript{125} While they share fundamental commonalities, in comparison to Sun Tunnels, Turrell utilizes many of the same elements as Holt – light, celestial events and alignments, as well as the landscape, but to create a different effect that is concerned with making light tangibly present.\textsuperscript{126} At Sun Tunnels there is a thrill of cosmological connection that comes with observing the solstice alignments, however here, it’s not so much about observing the events, but observing how the light produced during these events have an effect inside the space. In his own right, and we will learn when the site opens to the public, Turrell seeks to build a space that is sensitive to events that happen in the sky.

Charles Ross’ monumental work in New Mexico’s high desert, Star Axis, stands alongside Holt’s in its presentation of a directly physical, emotional, and sensorial experience of our earth-body connection (Figure 48 & 49). Ross’ creative output rests somewhere between art and science,
as he uses light to reveal how we interface with the larger order, how we fit into the stars and develop our sense of connection. For him light is a kind of substance, material, or energy that becomes visible when refracted through different media. He gained international attention as an artist with one of his first *Solar Burns*. Over the course of a year, from September 23, 1971 to September 22, 1972, he traced the sun’s path across the sky from the rooftop of his SoHo studio, channeling its light through a fresnel lens toward a plank of wood which was replaced daily. At the end of the cycle, 365 individual boards were combined into a photo montage, showing a year’s worth of solar movement and weather dynamics taking form in a double reversed spiral (*Figure 50*).  

Ross relocated much of his artistic practice to New Mexico where, for almost forty years, he has been building his site-specific keystone work, *Star Axis*. Cut into a desert mesa some 2,220 meters [7,284 feet] above sea level, *Star Axis* exists as a monumental celestial observatory that has been fixed to its surroundings and designed in alignment with the Earth’s axis. When one climbs the sixteen-meter-long *Star Tunnel* at the heart of the structure under a clear night sky, the 26,000-year cycle of precession unfolds with each step of ascension. Our Earth is not a perfect sphere, and the gravitational pull from the sun and moon forging a torsional force that attempts to straighten the Earth’s axis, which leads to procession. Essentially, precession is a 25,750 year-long cycle during which the Earth wobbles and tilts back and forth, which gradually changes the orientation and presence of stars and celestial bodies in the heavens.  

Precession also plays a major role in the gradual shift of climate movements our Earth has experience since its formation. For instance, the fluctuating development and movement of Ice Ages. It’s also the reason that the Sahara Desert retains oceanic fossils, as the continent was once wetlands and inland sea. Thus, when experiencing *Star Axis*, an active observer becomes directly connected to thousands of years of

visual celestial history. In *Touching the Sky: Artworks Using Natural Phenomena, Earth, Sky and Connections to Astronomy*, Ross concludes,

…that really is what *Star Axis* is about. One thing art can do is focus the lens of experience so that our sense of connection grows clearer. The intent of *Star Axis* is to give us awareness of the motion of the universe in relation to ourselves. By walking through this work, one will be able to directly experience the entire 26,000-year cycle of polar precession.\(^{129}\)

When we reconstruct or experience the visual encounters linked to this and contemporary observatories like *Star Axis*, we can recognize that although we live in an age of space exploration and technological advancement, our contemporary circumstances also allows us to recall a sense of historical connection to the our earth and the cosmos above. *Star Axis* provides a place for that kind of remembering.

Along with the subtle influence of the period’s sociopolitical circumstances, the overarching and most basic commonality between *Sun Tunnels* and these works can be found in their site-specific nature, celestial alignments, and engagement with the landscape. Each of these structures have been built with exact alignments to the geologic and celestial constructs that form some of the most recognized observable planetary cycles. Because of this, they cannot be removed from the situation of their placement. Moreover, and as discussed earlier, the site comes first, often existing in the mind’s eye before there is an established location in the world. *Sun Tunnels, Roden Crater* and *Star Axis* are each located in and build essential relationships with this paper’s terrain of focus: deserts of the western United States.

Much of the creative and emotive energy that Land Art pilgrims derive from these sites has to do with the physical and metaphorical qualities of the desert. After all, the artwork elaborates on the desert, while the desert reveals the artwork. Thus, defining the emotional significance of Nancy Holt’s relationship with desert landscapes, particularly those in the West, adds essential and dimensional weight to *Sun Tunnels*’ placement and functionality.

Holt made her first trip out West to Las Vegas with Robert Smithson and Michael Heizer in July and August of 1968, and from the immediate moment she stepped off the plane, she felt a connection. Interviewed by James Meyer for the *Sightlines* catalogue, she meditated on this moment:

> In those days it wasn’t that big of a city, and the airport was out in the desert, so we stepped off the plane and into the vastness of the desert. I had an overwhelming experience of my inner landscape and the outer landscape being identical. It lasted for days. I couldn’t sleep … It was me without a sense of self-identification. The landscape, the openness, was similar to the spaciousness I felt within. I was the land and sky and the land and sky was me. That may sound like a platitude, but that’s what happened. I was totally absorbed in my surroundings. There was a sense of tremendous energy.¹³⁰

The trio were out there looking for sites and to create art on, visiting the Mojave Desert, Death Valley, and Lake Tahoe. It was while she was physically navigating through these landscapes that Holt developed the unique fascination for the land and the spaciousness of the West that would quantify her later work, and her time there produced film and photo work that is reflective of this state of consciousness. Film and photography possess a durational quality which feeds Holt’s interest in evoking the passage of time in her work. Her photo series, *Western Graveyards*, depicts scenes from a series of graveyards in Virginia City, Nevada and Lone Pine, California (*Figure 52*). Her photographic interpretation of the uniquely dilapidated plots draws attention to the passage of time through the finality of the human life cycle. The series also highlights how each were

contained and enclosed by way of iron fencing, marble moldings, or wooden slats. The arrangement of these individuals’ final resting places enticed Holt, as she felt that they silently communicated how people thought about land and space in the West, considering their last desire in life was to demarcate and frame the boarders of their burial plot in response to the vastness of the surrounding landscape.131

This series represents an early example of Holt’s artistic engagement within the Western landscape, while also reflecting on a number of preoccupations that repeat in her future photo and sculptural work. Graveyard iterations such as Crypt Sequence [1980], Athabascan/Russian Orthodox Graveyard [1986], and Chilili Graveyard [1998] echo themes of a career-long intent to reveal cyclical processes and systems, alongside an interest in human interventions in the landscape. This early and continued use of film in site-mapping and surveying would be applied to later work including Sun Tunnels.

... The landscape represents a way of seeing. As in the way a culture views or sees land use as a social identifier and representative of themselves as a culture in the world.132 The argument backing Sun Tunnels’ connection to prehistoric observatories lies not only in its alignment with celestial bodies and the magnetics of our planet, but in the way the artwork acts as a framing device for us to perceive and study our natural surroundings while acknowledging the cycles that operate therein. Sun Tunnels, and Land Art collectively, uses the environment – mountains, sky, dirt, rock – as a medium to present a new – yet old – way of experiencing the external world. To

expose the idea that observing is not just looking, it is identifying the human relationship between the natural and the man-made, it is gaining perceptual truth through sight.\textsuperscript{133}

Artists, including Nancy Holt, communicated and achieved these ends in the desert landscapes of the American West. As we’ve come to learn, arid regions are where we are most challenged by the environment, where we are ill-equipped to cope with environmental and local conditions. Throughout history, few communities have chosen to set permanent residence in the drylands, preferring to use it as a pass-through region of migrational gathering and ritual celebration. Native Americans, ranchers, miners, among others have inhabited these areas successfully for centuries, yet it’s the landscape that most find physically and visually intolerable. In 1819 Major Stephen H. Long was sent by the Topographical Bureau of the US Corps of Engineers to compile a report regarding rivers that feed and wind through the Rockies. His report described the deserts to the west of the range– specifically the Great Basin Desert – as “the ‘Great American Desert,’ a place ‘wholly unfit for cultivation’ and ‘uninhabitable for a people depending upon agriculture for their subsistence.’”\textsuperscript{134} The earth’s surface in these areas are undifferentiated, a land without landmarks, and that creates a slew of issues that humans experience while navigating the region. These are elements we covered previously in Chapter One, which include the desert’s scaleless nature [limited to no structures or growths in the visual field to scale one’s body against], difficulty controlling motor movements in the region [it is nearly impossible to walk a straight line], limited color gradient [visually alarming and results in time passing with little perceptual effect], and extreme temperatures [searing days and cold nights]. It is this very unique quality of the landscape that creates a specific sense of desert dissonance which, in turn, establishes an

optimal environment to create observational sculpture that not only draws upon the metaphorical themes tied to the desert, but also employs tools to perceive it with greater clarity.

The desert is the traditional geography of revelation, and as Lucy Lippard elucidates, its emptiness is content. It summons a sense of timelessness, of infinity and permanence. In the 1960s and 70s time itself became an important aspect of artistic production. Along with this timelessness came a conscious self-awareness of, “the history of history, and finally prehistory. After decades of existential emphasis on the individual, on the self-referential constructs of modernism, they seemed to want to return to a more collective base.” Thus, artists turned toward the underpopulated and marginalized regions of the West to reestablish their primordial roots. In Overlay: Contemporary Art and the Art of Prehistory, Lippard conceptualizes this earth – time relationship that remains so unequivocal in the West.

‘Time’ is not just a mental concept as a mathematical concept in the desert. The rocks in the distance are ageless; they have been deposited in layers over hundreds of thousands of years . . . . Being part of that kind of landscape and walking on earth that has surely never been walked on before evokes a sense of being on this planet, rotating in space, in universal time.

The entropic sculpted landscape evokes the romance of absence; it ignites within the desert drifter an overwhelming sense of awe, terror, solitude, contemplation, erasure, and raw connection. In her essay, Written on the West: How the Land Gained Site, Erika Suderburg finds this, “gesture echoes late-seventeenth- and early-eighteenth-century aesthetic philosophy’s casting of the sublime, as a mode of ‘being in awe’ created by an experience of vastness.” For art installed in these sublime topographies, the desert acts as a different kind of framing device. The artwork elaborates on the

desert, while the desert reveals the artwork. A symbiotic relationship of grounding observation and perception. Scale is challenging to comprehend, and with few fixed reference points in the desert, an artwork’s size fluctuates in the viewer’s eye, simultaneously destroying and enforcing human scale. Still the desert serves to reinforce a sense of monumentality, which is inevitably imparted upon any object on its land.

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Nancy Holt’s preliminary interpretations and plans for her acreage outside Lucin, Utah unfold in a 1975 assemblage work that surveys the conditions of the space and surrounding desert (Figure 53). Twelve silver-grained photographs trace the four-part horizon encompassing the site of Sun Tunnels’ future construction. The horizon cuts each print from end to end, in the foreground swaths of shrubs and spiny vegetation line the desert floor, with indiscriminate patches of dusty dirt laying between, reflecting the light from the scorching sun overhead. Details of the natural flora begin to fade into the middle ground, and further out into the distance low profile mountain ridges mark the place where earth meets sky. Each of the twelve photos are mounted along the outer edge of a 14” x 20” sheet of paper, at its center is a network of intersecting lines that roughly take on the shape of a compass rose. Tracing the cardinal and ordinal directions, the lines stretch across the page and intersect the printed image of landscape that fits each corresponding direction. Four sets of unique lines arranged at 32° NW, 32° SW, 32° NE, and 32° SE cut through the cardinal and ordinal markings, stretching toward their corresponding analogous photograph, suggesting the final orientation of the sculpture. In the page’s margins, the artist lists a handful of geographical landmarks that define the immediate landscape of Utah’s Box Elder County: Pidgeon Mountain, Lemay Island, Lion Mountain, Bald Eagle Mountain, and Lucin Hill. Each will later become observational markers that serve to orient and scale the viewer on the desert playa. The assemblage overall demonstrates the eye’s participation in navigating the landscape around Sun
Tunnels, even before its placement on the desert floor. It provides us with the first reference to the viewing devices that will be incorporated into the work, laying the framework for the orienting frames and sightlines to be created by the sculpture’s cement culverts. Alena Williams describes these preliminary drawings as, “an assemblage of geographical inscription and photographic analogues – captur[ing] the tension of staring toward the horizon into infinity from a fixed point in space; yet that world is fragmented at the same time that it is unified under the rubric of a working collage.”

Building on this analysis, it succeeds in presenting amalgamation of the singular view that Sun Tunnels pilgrims would encounter after accomplishing the journey of getting there.

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Locating the right site for the project was paramount. Holt spent most of 1974 traveling areas of Arizona, Texas, California, Nevada, New Mexico, and Utah in search of a flat desert terrain ringed by low mountains to suit her plans for Sun Tunnels. She felt it was necessary that the location be accessible by car, yet far enough away from civilization to awaken a sense of extreme isolation. Two-thirds of Western desolation are maintained by the state and federal government, with the remainder privately owned and operated by local ranching families and railroad companies. Private land for sale is generally auctioned off in one-square-mile sections, yet in 1974 Holt purchased a 40-acre plot – less than a tenth of a mile – located four miles southeast of Lucin, Utah, and nine miles east of the Nevada border. Now a ghost town, Lucin was once a thriving municipality located at the juncture of the Central Pacific and Union Pacific Railroads. In its heyday, steam engines stopped to pull fresh water from the naturally occurring springs in the town’s vicinity. The last occupants moved away in the mid-1990s, and now all that remains is a bullet riddled town marker and overgrown structural foundations (Figure 54).

and successively *Sun Tunnels*, takes visitors on a pleasantly destitute drive around the Great Salt Lake [clockwise or counter, depending on your point of origin], which sets the tone of the experience prior to arrival. For most Land Art sculptures, *Sun Tunnels* included, the pilgrimage to the site can be just as important as the site itself. Though they are accessible to visitors, it’s not easy to get to these sculptures. Being that they are almost always housed in rural, far-flung areas, a degree of exploration, backtracking, troubleshooting, and double-checking routes and coordinates will always be a necessary and fulfilling aspect of the journey.

The land on which *Sun Tunnels* resides lies in the Great Basin Desert along a 100-mile stretch of remote single-lane highway without towns, shops, or gas stations. The expansive valley floor is home to a limited amount of vegetation due to a fluctuating climate along with the corrosive remnants of Lake Bonneville’s prehistoric pluvial waters (*Figure 55*). The ancient lake covered much of the Great Basin region, extending across Utah, Idaho, and Nevada. Today, approximately 32,000 years after its formation, it remains largely receded as the Great Salt Lake. *Sun Tunnels* is neighbored to the south by the Bonneville Salt Flats, an area so vast and vacant that you can actually observe the curvature of the earth along the horizon line.\(^{140}\) Located just outside of Wendover, it remains popular today due, in part, to the Bonneville Speedway, which is particularly revered for numerous land speed records.\(^{141}\)

The Great Basin Desert floor exudes an overwhelming feeling of timeless desolation. The mountains circling the valley hold old trails, ancient caves, retired turquoise, copper, tungsten, and crystal mines, oil wells, and hidden springs. In a 1977 article published in *Artforum*, Nancy Holt describes her experience living alone in the Great Basin Desert. “After camping out there alone in the desert awhile, I had a strong sense that I was linked through thousands of years of human time

\(^{140}\) There are few places on earth where this can be observed with an unaided eye.
with the people who had lived in the caves around there for so long. I was sharing the landscape with them." With the perception of aligning herself with the ancient peoples who occupied her land over the millennia, Holt broke ground in August 1975.

_Sun Tunnels_ was Holt’s largest work at the time it was constructed. It consists of four concrete culverts oriented in an open X configuration, marked and aligned with the yearly extreme positions of the sun along the horizon: the solstice sunrise and sunsets on June 21 and December 21 (Figure 56). On these days, and for approximately ten days before and after, the sun reaches a fixed position directly within the curvature of the tunnels’ openings (Figure 57). On these days, and throughout the year, _Sun Tunnel’s_ visitors can walk in and around the structures to experience all the possible points from which to observe celestial time’s effect over the immediate surroundings, in the sky and the adjoining landscape. The rounded openings at either end of the culverts, along with the circular constellation holes into the walls, create a vast number of visual devices that enhance the optical experience from every angle (Figure 58). These enframements and sightlines allow the viewer to pause and connect with the earthly scene or celestial event that is presented to them.

Each concrete culvert measures eighty-six feet long on the diagonal, with an outside diameter of nine feet, two and one-half inches and an inside diameter of eight feet. Each weigh twenty-two tons, and rest on a buried concrete foundation. The work itself emits the notion of permanence, much like the monuments of prehistoric past, through the material, structure, placement, etc.

Four constellations, similar to the aesthetic of _Hydras Head_, were cut through the concrete on the upper half of the tunnels: Draco, Perseus, Columba, and Capricorn (Figure 59). The holes

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range in size from seven to ten inches in diameter that vary in direct relativity to the magnitude of each corresponding star. On clear days and nights, the sun and the moon shine through these holes and cast light patterns of different sizes and intensity along the inside of the culverts (Figure 60). These patterns change shape from circle to ellipse to crescent in accordance with the sun or moon’s orientation in the sky and crawl along the curvature of the tunnels as the solar and lunar orbs make their daily and seasonal cyclical passages. The constellations provide yet another way of observing the landscape and skyscape. Visitors can connect with the sections of vista visible through each hole or sit inside the tunnels to study the landscape and watch as the sky moves light patterns across their field of vision.

To align these massive tubes with the solstices, Holt worked with an astrophysicist from the University of Utah to locate latitudes of the solstice angles on her land. This required computing data from her site electronically as the acreage had a multitude of irregular contours and ridges. However, even before all of this, she extended herself into the barren terrain and camped out to observe a solstice firsthand. In this way, the artist immersed herself in the site and allowed the landscape to dictate the project’s formation. In *Artforum*, Holt recalls that, “…by marking the yearly extreme positions of the sun, *Sun Tunnels* indicates the ‘cyclical time’ of the solar year. The center of the work becomes the center of the world. The changing pattern of light from our ‘sun-star’ marks the days and hours as it passes through the tunnel’s ‘star-holes.’” *Sun Tunnels* thus becomes *axis mundi*, a place to observe the landscape and the progression of time, while allowing us to connect with the basic, primal celestial cycles in nature to which we are all intrinsically tied.

143 To expound upon the support Holt received and hired throughout the project, she outlines the entire force behind the project as follows: “But by the time *Sun Tunnels* was finished, I had spent one year in Utah and had worked with 2 engineers, 1 astrophysicist, 1 astronomer, 1 surveyor and his assistant, 1 road grader, 1 dump truck operator, 1 carpenter, 3 ditch diggers, 1 concrete mixing truck operator, 1 concrete foreman, 10 concrete pipe company workers, 2 core-drillers, 4 truck drivers, 1 crane operator, 1 rigger, 2 cameramen, 2 soundmen, 1 helicopter pilot, and 4 photography lab workers.” Nancy Holt. "Sun Tunnels.” *Artforum International*. New York, NY. Artforum, April 1977. Page 34.

In fact, at the center of the complex lies a circular stone, its edges caked in dirt and dried mud. This point corresponds with the central pivot from which Holt created her preliminary assemblage drawing, and when stood upon or near, the viewer places themselves effectively at the center of a compass rose, where they can view sightlines of the enframed landscape from a short and manageable distance, which makes the land easier to visually navigate and connect with.

Holt has called this relationship the concretization of perception.\textsuperscript{145} She facilitates an opportunity for the viewer to zero in on the landscape and view it in a perceptual way. In her words, “…setting up situations where people do a double-take and where, by looking through something, they really focus, really perceive intensely the thing seen. Sometimes, by setting up these limited visions through holes and things, you get that sensation that the thing on the other end is surreal, or uncanny.”\textsuperscript{146} Viewing the landscape through the tunnel enframement establishes sightlines and brings the vast space of the desert back to human scale. A landscape, when perceived without any visual interference, is overwhelming, sublime, and almost too vast to visually connect with at once. Through obstructing vision by way of enframement, Holt creates sightlines and brings the landscape to a more discernable scale, much in the way that a telescope brings something far away to a scale that the human eye can view with clarity. By framing and controlling what is seen, viewers notice the effects of daily and seasonal changes on their perception of light and landscape, constructing a closer comprehension and connection with the landscape and with nature.

The seemingly boundless desert is not only the climate of Sent Tunnels’ placement but crucial to the work itself. After all, “it is often said of deserts that they are where the Prime Mover
was practicing before making the rest of the world. Such definitions imply that the desert is where we are closest to the creative spirit of the universe.” Desert dissonance is present in the Great Basin, in the ridges and valley encircling *Sun Tunnels*. It is this overwhelming quality of the landscape that constructs a unique setting where artists can make these connections visible, where history can be illuminated. Alena Williams strengthens this perception in *Sightlines*.

…emphasis on the eye’s participation in the subject’s phenomenological relationship to spatial configurations and constructions – describing landscape as related to more programmatic ‘ways of seeing’ – marks a shift in focus away from universal paradigms of vision toward physiologically and historically specific ones, reflecting a sensibility with which Holt’s work is very much engaged.148

By comparing *Sun Tunnels* and other land art sculptures to ancient observatories, I am not seeking to dub them post-modern observatories or even modern megaliths. This study presents a theory on *Sun Tunnels* that does not align with Nancy Holt’s intentionality. Due to this divide, it’s necessary to reiterate Holt’s own thoughts on time, astronomy, and the ancients. She speaks about this connection in her interview with Micky Donnelly:

I’d been to Stonehenge and I knew a lot about the ancient megaliths aligned to the sun but the work did not come out of those kinds of things, at least they weren’t a direct inspiration. People will often bring this up in regard to my work and it’s acceptable to me after the fact, but it certainly wasn’t a conscious motivation.149

The artist by nature communicates, and though Holt was not attempting to reproduce an ancient temple or monument, she did make a sculpture that magnified its own dimension because it refers to the past. Archaeoastronomic monuments, with their orientation to True North, solstices, equinoxes, lunar extremes, etc. provide a foundational precedent through which we view *Sun

Tunnels. And while it alludes to certain prehistoric monuments, it was not constructed to resemble them. Holt created Sun Tunnels so that people can play an active role in its process and through this become more conscious of space and their visual perception of the landscape and the universe. Time is a huge component to this work. In Touching the Sky: Artworks Using Natural Phenomena, Earth, Sky and Connections to Astronomy, Holt expounds upon how she feels time translates into the process of Sun Tunnels:

I think the work is about ‘time’—a sense of time that is more universal. That works really do function to keep time, to measure time. When I build them, I think about human scale, and I think about people standing in different places. In order to understand and perceive my works one has to walk through them, in and out of them, so that the works exist in durational time in that respect. They are not just objects one sees in an instant, but something one experiences in time….I feel that they need to look at the sky—at the moon and stars—is very basic, and it is inside all of us.  

Intentionality aside, through her art, and specifically Sun Tunnels, she makes visible the layers of human geographic history and provides the scope to observe celestial time’s interaction with the landscape.

Observing the seasonal rotation of the sun draws a direct parallel between Holt’s artwork and the monumental observatories of ancient past. It brings about a historically specific way of seeing the world, a means of connecting with our surroundings on a biological level. The building of modern observatories like this came at a time when the world was increasingly more conscious of the ramifications of our global and industrialized culture. Through the evocation of the ancients, Holt works against the heterogeneous system of the 20th century disconnect, building a bridge to the past and providing us with a revitalized perspective and awareness of the natural world that

makes viewers more sensitive to the connection through their experience with the art. A new (yet old) visuality, and a perceptual revolution.
Conclusion

“The time the three of us [Nancy Holt, Robert Smithson, Michael Heizer] spent together in 1968 seems deeply significant, likely responding an astronomical change –it was a new paradigm, you know, Earth art. It was so basic that when it happened it was immediately absorbed. . . . I thought about the different people and elements that come together to interact and produce something totally new. I had a sense in 1968 that we were in this crucible of a volcano, being formed. Those may not be the best words for it, but from then on I saw the world differently. There was no going back; everything had changed.”

-Nancy Holt

Through their creative output, Land art practitioners pushed through the found limits of the art world, ultimately collapsing the boundary that stood between art and the land. By doing so, they succeeded in making the landscape the primary situation for the aesthetic experience. Collectively, Nancy Holt and her colleagues generated a body of work and writings that redefined the definition, materiality and placement of art objects. Individually, her art became a tool to guide viewers through physical – being predominantly visual – responses to the desert topography. This approach uses the constitution of the desert to revitalize the visual process in a way that mirrors observational systems of civilizations across history. Sun Tunnels, as her most heralded land form, stands as the precedent for this technique.

Land and sight constitute the two most basic components that circumnavigate Land Art, a concept that was introduced in Chapter 1. Together, they build the methodological foundation for site-specific participatory structures, and through lived experience they provide observers with a sense of physical and universal connection within their surroundings. In order to make sense of this idea, it’s important to fully grasp the significance of the terms land and landscape and identify how they apply to land marking, both modern and historic. The Earth is the basis for all human and geological activity, it is our primary setting. Thus, the land reflects the vast array of human and geological interventions, and it becomes a place we return to gain a communal sense of placement
in the world. All things considered, there are few environs in the world that impart this connection with such magnitude than the desert and, within the context of Land Art, the deserts of the American West.

The desert presents us with a landscape that warps our visual perception, its boundless empty and harsh conditions only serving to intensify the apparent scalelessness of the region. In this sense, we’ve come to distinguish how this promotes a raw, original visual standpoint into the world. It can come as no surprise why land artists gravitated to this environment to expand their practice. Along with affecting human sensory function, there is a visual connection to time and earth that permeates the spectorial experience in the desert. Time melts away while geological and cultural history become evident in the surrounding space. It is this very unique quality that creates a specific impression of desert dissonance which, in turn, establishes an optimal environment to create observational sculpture that not only draws upon the metaphorical and historical themes tied to the desert, but also employs tools that allow us to perceive it with greater clarity.

We grasp how we engage with our surroundings most effectively through our sight, which is just one of five neurological senses that make it possible for our bodies to function efficiently in their natural environments. Our perception of the world around us is framed primarily through our vision, and as we’ve explored, our eyes are sensitive to the circumstances of our surroundings, a condition which becomes delicate, even dangerous in the desert. The ability to see and thus perceive revolves in direct correlation with our eyes’ visual acuity. In circumstances of low luminescence – like at night – or high luminescence – like in the desert – visual acuity does not function at optimal levels, which in turn causes visual or optical dissonance. As a necessary by-product, it became natural for our eyes to seek order in visual chaos. When we are in the desert, our eyes seek comfort in a framework that enables us to create visual and structural order.
In the Great Basin Desert Nancy Holt manipulates these biological cues to her advantage with *Sun Tunnels*, using visual modes akin to those employed in ancient observatories and celestially aligned complexes. These perceptual viewing devices are enframement and sightlines, and when used together they allow active observers to visually isolate sections of the landscape, breaking it down bit by bit. This ultimately cultivates a retracted mode of being and seeing that leads to an opening of the senses, and ultimately of perceptual awareness. The unique qualities and visibility of geologic and human history in the naked Western landscape come into focus, highlighting the indivisible relationship between the human body and the land as a result.

Archaeoastronomic sites and objects forge connections between the earthbound body and celestial events, from small and often hand-held instruments like Sun Dagger and the Abri Blanchard Bone to large-scale architectural works including the Wijiji Great House Complex at Chaco Canyon and Teotihuacán outside Mexico City. These remain in the archaeological record as evidence to early and developing cultural recognition of patterns that annotate daily life, showing how they have shared a collective desire to bring visual and structural order to this concept. Among the artifacts and visual devices covered, natural and human-made examples such as standing stones, doorways, windows, mountain notches, peaks, etc., establish enframed lines of sight for celestial events to enter the optical field. Through Bence Nanay’s studies and writings on *The History of Vision*, we discovered the manner in which human visual perception toward art and our natural surroundings has changed throughout civilization. The idea of historic perception, coupled with a working knowledge of archaeoastronomic sites and the optical devices that revitalize our interaction with the visual field, aids in the creation of a sound foundation for the aesthetic connection between *Sun Tunnels* its cultural predecessors.

When analyzed alongside its ancient and contemporary relatives it becomes apparent that the sculpture utilizes the same visual modes of observatories built throughout history. Holt invites
visitors of her sculpture to become a part of it. When experiencing the *Sun Tunnels* complex and site, an observer completes the circuit of perceptual awareness, much like a skywatcher would in pre-contact Mesoamerica, absorbing and connecting with the landscape as well as the transient natural phenomena enhanced by the sculpture.

Holt developed an early tendency to mediate the environment through participatory structures, and by creating *Sun Tunnels* in the desert, her site-specific response was to emphasize the medium of time via the celestial alignments and visual coding of the landscape, realizing an earth-body experience not dissimilar from Archaeoastronomic constructs of ancient past. By doing so, the work succeeds in sharpening our natural perception that has been dulled behind the lens of technology, changing one’s relationship to the art and the landscape. By virtue of the sculpture’s composition and placement, it leads us toward historic, and alternative, relationships to landscape and nature; presenting a pared down, historic reconstruction of vision that reconstitutes the way we perceive the landscape, its physical elements and forms, and the cyclical rhythms that bind it together.

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Figure 1: City, 1972-1976. Michael Heizer. Garden Valley, Nevada. Courtesy of the Graduate Center, City University of New York.

Figure 2: Archaeological site at Teotihuacán, Mexico. Courtesy of the City College of New York.
Figure 3: Chaco Culture National Historic Park in Chaco Canyon, New Mexico. Courtesy of Elizabeth Barlow Rogers, Foundation for Landscape Studies.

Figure 4: The human eye’s visual process. Courtesy of Michelle L. Johnson, *The Gale Encyclopedia of Nursing and Allied Health*. 
Figure 5: Map identifying three of Nancy Holt’s parcels of land in the Great Basin Desert, Utah. Pages used by the artist for faxing. Map published in *Nancy Holt: Sightlines*.
**Figure 7:** Installation View, *Earthworks*, Dwan Gallery, New York. October 1968. Published in *Nancy Holt: Sightlines*.

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Figure 9: Aerial view of Chaco Canyon, New Mexico. Courtesy of University of California, San Diego.
Figure 10: Pueblo Bonito at Chaco Culture National Historic Park in Chaco Canyon, New Mexico. Courtesy of University of California, San Diego.

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Figure 18: Tāi Plaque. Detail by Alexander Marshack. Courtesy of James Elkins, On the Impossibility of Close Reading: The Case of Alexander Marshack.

Figure 19: Ishango Bone, ca. 20,000 BCE. Ishango, Democratic Republic of the Congo, Africa. Courtesy of Jean De Heinzelin, Scientific American.
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**Figure 21:** Sun Dagger at Chaco Culture National Historic Park in Chaco Canyon, New Mexico. Made by the Anasazi Native Americans, ca. 1000 CE. Figure A (left) shows the leaning slabs of rock that channel light and shadow. Figure B (center) shows the dagger running through the center of the spiral at noon on the summer solstice. Figure C (right) shows the daggers embracing the spiral at noon on the winter solstice. Courtesy of Anna Sofaer, Karl Kernberger, Jay Crotty. The Solstice Project, Washington, D.C.
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Figure 25: Heel Stone at Stonehenge. ca. 3200-1600 BCE. Wiltshire, England, United Kingdom. Courtesy of the Harthill Archive of Architecture and Allied Arts.
Figure 26: Chichén Itzá. ca. 10\textsuperscript{th} century. Yucatán, Mexico. Courtesy of Moreen O’Brien Maser Memorial Collection, Skidmore College.

**Figure 29:** Video Stills from *Mono Lake* (With Robert Smithson). 1968/2004. Super 8 film edited as video, color, sound; 19:54 minutes. Courtesy of Nancy Holt.

**Figure 30:** Film still from *Sun Tunnels*, 1978. 16 mm film, color sound, 26:31 minutes. Published in *Nancy Holt: Sightlines*. 
Figure 31: Views Through a Sand Dune, 1972. Nancy Holt. Narragansett Beach in Kingston, Rhode Island. Published in Nancy Holt: Sightlines.

Figure 34: Locator (Cracked Window) and detail, 1971. Nancy Holt. Installation view: artist’s Greenwich Street studio, New York. Courtesy of Peter Moore, Estate of Peter Moore / VAGA, New York. Published in Nancy Holt: Sightlines.
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Figure 37: Roden Crater, James Turrell. 1977-present. Northern Arizona, United States. Courtesy of Elizabeth Barlow Rogers, Foundation for Landscape Studies.

Figure 38: Star Axis, Charles Ross. 1976-present. Northern New Mexico, United States. Courtesy of Charles Ross, Charles Ross: The Substance of Light.
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Figure 41: *Western Graveyards* (detail), 1968. Nancy Holt. Nevada and California; twelve photographs from the *Western Graveyards* series. Published in *Nancy Holt: Sightlines*. 
Figure 42: Preparatory drawing of *Sun Tunnels*, 1975. Nancy Holt. Published in *Nancy Holt: Sightlines*.

Figure 43: Lucin Town Sign, 2017. Lucin, Utah. Courtesy of Patrice Capobianchi.
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