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Between Transparency and Opacity: Charles Ross's Approach to the Real

THESIS

submitted in partial satisfaction of the requirements
for the degree of

MASTER OF ARTS

in Art History

by

Golzar Yousefi

Thesis Committee:
Associate Professor James Nisbet, Chair
Associate Professor Roland Betancourt
Professor Bert Winther-Tamaki

2018

DEDICATION

To

Asghar, Louisa, Payam, and Mazamir

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ABSTRACT OF THE THESIS

Between Transparency and Opacity: Charles Ross's Approach to the Real

By

Golzar Yousefi

Master of Arts in Art History

University of California, Irvine, 2018

Associate Professor James Nisbet, Chair

Charles Ross is an artist with a background in mathematics and sculpture who has incorporated light into virtually all of his practices. In addition to the ordinary light of everyday spaces, Ross makes use of celestial light as well as the elemental behavior of light. Using the art of Ross as a case study, I consider the way the artist's engagement with light cultivates a multidimensional space that is at once subjective, physical, atmospheric, and temporal. By framing my analysis of Ross's art around the elements of light and time, I aim to diverge from the existing emphasis on the role of perception in the critical reception of Ross's work. Rather than concrete vehicles for perception, I situate the works in the transitory space between transparency and opacity. Ultimately, I believe the artworks' comprehensive space is under-evaluated in the artist's reception, not only because Ross's precise use of mathematic and astronomic calculations biases interpretations that simply point to science, but also because this multidimensional space is beyond comprehension and resists interpretation. The comprehensive space of Ross's work seems to approximate the complex interconnected web of the universe. In doing so, however, it presents a space that is just as difficult to grasp as the reality it approaches.

INTRODUCTION

Charles Ross is an American artist who has been active since the 1960s, producing a variety of works that deal with light and time. With a background in mathematics and sculpture, Ross's interest in the concepts of light and time eventually led him to adopt theories and techniques from astronomy to produce works that make direct use of light from the solar system.

Ross's earliest sculptural works were designed and used for experimental dance performances, but, taking a cue from a remarkably influential dream, Ross shifted his artistic practice entirely to a different set of materials that allowed him to maintain the unwavering commitment to light that remains active in his practices today.¹ While the materials changed, the confrontational, kinetic relationship that Ross had integrated into his sculptural practice for the dance performances remained an integral component of his visual art.

The form and materials of his works, as well as their settings, have led critics and historians to align his practice with the categories of minimalism and land art. As is the case with all artists, though, it is necessary to engage with Ross's art independent of such retroactive groupings to investigate the concepts that may be left out by their common frameworks of interpretation. The vocabularies of these movements provide clarity for the discussion of Ross's work, but they can also be restrictive. While the concepts from minimalism and land art are helpful aids when articulating the dynamic potential of space in relation to perception, they disproportionately emphasize the experience of the subject encountering the work and the physical space where the work is situated.

¹ Charles Ross, "Charles Ross: Interviewed by Loïc Malle," in *Charles Ross: The Substance of Light*, ed. Thomas

In the first three sections, I consider the way Ross's sculptural, two-dimensional, and architectural works engage with perception, space, light, and time. The interplay of these four elements throughout Ross's engagement with these media cultivates a multidimensional space that is the root of the artist's practice. Borrowing from discussions of perception in minimalism, I argue that the confrontational relationship between Ross's art objects and the subjects encountering them results in subjective space that extends beyond the physical boundaries of the artworks. Considering the phenomenal qualities of light in relation to the material structure and configuration of Ross's art reveals additional dimensions of space in the artist's works. By utilizing light as a material component of his work, Ross incorporates atmospheric space into his artwork. By engaging with celestial phenomena over both fixed and extended periods of time, Ross also incorporates temporal space into his artwork.

Ultimately, I believe the artworks' comprehensive (subjective, physical, atmospheric, and temporal) space is under-evaluated in the artist's reception, not only because Ross's precise use of mathematic and astronomic calculations biases interpretations that simply point to science, but also because this multidimensional space is beyond comprehension and resists interpretation. The comprehensive space of Ross's work seems to approximate the complex interconnected web of the universe. In doing so, however, it presents a space that is just as difficult to grasp as the reality it approaches.

MINIMALISM, STRUCTURE AND CONFIGURATION IN ROSS'S PRISM

SCULPTURE

In “Lightness of Being: The Art of Charles Ross,” Klaus Ottmann presents a historical account of Ross’s life and oeuvre, paying careful attention to situate Ross’s practices within art history and his cultural context in the art communities of San Francisco and New York City in the 1960s.² By the mid-sixties, Ross had completed his studies at UC Berkeley—where he received a Bachelors degree in mathematics and Masters in sculpture—and had begun presenting a variety of sculptural works, predominantly in San Francisco and New York City. It is possible to identify Ross with this time period simply by considering the types of materials he was using in his sculptures. The practices of European and American artists throughout the twentieth century have been traced as a progressing history of artists making art from stuff that had not previously been used for (fine) art. Marcel Duchamp’s use of any old thing for *readymade* sculpture and Cubist and Dada artists’ use of ephemera for collage are often identified as formative practices that postwar artists returned to and expanded upon. From this characterization, twentieth-century artworks can be categorized into progressions of avant-garde practices that continually expand the category of acceptable artistic materials beyond the traditional materials of painting and sculpture. By the sixties, artists were using everyday materials that were specifically related to industrial production and junkyards.³ Ottmann’s description of Ross’s preliminary sculptural practice—“composite constructions made from wood, welded metal, screws, bolts, and various materials picked from junkyards or that had washed

² Klaus Ottmann, “Lightness of Being: The Art of Charles Ross,” in *Charles Ross: The Substance of Light*, ed. Thomas McEvilley (Santa Fe: Radius Books, 2012), 12–34.

³ James Meyer, “The Art Gallery in the Era of Mobility,” in *Los Angeles to New York: Dwan Gallery, 1959-1971*, ed. James Meyer (Washington: National Gallery of Art, 2016), 42–43.

ashore at the Berkeley mudflats”—lists materials that can be interpreted as typical of this time period.⁴

In 1965, Ross scrapped the majority of his existing work, transitioning away from materials aligned with assemblage toward materials associated with minimalism. Ottmann provides a romantic retelling of Ross’s pivotal “prism dream,” which prompted this complete change of practice. Ross abandoned the junkyards and mudflats altogether

after awakening one morning in 1965 around the time of Thanksgiving from an unusually detailed dream of how to build a prism sculpture. The dream was still present after a whole day of consciousness, so he decided to sketch the engineering plan from his memory of the dream. The next day he bought the materials and began work on the first crude prism. Within a week he sent almost all of his earlier works to the dump.⁵

This sounds a lot like an artist’s equivalent of a superhero origin story and I would be inclined to disbelieve it altogether were it not for Ross’s overwhelming candor in interviews and general reputation for being a straightforward person.⁶ Furthermore, Ottmann is mindful to list examples from early-sixties art, fiction, science, and philosophy that reveal the pattern of interest in crystals at this time. Upon reflection, it is not too

⁴ Ottmann, “Lightness of Being,” 14.

⁵ Ottmann, “Lightness of Being,” 16.

⁶ Far from the stereotypically enigmatic artist insistent on letting the work speak for itself, Ross has a reputation of being generous with his interviewers. In a recent feature for the *New York Times Style Magazine*, Nancy Hass surveyed a handful of artists, whose endeavors involve decades-long commitments to single works of art, noting that “the so-called land artists...remain the poster children for [this] creative endurance.” Hass, “The Artist’s Life: What Happens When a Single Art Project Becomes a Decades-Long Obsession?” *New York Times Style Magazine*, September 18, 2018, <https://www.nytimes.com/2018/09/18/t-magazine/longterm-art-projects.html>. From her interviews with Michael Heizer, James Turrell, and Ross, she identifies Ross as “the most accessible and voluble of the three men.” Hass, “The Artist’s Life.” I received additional confirmation of this impression of Ross when I visited Gerald Peters Gallery in Santa Fe, where Evan Feldman, the gallery’s director of contemporary art, had curated an exhibition of Ross’s Solar Burn tiles in 2012. Charles Ross. “Solo Exhibitions.” Accessed October 2018. <https://charlesrossstudio.com/biography/solo-exhibitions/>. In our discussion of the artist’s exhibition practices, she encouraged me to reach out to Ross directly via the Land Light Foundation, the non-profit organization established to secure and manage funding for *Star Axis*. “Land Light Foundation, *Star Axis*.” Accessed October 2018. <https://www.landlightfoundation.org>. The massive artistic venture requires not only years of effort and continuous fundraising, but also ample labor. Unsurprisingly, the diligently self-funded project employs student interns and Ross remains accessible to critics and students alike.

outlandish that someone—especially an individual with a lasting interest in geometry and sculpture—should have dreamt of this subject with such precise detail.

At the time of this dream, Michael Heizer occupied the studio one floor below Ross's in San Francisco.⁷ As a primary witness of this moment in Ross's biographic folklore, Heizer memorialized Ross's dream-induced "aesthetic death" and subsequent rebirth in "Obituary," a contribution to the catalogue accompanying an exhibition of Ross's prisms at Dayton's Gallery 12 in Minneapolis in 1968.⁸ The title signals the poetic flourish that animates Heizer's text, but the true emphasis lies in Heizer's discussion of the prisms' configuration and the effects produced by their structure. Ross had previously constructed some prism sculptures from painted panels of wood, but after his prism dream he constructed the vast majority from multiple sheets of Plexiglas filled with a liquid mixture (for examples of such works, see Examples 1–4 listed in the Appendix).⁹

Heizer underscores the phenomenal functions of the "transparent, translucent, reflecting,

⁷ Ross moved from this San Francisco studio at 40 Gough Street to New York City, first to a studio on Eldridge Street and eventually to a studio at 80 Wooster Street. The role of community can be downplayed in discussions of artists' careers, which can too easily lean on a positive bias of the independent creative process as an interpretive crutch. (It would be fair to consider my writing here in the same vein.) In *Illegal Living: 80 Wooster Street and the Evolution of SoHo*, Roslyn Bernstein and Shael Shapiro spotlight the influence of local communities in cultural production. Bernstein and Shapiro, *Illegal Living: 80 Wooster Street and the Evolution of SoHo*. (Vilnius, Lithuania: Jonas Mekas Foundation, 2010).

⁸ Michael Heizer, "Obituary," in *Charles Ross: The Substance of Light*, ed. Thomas McEvelley (Santa Fe: Radius Books, 2012), 325–326. First published in conjunction with the exhibition *Charles Ross: Prisms*, organized by and presented at Dayton's Gallery 12, Minneapolis, 1968.

⁹ The components of this oil-based liquid mixture are kept secret and I cannot help but wonder about the recipe for this mysterious fluid. Perhaps it is unremarkable and I would think very little of it if I knew the elements, but the commitment to keep this information secret prompts some reflection. Since the transition to the liquid mixture was a complete change of practice, a certain degree of dissatisfaction with the initial water base can safely be assumed, but I remain curious about the motivation for the switch. Maintaining the immaculate surface of the Plexiglas is an essential practice for the creation, assembly, and storage of the prism sculptures. The acrylic is coated with an "abrasion-resistant material" and at his earliest exhibitions in San Francisco Ross emphasized specific instructions for how they ought to be handled. Ottmann, "Lightness of Being," 17. When filling the prisms, he included instruction for how to treat interior bubbles or exterior splashes. The liquid mixture may contribute to the uninterrupted transparency of the sculptures in their final display, but, beyond the matter of efficient maintenance and display, the liquid mixture most likely produces a preferred effect when the sculptures are encountered. The ultimate function of this arrangement of materials is to produce a particular series of phenomena.

mirroring, distorting, magnifying, refracting, bulging, fragmenting, compressing, repeating, and altering” prisms.¹⁰ He is careful to apply his discussion of these phenomena not just to the surfaces of the prisms, but holistically to the interplay between the prisms’ interior, exterior, and liminal spaces. The prisms are active agents as a result of Ross’s design. Owing to the arrangement of these transparent materials, they are not “looked at,” but rather “looked with,” in the sense that—rather than simply viewing the static components of the sculpture—the viewer must contend with the prisms’ capacity to manipulate the surrounding environment by producing dynamic visual phenomena.¹¹

I would be remiss if I failed to acknowledge these developments in Ross’s artistic practice in relation to the viewpoint articulated by the artist and critic Donald Judd in his essay, “Specific Objects,” published in an issue of *Arts Yearbook* from the same year.¹² Judd’s essay discusses “the new three-dimensional work” that was making use of alternative materials and offers an explanation for the change of media as it relates to the exhausted practices of painting and sculpture. In Judd’s assessment, the traditional media of painting and sculpture had reached a state of over-determination that inhibited artists’ ability to communicate something (new) on their own terms. The use of alternative media allowed artists to establish their own (new) presentation of form, space, and compositional structure. He sets a preliminary boundary to reject the historicization of the novel practices as a “movement, school or style,” not only because the practices are too varied to be unified but also because “movements no longer work; also, linear history has unraveled

¹⁰ Heizer, “Obituary,” 325.

¹¹ Heizer, “Obituary,” 325.

¹² Donald Judd, “Specific Objects,” in *Donald Judd: Complete Writings 1959–1975* (New York: New York University Press, 1975), 181–189.

somewhat.”¹³ Despite this explicit clarification, the ideas from his essay have been disproportionately applied to minimalist sculpture and industrial materials. For the purposes of this discussion, however, it is sufficient to understand Judd’s essay as primary evidence of changing attitudes towards traditional media, rather than an explanation of the artistic movement of minimalism, to which he has become so closely associated.

Ross’s use of industrial materials is relevant to these developments in sculptural practices beyond a primary level of formal similarity. An expected byproduct of the coincidence of Ross’s “complete break” following his prism dream with Judd’s 1965 essay, his transition from found materials to industrially manufactured materials could simply be characterized as participation in the broader trend that resulted from the novel access to such materials.¹⁴ However, there is also a conceptual continuity between found materials and the typical materials of minimalist sculpture—at least in the manner Ross adopted them. Here, a discussion of Ross’s practices in relation to minimalism is productive.

Both assemblage and minimalism have a relationship with site and re-presentation. While found materials literally come from a place and have a preceding life as objects, minimalist sculptures incorporate the surrounding environment into their artistic logic. Assemblage sculptures transform discarded materials and present them anew. By incorporating experience into the artwork, minimalist sculptures blur the distinction between the viewer and the art object. In other words, just as assemblage works re-present artistic materials, minimalist works re-present the artistic encounter.

Ross notably created and presented his assemblage sculptures in collaboration with experimental dance performances, working with Anna Halprin’s Dancers’ Workshop in San

¹³ Judd, “Specific Objects,” 181.

¹⁴ Ross, “Interviewed by Loïc Malle,” 290.

Francisco from 1964–1966 and later with the Judson Dance Theatre in New York City (Examples 5–6). The sculptures were displayed on stage so that the dancers would have to reckon with their presence. Since Ross kept the kinetic relationship in mind when designing the sculptures, both the works and the dancers were confronting each other.

A similar logic of confrontation is also present in Ross's transparent prism sculptures. The geometric fluid-filled acrylic structures are both reflective and transparent, so external visual phenomena simultaneously pass through and reflect on different surfaces of the prisms. In this way, the prisms establish an interactive spatial relationship between viewer and object that warrants situating Ross's art in the minimalist category. Ottmann provides this analysis of the prisms, placing emphasis on the pivotal role that light plays in this process:

They are perceptual vessels that simultaneously display different views and perspectives inside their various geometric shapes, considered by the artist to be the most minimal medium to achieve the maximum effect of shifting a viewer's perception of place and self—minimalist objects that allow the viewer to see relativity through the medium of light. These objects do not refract light as much as they provide an experience of relativity by containing or presenting various perspectives. Through them the world can be observed simultaneously from several sides or moving at different speeds.¹⁵

The prisms reflect a manipulated appearance of the external phenomena, rather than a mirror image, in order to challenge the viewer's expectations. The state of the viewer's perception becomes as much a component of the artwork as the object itself. Ross's assemblage sculptures conceived for dance performances also interacted with their surrounding environment in a way that internalized exterior phenomena, muddying the separation between the dancers and the sculptures and making the physical boundaries of the work ambiguous. These branches of Ross's sculptural practice are often treated as

¹⁵ Ottmann, "Lightness of Being," 17.

completely distinct from each other—an expected outcome of the dramatic retellings of Ross’s prism dream coupled with Heizer’s “Obituary”—but Ross signals the evident continuity by referring to the prism sculptures as “a living assemblage” because of their ability to re-present their surrounding environment.¹⁶ This means that the relationship between the prism sculptures and their environment is not merely a component of the spectator’s perception, but also a product of the prisms’ physical presence.

Understanding minimalist artwork as works with the capacity to produce phenomena for the sake of the viewer’s experience while emphasizing the viewer’s corporeal presence in relation to the physical art object, Ross’s prisms have a direct relationship with minimalism. Because the multi-surfaced structures produce multiple reflections, Ottmann interprets the appearance of the reflections as the prisms capacity to draw multiple perspectives into their very structure, making them a vessel for perceptions. His comment on “an experience of relativity” here specifies the multiple experiences that are collapsed. Ottmann’s characterization may obscure the nature of the experience that Ross’s work generates. The prisms fall short of producing the concrete experience that Ottmann describes. This doesn’t mean the works are inadequate, but simply that the experience the prisms produce concerns not the promotion of perception, but rather the precarity of perception. His prism sculptures, like the sculptures he created for dance performances, facilitate a particular type of engagement. The confrontational relationship between subject and object need not resolve.

¹⁶ Ross, “Interviewed by Loïc Malle,” 291.

SPACE AND LIGHT IN ROSS'S TWO-DIMENSIONAL WORKS

These concepts from assemblage and minimalism also carry over to Ross's two-dimensional objects (including Solar Burns, Star Maps, and Exploded Pigment works) and architectural works (Prism/Spectrum installations and the earthwork *Star Axis*). In all of these works, a spatial relationship is established in such a way that a natural or typical encounter is re-presented. Ross's Solar Burns are the product of an arrangement of two materials under direct sunlight: a flat-plate Fresnel lens placed over a plank of wood (Examples 7–8). As opposed to a conventional convex lens, a Fresnel lens is a flat lens made up of linear or circular sections of prisms of varying angles. This design allows the lens to capture light at a wider variety of angles with less material. In the past, Fresnel lenses were utilized for light houses, but today they are used for a variety of functions including traffic lights, tail lights, stage lights, retinal imaging, 3-D printing, and concentrating solar energy for solar power. For the Solar Burns, the Fresnel lens captures sunlight over a specific duration of time and focuses it downward on the plank below. The planks are "pretreated with a fireproof substance and coated with a white paint to hold traces of the smoke plume."¹⁷ Both the atmospheric conditions (specifically the cloudiness of a given day) and the position of Earth relative to the sun (seasons) determine the shape of the subsequent "burn" that forms on the plank (or does not form on the plank).

The Star Maps similarly use lenses to generate two-dimensional products from the celestial sphere (Examples 9–10). In this case, Ross does not stop at the sun, but goes on to make use of the imprints of as many stars as possible. The form of the geocentric maps is created from the arrangement of 428 photographs published in the Falkau Atlas that were

¹⁷ Ottmann, "Lightness of Being," 24–25.

taken by "amateur astronomer Hans Vehrenberg."¹⁸ The collection of photographs "cover the entire celestial sphere from pole to pole."¹⁹ Ross's arrangement of these photographs was grounded on a commitment to avoid the cartographic distortion of three-dimensional space as much as possible. He attempted this by straightening the curves along the sun's path through either the Milky Way or the Ecliptic. As a result, the maps have neither elliptical nor rectangular outlines, but rather varying irregular shapes. If one were to cut along the edges of any one of the Star Maps and piece the edges of the two-dimensional sheet together, the result would be a spherical map, approximately six feet in diameter.

Ross's Exploded Pigment works are constructed with explosive Primacord and powdered pigments in the twelve spectrum colors on either dry paper, in the case of the Exploded Pigment Drawings, or aluminum plates primed with wet oil, in the case of the Exploded Pigment Paintings (Examples 11–12). Like the Star Maps and Solar Burns, the Exploded Pigment works are two-dimensional, but they are the result of a multidimensional process. When the Primacord is ignited, the powdered pigment and explosive thrust beyond the surface of the flat plates. The materials then settle back on the surface and they may also disperse elsewhere. Ross's motivation is to adopt the concepts and methods of particle physics to chart the "behavior" of light.²⁰ The process is configured in this way in order to engage with the elemental state of light. In addition to the spatial and sensory dimensions of the process, the exploded pigment drawings also have a temporal dimension, as the arrangement of the Primacord and the point of ignition determine the duration of the explosion. The atmospheric conditions can also influence the

¹⁸ Ottmann, "Lightness of Being," 25.

¹⁹ Ottmann, "Lightness of Being," 25.

²⁰ Ottmann, "Lightness of Being," 23–24.

outcome of the works, as wind and humidity can influence the way the particles move and settle. While the materials can be selected and composed to yield a desired outcome, the ultimate product is beyond a certain degree of control.

In a number of ways, these two-dimensional works include characteristic elements of minimalistic artworks, such as the use industrial materials (Fresnel lenses and Primacord), as well as the correspondence of the works' scale with the human body. In addition to the Star Maps' specifically six-foot scale, all three of these two-dimensional types are typically exhibited serially, as is also customary with the prism sculptures, so that their arrangement engenders paths of movement and relations of scale when the works are encountered. Beyond scale and display, the two-dimensional works' relationship with the body has an imagined or phenomenal dimension that can be articulated via a discussion of their configuration as it relates to Ross's sculptural works.

In the sculptures, the location of the work is structurally specific. They were displayed on stage, in galleries, or in the city, with the physical boundaries of the objects evident from their solid surfaces. While the boundaries of the sculpture are evident, the phenomenal dimension of the work, discussed in the previous section as the subject's perceptual experience upon encountering the sculptural objects, occupies a more ambiguous space. To clarify, however, the phenomenal dimension of Ross's work is not simply the space of experience, but also the tangible, physical space the work occupies. The assemblage sculptures were explicitly interactive in performance settings, but the manner in which the prism sculptures reflect external matter, both through and on their

transparent structure, allows the prisms to incorporate external material in any setting.²¹ This also allows the prisms to serve as a better-suited example of the spatial dimension discussed here. Due to the way the prism sculptures internalize these exterior phenomena, the physical space beyond the prisms is incorporated in the artworks as well. The sculptures and the subjects encountering the sculptures are all on the artworks' stage together. Furthermore, the manner in which the prism sculptures internalize exterior matter is not simply a result of the transparent and reflective materials of the sculptures, but also a result of the behavior of light. The visual phenomena that the prisms generate for the subject's encounter are a result of light's capacity for reflection and refraction. The sculptures' open relationship between subject and object is then both a product of incorporating the viewer's perception into the artwork, as well as a result of the incorporation of the surrounding space, both physical and atmospheric.

The prism sculptures interact with their space by reflecting, fragmenting, warping, disorienting, and reorienting the light from their surrounding environment. The two-dimensional works similarly interact with their space by engaging light. More specifically, however, these works represent the product of the energy field of light concentrated over a fixed duration of time. The subject's encounter with the prism sculptures engages with light in the present tense, while their encounter of the two-dimensional works engages with light in the past tense.

As is the case with the prism sculptures, the manner in which the two-dimensional works engage with and re-present light stages the work in an open and nebulous space.

²¹ In the exhibition setting, Ross sought to make the prisms' inclusive relationship with space both in and outside the gallery setting explicit by including photographs of the sculptures displayed in various public spaces. Paige Rozanski, "Virginia Dwan Chronology," in *Los Angeles to New York: Dwan Gallery, 1959-1971*, ed. James Meyer (Washington: National Gallery of Art, 2016), 312.

Though the works are two-dimensional, the process of their configuration implies space beyond the surfaces they inhabit. In the Solar Burns and Star Maps, the use of the sun and the stars extends the space of the works deep into the atmosphere to a cosmic scale. In the Exploded Pigment works, the appropriation of particle physics inversely narrows the space of the works into the molecular space of light's particles. The prism sculptures incorporate the presence of both physical matter and immaterial phenomena from their environments. These two-dimensional works further emphasize light, which itself exists in the liminal space between material and immaterial. The configuration of these works reveals the way that Ross's art incorporates subjective, physical, atmospheric, and all interstitial space into their design. Due to the way Ross makes use of light, one can think of space in his work like the meticulously filled interior space of the transparent prisms—carefully filled to the brim.

SPATIOTEMPORALITY IN ROSS'S ARCHITECTURAL WORKS

The phenomenal encounters in Ross's architectural works adhere to a similar configuration, however, just as it can be argued that the two-dimensional works foreground light in their configuration, it can be argued that the architectural works make the function of time in Ross's practice more readily apparent.

The Prism/Solar Spectrum works are “permanent, site-specific installations” with each one “specifically tuned to the sun for a particular time of day and season” (Examples 13–15).²² The Spectrum prisms utilize much of the same materials as Ross's prism sculptures, but the shapes of the dispersive prisms here are typically limited to triangular

²² Thomas McEvelley, ed., “Prism/Solar Spectrum,” in *Charles Ross: The Substance of Light*, ed. Thomas McEvelley (Santa Fe: Radius Books, 2012), 205.

polyhedra in order to best refract light into the visible color spectrum. Some Spectrum works integrate the dispersive prisms into the existing architecture of a space in the form of skylights or windows, while others, such as the *Dwan Light Sanctuary* (1996), are designed in collaboration with an architect for a completely new structure.

Located on the United World College campus in Montezuma, New Mexico, the *Dwan Light Sanctuary* was “conceived and commissioned by Virginia Dwan as a place for quiet reflection, based on the number 12.”²³ In addition to Dwan, who featured Ross at her influential gallery from 1968–1971, Ross developed the work alongside architect Laban Wingert.²⁴ Adopting elements of New Mexican pueblo-style architecture, the building has a circular foundation and an overall truncated-conical shape and the exterior façade consists of stucco and stone bricks. The central interior space is circular, with the main entrance, side entrances, and a bathroom situated on an outer spiral.²⁵ Due to the conical shape of the building, the white walls within the main circular space of the *Sanctuary* are curved and angular. These walls appear to fluidly transition into benches that line the room. This fluidity is punctuated by three alcoves, two on the same level as the central space and one elevated four steps above. Each of the two ground-level recesses features a vertical rectangular window fixed with six of Ross’s triangular Plexiglas prisms. There are twelve additional prisms affixed to skylights in the ceiling above the central space—six prisms in two skylights shaped like annular sectors and another six prisms in two square skylights. In

²³ McEvilley, “Prism/Solar Spectrum,” 208. The UWC-USA campus, founded by Armand Hammer, is one of the seventeen international UWC college-preparatory schools. UWC students are predominantly between 16 and 19 years old. While the *Dwan Light Sanctuary* is open to the public, the college is a closed campus with a meticulous commitment to security. “UWC-USA: About Us.” Accessed November 2018. <https://www.uwc-usa.org/page.cfm?p=497>.

²⁴ Rozanski, “Chronology,” 310.

²⁵ The integration of practical elements such as bathrooms, benches, and, in *Star Axis*, sleeping accommodations serves as a telling marker of Ross's emphasis on durations of time in these architectural works.

both windows and all four skylights, the space between the prisms is filled by opaque acrylic panels that obscure the clear glass from view. In total, there are twelve prisms on the ceiling and twelve prisms on the walls and all of the prisms are oriented in varying directions and angles. Unlike the two ground-level alcoves, the third elevated alcove leads up to a platform with a single square window facing north. This traditional picture window grants access to an unimpeded view outside.

Due to Ross's "astronomical alignment" of the *Sanctuary's* elements, direct sunlight does not pass through the picture window, but the daily arc of the sun passes from the eastern prism window, over the skylights, and finally through the western prism window.²⁶ The dispersive prisms and the sunlight interact in the *Sanctuary* in a number of ways. Depending on the angle of the sunlight and the orientation of the prism, the prisms refract the sunlight into the visible color spectrum and cast rainbows on the interior surfaces of the room. The angle and intensity of the sunlight determines the quality of the rainbow: the colors of the rainbow can range from sharp and vibrant to grainy and dull; the rainbows can be a complete sequence of the twelve spectrum colors, a repeating or continuing sequence of the spectrum colors, or an incomplete sequence of the spectrum colors; and the rainbows can be cast onto the interior surfaces in a variety of shapes, such as rectangles, ellipses, circles, straight and zigzagging lines, and chevrons. For a majority of the twenty-four prisms at a given moment, the angle of the sunlight and the orientation of the prisms do not refract light into the visible color spectrum and instead concentrate sunlight into rectangular casts of white light. As was the case with the dispersed light, the intensity of the sunlight determines the quality of the cast white light, which can range

²⁶ McEvelley, "Prism/Solar Spectrum," 208.

from bright and piercing to faint and soft. The shapes of the casts of white light are not as varied as the spectrums, but their prevalence, often casting onto the interior surfaces in the groups of three and six from the windows and skylights, has a dynamic quality. As they form up and down the length of the walls, stretching across the benches, floors, and ceilings, they take on the appearance of steps.

There are also instances when the sunlight does not pass through the prisms—neither as dispersed light nor as concentrated light—but instead reflects directly on the surface of the prisms. In this type of light interaction, the trees outside the prism windows and the sky above the prism skylights reflect on the surface of the prisms, but the forms are nothing like looking outside of the picture window. On the prism surfaces, the trees and sky stretch, shrink, invert, and contort in fuzzy oil-slick pinks, purples, greens, and yellows. The varied orientations of the prisms allow the surfaces to reflect the same objects in a number of different ways. One prism may reflect a magnified and widened cropping of the fallen pinecones outside, while another may reflect the trees hanging from the ground like stalactites. By shielding the clear glass beyond the prisms arranged in the windows and skylights, the opaque panels between the prisms make it so that there is as much of a difference between looking through (or attempting to look through) the prisms and looking through the square window as possible. When close enough, it is possible to see the clear glass from between the opaque panels and prisms, but the reflections on the surface of the prisms are distracting. The fluctuation of the reflections is relative both to the movement of the viewer and the intensity of the light. As the sun passes out of range, the vibrant pinks, purples, greens, and yellows progressively lose their hue.

The season, the day, and the time all influence the potential light interactions within the space. In addition to daily weather patterns, the earth's annual revolution around the sun and daily rotation around its axis inform the composition of the work. Summertime is peak season for the *Sanctuary*, as visitors take advantage of the long days and clear skies, but the Spectrum work has visitors year-round. At a given moment, any combination of these light interactions may be visible in the *Sanctuary*. None of the light interactions are lasting. Not only do the spectrums and white light move around the interior surfaces as the minutes pass, but, even within a matter of seconds, the shapes of the light casts may stretch or shrink, widen or elongate, and the intensities of the light casts may sharpen or soften. Although the *Sanctuary* has a daily cycle and a relationship with the different seasons, the role of temporality in the work is beyond any particular moment in time. The Spectrum work has duration, but the duration is indeterminate.

Star Axis is an earthwork that has been in development since 1970, the year Ross's conception of the work first began to germinate (Example 16). In 1971, he ventured out to New Mexico in order to locate the ideal site to begin construction, eventually settling on a particular mesa in northern New Mexico in 1975.²⁷ The next five years were spent priming the site for construction. Having established a five-mile dirt road leading to the site and hollowing out a space in the mesa in the form of a conical wedge, Ross was then able to begin construction on the five elements of *Star Axis*: the Equatorial Chamber, Star Tunnel, Solar Pyramid, Hour Chamber, and Shadow Field.²⁸ Collectively, these five elements are approximately "eleven stories high and about a tenth of a mile across," with the Equatorial

²⁷ Thomas McEvelley, "Charles Ross: Following the North Star," in *Charles Ross: The Substance of Light*, ed. Thomas McEvelley (Santa Fe: Radius Books, 2012), 44–45; Ottmann, "Lightness of Being," 30–31.

²⁸ The use of explosives at this stage of *Star Axis*'s development guided Ross's development of the Exploded Pigment works. Ross, "Interviewed by Loïc Malle," 298.

Chamber at the base of the Star Tunnel marking the lowest elevation and southernmost point of the work, the apex of the Solar Pyramid marking the highest elevation, and the Shadow Field marking the northernmost point.²⁹

The Star Tunnel is made up of a flight of 163 stairs (approximately 7½ inches each) that climb from the base of the hollowed mesa up into the Solar Pyramid. The stairs' angle of elevation parallels the Earth's north-south axis, the celestial pole. Though it is titled as a tunnel, the first stretch of the Star Tunnel is only enclosed on two sides and does not block the sky above from view until the path passes through the Solar Pyramid. Upon ascent, a circular opening at the apex of the Solar Pyramid remains in view. The following description, quoted from Thomas McEvelley's contribution to Ross's monograph, "Charles Ross: Following the North Star," describes the central action of *Star Axis*:

As one walks toward the viewing aperture, the array of stars in the frame shifts constantly as it goes through the motions of an entire precessional year. On some of the stairs, one's positions in the transpiring years of the cycle will be indicated on the metal stair risers. Meanwhile Polaris stays centered in the circular frame.³⁰

Due to the gravitational pull of the sun and the moon, Earth rotates around two axes. In addition to its daily rotation around the celestial pole, Earth also rotates around the ecliptic pole. The precessional cycle, a single rotation around the ecliptic pole, takes about 26,000 years. The so-called "wobble" of Earth's celestial axis is a result of the millennia-spanning precessional cycle. Because of this wobble, the star closest to Earth's northern pole is always shifting. Gradually, Polaris, the current North Star, will shift out of proximity and

²⁹ Thomas McEvelley, ed., "Star Axis," in *Charles Ross: The Substance of Light*, ed. Thomas McEvelley (Santa Fe: Radius Books, 2012), 249.

³⁰ McEvelley, "Following the North Star," 50.

another star will be in the position.³¹ *Star Axis*'s precise degree of elevation and its orientation due north frames not only Polaris, but the past and future North Stars as well. Presently, the shifting array of stars visible from the viewing aperture as one ascends the Star Tunnel allows the subject to encounter an approximation of Polaris's orbit.

Beginning in 1979, photographer Edward Ranney visited and photographed the development of *Star Axis* annually, eventually publishing some of his photos alongside a description of his encounter of *Star Axis* in an essay for *Aperture* in 1985. In "Excavating the Present," Ranney makes reference to Ross's initial proposal for *Star Axis*, "Where the Earth Meets the Sky," so that both artists discuss the work as a naked-eye observatory to "make visible the shape of light and time."³²

Although the many features of *Star Axis* are oriented to the stars, the work is more complicated than an observatory. An observatory allows viewers to observe distant phenomena. In the process of viewing through a telescope, the device allows viewers to draw lines between a single point of view and a point of destination. While the placement of the telescope and the point of destination are variable, the linear relationship is maintained. *Star Axis*, however, intentionally has multiple points that structure the work. This collection of points—the celestial pole, the pole of precession, and the celestial equator—should not be isolated or overemphasized. Their function is not simply to be observed relationally, but to be encountered affectively. *Star Axis* is not a viewing apparatus, but a complex space intended for navigation. Climbing the stairs of *Star Axis* does not lead to a destination. While each of the components of the complex render celestial phenomena perceptible—in addition to Polaris's circumpolar orbit and the cycle

³¹ Ottmann, "Lightness of Being," 27.

³² Edward Ranney, "Excavating the Present," *Aperture*, no. 98 (Spring 1985): 42.

of precession approximated by the Star Tunnel, *Star Axis* also approximates an hour of Earth's rotation as the stars pass across the triangular portal of the Hour Chamber, the form of the Shadow Field is drawn from the shape of Solar Pyramid's shifting shadow throughout the year, the stars are framed along the celestial equator by the Equatorial Chamber, and the eastern doorway of the Solar Pyramid frames the sunrise on the spring equinox—these components are decisively interrelated. *Star Axis* is a sculpture of cosmic space and time. By integrating celestial phenomena that are in (simultaneous, but not concurrent) temporal cycles into the structure of the work, *Star Axis* gives physical definition to space-time. As a result of the interrelation of these spatiotemporal cosmic phenomena, reducing *Star Axis* to a linear relationship is inadequate.

Ranney's photographs during *Star Axis*'s development become all the more significant. Because the photographs evidence the process of constructing the work, and not the "completed" work, they prompt the viewer to wonder beyond the captured image. Even if/when "completed," the work is perpetually in a state of development. Any one capture, whether as a recording or a visit, will be incomplete because there is no adequate manner to capture the work. The work itself exists beyond the flattened dimension of witnessing a limited moment or sequence in time. Ranney seems to reference this in his essay, writing, "My work of recording this process has increasingly become a kind of archaeology in reverse, a way of excavating the present in order to recapture both the future and the past."³³ The experience is always a fractional approximation that generates an imagined experience of the scale of space-time. Not only is there no single meeting point "Where the Earth Meets the Sky," but there is also no single time when this meeting can be

³³ Ranney, "Excavating the Present," 42.

captured. *Star Axis* is both beyond the range of perceptible space and beyond the range of perceptible time. Ross's proposal, "Where the Earth Meets the Sky," is not so much a proposition for a site, but rather an invitation to encounter spatiotemporality, even if only obliquely.

By tuning with the solar system, the Prism/Solar Spectrum works and *Star Axis* internalize external phenomena as the prism sculptures and two-dimensional works do. The scale and design of the architectural works parallel the kinetic logic of Ross's sculptures for Anna Halprin's Dancers' Workshop and the Judson Dance Theater. In addition to their architectural structure, the works confront the subject with a direct encounter of celestial light. *Star Axis*'s approximation of precession and Polaris's orbit presents the human scale of these cycles. The light passing through the Prism/Solar Spectrum works can intersect with the subject's gaze and flood the space with a yellow glow. Like his earlier works, these architectural works establish a comprehensive space that incorporates subjective, physical, and atmospheric dimensions. By directly engaging with spatiotemporal phenomena, these works further obscure the boundaries of the work so that the brimming space can no longer be fragmented or contained.

LAND ART AND VIRGINIA DWAN

While Ross's architectural works incorporate the same artistic logic as his sculptural and two-dimensional works, a discussion of a separate dimension of Ross's historical reception is needed. Owing to the spectacular scale and presence of his architectural works, as well as his association with the key figures of land art, Ross's practices are often contextualized and interpreted within the scope of land art. In addition to

minimalism, discussion of Ross's relationship to land art is worth reflecting upon. However, it is equally important to scrutinize the way this frame of analysis may obscure key elements of Ross's practices.

Considering the bustling activity in the realm of artistic production in New York City at this time, it is possible to skew the weight of certain relationships out of proportion. In an interview with Loïc Malle, Ross referred to his relationship with other artists working in New York City during the sixties as "a big soup," often unable to identify precisely when or how different relationships, even meetings as decisive as his introduction to Dwan, were forged.³⁴ Ross's comment signals that we could profit by thinking beyond proximity and contemporaneity, but some relationships really are more meaningful than others.

Although she is indeed best known for operating the influential Dwan Gallery (to lump the Los Angeles and New York City spaces together), it is both misleading and limiting to describe Dwan as a gallerist. Not only was the lifespan of the gallery short-lived, but the gallery never turned a profit, so it would be prejudicial to measure her success by that metric. In the introduction to the catalogue accompanying the exhibition *Los Angeles to New York: Dwan Gallery, 1959-1971*, which celebrated the lasting influence of Dwan's practices, James Meyer captures the extent of Dwan's involvement in the practices of the artists she featured at her galleries. She was not just hands-on, but completely attuned to their processes. On her twenty-first birthday in 1952, Dwan inherited three million dollars from the Minnesota Mining and Manufacturing Company. By twenty-eight, she had forged enough contacts to open her namesake gallery, which staged 134 exhibitions between 1959

³⁴ Ross, "Interviewed by Loïc Malle," 292.

and 1971.³⁵ Her historical legacy, and the legacy of the artists she supported, are a testament to the pedagogic approach she maintained in her exhibition practices. It is more fitting to describe her as a producer, an insightful and savvy partner providing creative input, direction, and financial assistance. In addition to commissioning works, Dwan also supported her artists with monthly stipends that essentially sustained their employ as artists. It is also a bit misleading to describe her as a collector. The expansive collection she amassed throughout her career was impressively valuable and she undoubtedly reaped equally impressive tax benefits when she donated the wealth of works to various institutions, but she also built her collection with the mindset of an archivist. The artworks were not selling and the artists had reason to repurpose them or scrap them altogether. She served as an asset to future historians in other instances as well, traveling with artists and documenting their processes in photographs and film recordings. Her photographs valuably capture the amicably spirited encounters that accompanied the creation of celebrated works that are now overshadowed by a lofty and serious tone.³⁶

Dwan was not only a financial resource for the artists she featured, but she also modeled a commitment to creative support that yielded a community of collaborators attached to Dwan Gallery. The artists supported and collaborated with each other as Dwan did with them. In multiple instances, Dwan artists brought new artists into the gallery's fold: Yves Klein introduced Arman and Martial Raysse and Sol LeWitt introduced Ross. Ed Kienholz often helped gather, assemble, and/or construct materials for the other artists. Meyer cites the construction of a container for Arman, but notes the prevalence of this type

³⁵ Meyer, "The Art Gallery in the Era of Mobility," 28.

³⁶ Meyer, "The Art Gallery in the Era of Mobility," 19–22.

of assistance for the majority of the Dwan artists.³⁷ Naturally, this atmosphere was more complicated than this one-sided characterization. Klein's initial negative reception at Castelli and Dwan galleries serves as a notable example. The productive dialogue between coasts afforded by the jet age did not travel across the Atlantic as seamlessly. In addition to reviewers, visitors, and sales, the other artists at Dwan Gallery also received Klein's exhibition poorly. Since different work risks a new direction for the gallery that could potentially phase their representation out, this reception could be traced to the artists' envy or anxiety. However, Meyer also notes explicit xenophobia, which shouldn't be reasoned away.³⁸ It seems the network of artists at Dwan Gallery was supportive and collaborative more often than not and this type of negative climate was contained to the earlier years of Dwan Gallery's lifespan. Even though there were instances like the reception of Klein's first shows on the west coast, Dwan Gallery generally presented a productive and hospitable space for artists to enter and collaborate.³⁹

As part of the circle of artists working with Dwan, Ross's relationship with the standout practices connected to Dwan Gallery—minimalism and land art—is undeniably relevant. The historical development of land art is often traced as a development from minimalism. Although many of the same artists figure into discussions of both categories, it would be a better approximation to discuss the continuity between minimalism and land art in relation to Dwan. Dwan had been joining artists, most frequently Robert Smithson and Nancy Holt, on road trips and flights to distant locations in order to create works for some time, but these travel-based creative endeavors reached a crescendo in 1968. With

³⁷ Meyer, "The Art Gallery in the Era of Mobility," 47–49.

³⁸ Meyer, "The Art Gallery in the Era of Mobility," 39–41.

³⁹ Dwan actively maintained this symbiotic atmosphere. In response to Matsumi Kanemitsu's letter criticizing the other artists' work and character, Dwan not only defended the validity of their work, but also questioned Kanemitsu's continued standing with the gallery. Rozanski, "Chronology," 295.

additional artists participating in similar practices, including Heizer and Walter De Maria, gravitating toward her gallery's network, Dwan was able to organize a group exhibition showcasing these practices in October 1968.⁴⁰ The *Earthworks* exhibition featured ten artists and was "the first to treat land art as a genre."⁴¹ In a selection of her unpublished writing on earthworks included in the *Dwan Gallery* exhibition catalogue, Dwan writes about the way "recent memories of the pristine shows of LeWitt's white grids, Charles Ross's gleaming prisms, and William Anastasi's pure canvas images of the walls repeating the walls beneath them," contributed to the tone and reception of the *Earthworks* exhibition.⁴² Even when artists that were not involved in minimalist practices presented earthworks, their work remained in dialogue with minimalist art since both practices were presented in the same spaces. Not only would minimalism be foregrounded in recent memory, but both minimalist and land artworks comparably engage with their subjects' perceptions and surroundings. The earlier discussion of site and re-presentation can apply to both practices. There is, however, a nuanced aspect of the artwork's site that distinguishes land art from minimalism. In land artworks, the function of the site is more defined than the work loosely having a relationship with a place or the artwork's surrounding environment. Where in minimalist artworks, the object may have an environmental space beyond the boundaries of the artwork, land artworks are inextricably tied to a geographic location and the particularities of that contained geography. The term site-specificity can be applied to a variety of artworks that establish this kind of geographic

⁴⁰ *Artforum* had just published Smithson's essay characterizing land art practices, "A Sedimentation of the Mind: Earth Proposals," the previous month. Rozanski, "Chronology," 310.

⁴¹ Rozanski, "Chronology," 311.

⁴² Virginia Dwan, "Writings," in *Los Angeles to New York: Dwan Gallery, 1959-1971*, ed. James Meyer (Washington: National Gallery of Art, 2016), 261.

relationship, but site-specificity is nearly always applied to land artworks, indicating the ubiquity of the practice in land artworks.⁴³

Meyer discusses another dimension to sites in land artworks' beyond specific geographies. Before diving into his text on Dwan, Meyer makes it a point to articulate "the dialectic of mobility and place" in relation to site-specificity.⁴⁴ On a practical level, site-specificity is a product of mobility: the artist and/or the subject have to move to get to the work. By explicating the role of mobility as a dialectic, Meyer seeks to reveal a nuanced understanding of mobility in site-specific works that carries beyond this practical sense. He selects Smithson's *Mirror Displacement* (1969) as the example for his discussion of this dialectic in land art, not only because Dwan (and Holt) accompanied him on this particular trip, but also because it checks out for all of the key points for land art. For the *Mirror Displacement* works, Smithson travels to various minimally-populated locations with a suitcase of mirrors, which he most likely bought from a store, to create a composition. He then documents the composition with photography, returns the mirrors to his suitcase, and moves on to scout out another location to repeat the process. The mirrors only come together to form his composition when the space suits his desire for the artwork. The spaces—mostly patches of earth, sand, and foliage that, absent of the mirrors, do not appear to have markers of human intervention—are an essential component of the artwork and function like a found material. The photograph documents the work, but the removal of the mirrors signals the destruction of the work. The work only existed when it

⁴³ I do not wish to over-emphasize the phenomenal dimension of minimalist and land artworks. Beyond the fact that these artworks are environmental and alter perception, minimalism and land art are critically linked with the state of industrial development in the mid-twentieth century. The materials, travel, and labor they require are directly related to these historical developments in a specific way. When artists use these materials to similar ends today, it may be the same configuration, but it does not have the same relationship with the historical period ascribed to minimalism and land art.

⁴⁴ Meyer, "The Art Gallery in the Era of Mobility," 24–25.

was configured. The configuration of the *Mirror Displacement* works and the display of the photographs documenting the works demonstrate the many expressions of mobility in land artworks. Not only does Smithson have to travel to the sites, where the specificity of that place yields the creation of that artwork, but the arrangement of the reflective mirrors at the specific location and the subsequent proliferation of their photographic reproductions elsewhere (and beyond, since the conceptualization or memorialization of a place is its own kind of place) transforms the site. The “displacement” applies both to the subject encountering or creating the artwork and the place itself. So the discussion of mobility pertains not just to the literal travel required in land artworks, but also to this complex of displacements. “The dialectic of mobility and place” is this coexistence of site-specificity and site-transformation.

As is the case with minimalism, the elements of land art are drawn from the patterns that appear when a series of artistic practices are grouped together. All the practices have passed through a sieve, which allows us to reference the collection of pulp with ease. Still, the individual artists within these groupings may have as many practices out of sync as they do in common. In every case there is a host of material that has been filtered out, hopefully to be reconsidered on an individual, case-by-case basis.

While the language of minimalism proves to be a valuable tool when discussing Ross’s work, the language of land art seems to be more misleading than helpful. That Ross’s architectural works are large, immobile structures is a low threshold for categorizing Ross as a land artist. Not only is grand scale an unnecessary requirement for such works, but a significant facet of site-specific works is their potential, or even likely, impermanence. The relationship that a land artwork establishes with a site can be fleeting, like in Smithson’s

Mirror Displacement. The volatile state of stability and permanence in land artworks like Smithson's is not located in the structure of Ross's site-specific works. In Ross's architectural works, the structure maintains relative permanence and the phenomenon of spatiotemporality, while constantly shifting, retains a net stability. The precarity in Ross's work lies in its perception rather than its structure. I struggle to see the relevance of land art to Ross's art beyond a limited site-specificity. It is true that Ross has created a number of artworks with permanent geographic locations that are precisely configured to the movement of the earth in relation to the stars, but there is a sense that Ross could have adjusted his calculations to configure his works at any point on the globe. This site-inspecificity is the explicit reality of the Prism/Spectrum installations: "The ultimate goal is to create a nexus of solar spectrum artworks around the globe so that as the spectrum sets in one location, it is always rising in another."⁴⁵ Although they are "permanent, site-specific installations" as Ottmann describes them, they are also just bigger versions of his prism sculptures. The typical weather patterns of New Mexico are an attractive feature for Ross's solar-powered art, which benefits from the virtually cloudless skies and high altitude. Yet, even the decisively solar-based Solar Burns need not form burns in order to be Solar Burns and the same is true for the casts of light from the spectral prisms. It is the variety of forms that light does and does not manifest that establishes the comprehensive space of Ross's work.

For the vast majority of Ross's work, it is their orientation that is specific, rather than their site. *Star Axis* is truly the only exception to this, since Ross spent four years

⁴⁵ Charles Ross. "National Museum of the American Indian | Solar Spectrum Commissions." Accessed October 2018. <https://charlesrossstudio.com/collection/solar-spectrum/national-museum-american-indian/>.

touring the New Mexico landscape searching for the precise natural configuration of land that he could then carve into in order to align (and eventually dis-align) with the axis of the Earth and Polaris's designation as the closest star to true north. But even with *Star Axis*, it proves fruitful to discuss Ross's art outside the discourse of land art.

SKY ART

Before moving on from land art, however, it is important to clarify the instances when Ross's works are related to these practices. It is evident that Ross was influenced by and responding to the particularities of his time and the practices of his peers, so it is necessary to engage with the precise manner in which he did this. Beyond the superficial associations with Ross's prominent contemporaries, like the fact that they were involved with Dwan Gallery and went on to work in the American southwest with Dwan's continued support, it is more important to identify the ways their works were in dialogue with each other.

Ross's misfitting with land art is not necessarily exceptional. His emphasis of light and the celestial sphere has warranted discussions of his art within a sub-grouping discussed as "sky art" or "land/sky art." In "*Sun Tunnels and Archaeoastronomy*," Iris Amizlev-Shoham focuses her discussion on land art that extends skyward.⁴⁶ Though she mentions the names of other artists (including Ross), Holt's *Sun Tunnels* (1973–1976) serves as the primary object of her analysis. This analysis is significant not only because it considers an example from one of Ross's comparable contemporaries, but also because it offers an interpretation of land art that emphasizes the role of the sky.

⁴⁶ Iris Amizlev-Shoham, "Sun Tunnels and Archaeoastronomy," *Espace* 54 (Hiver/Winter 2000–2001): 34-36.

Like those of Ross, Holt's works also function as configurations between the celestial and terrestrial spheres, with meticulous consideration for the season, the day, and the hour as well as works aligned to specific astronomical phenomena. The design of Holt's *Sun Tunnels* is a point of intersection: four tunnels are placed on two intersecting axes, with the central point of intersection left open. This arrangement of tunnels in the Great Basin Desert in Utah produces a frame for the sunrise and sunset during the summer and winter solstices. The ceilings of the tunnels are punctured with holes of varying diameters that transcribe specific constellations—Columba, Draco, Perseus, and Capricorn.⁴⁷ Although significantly smaller than *Star Axis*, Holt's self-funded *Sun Tunnels* took years to complete as she sought out the ideal land for the work. Also like Ross's practice, Holt's works are arranged in order to be navigated, heightening the subject's perception and awareness of their corporeal presence.⁴⁸ In addition to the subject's scale in relation to the work, as well as the time it takes to move around and through the tunnels, the *Sun Tunnels'* configuration invites the subject to pass the time with the work. The visitor likely sticks around for the time it takes to watch the sunrise or the sunset, perhaps both, as well as time to stargaze or explore the tunnels' shadows and the light streaming through the holes. Milling about the *Sun Tunnels* must be something like hanging out in the *Dwan Light Sanctuary*: having to travel significantly out of the way to get to the work, the subject is there of her own volition, but, upon arrival, she relinquishes some of her control to the work, ultimately experiencing the works on the light's terms and in the light's time.

⁴⁷ Janet Saad-Cook, "Touching the Sky: Artworks Using Natural Phenomena, Earth, Sky, and Connections to Astronomy," interview with Charles Ross, Nancy Holt, and James Turrell, *Leonardo* 21, no. 2 (April 1988): 127.

⁴⁸ Saad-Cook, "Touching the Sky," 126.

Amizlev-Shoham identifies advancements in archaeoastronomy as the significant backdrop for land artists' works in the sixties, seventies, and onward—specifically the way archaeoastronomy contributed to the development of hypotheses about ancient archaeological sites. By focusing the many space-race advancements in astronomy down to the use of astronomy for archaeological investigations of ancient or prehistoric sites, Amizlev-Shoham forwards an interpretation of such artists' works that privileges an interest in the imagined primitive lifestyle of pre-historic time. While it is absolutely necessary to consider the artists' likely awareness of the interpretations of Stonehenge and Sun Dagger that were popularized in the '60s and '70s, the conclusion that these artists were specifically interested in reconnecting with an imagined primal lifestyle should not be emphasized. Although Amizlev-Shoham's analysis presents an interpretation of the role of the celestial sphere in land art, her conclusion sticks to the concerns of the terrestrial sphere. From her viewpoint, Holt's—and by extension, Ross's—artworks point to the sky only to bounce right back to earth.

Although the practices of Ross and Holt share a considerable amount of similarities, there is a key difference: their works have different relationships with space and perception. In Holt's work, the attention seems to be explicitly calibrated earthward with a prioritization of human experience and perception. In Ross's work, it is more difficult to identify a direction or emphasis, whether in the stars, the artwork, or the subject encountering the two.

Amizlev-Shoham notes the effect of the predominantly uninterrupted sightline at the *Sun Tunnels*: the mountains are far enough from the tunnels not only so they do not cast shadows or impede the path of the sunlight through or on the tunnels, but the isolation of

the tunnels as the only substantial masses rising from the flat expanse of the desert makes “the tunnels the only substantial thing for the eye to focus on.”⁴⁹ In addition to Amizlev-Shoham’s discussion of archaeoastronomy, both Ross and Holt were featured in an interview originally published in *Archaeoastronomy* in 1985 and later reproduced in *Leonardo* in 1988. For “Touching the Sky: Artworks using Natural Phenomena, Earth, Sky and Connections to Astronomy,” fellow artist Janet Saad-Cook interviewed three additional artists—Ross, Holt, and James Turrell—to discuss the manners in which the four artists make use of natural phenomena and astronomy. As opposed to Holt’s isolated *Sun Tunnels*, Ross had a slightly different aim in mind for *Star Axis*. In his discussion with Saad-Cook, he explains that he “wanted [*Star Axis*] to be at the boundary between civilization and wilderness...The site is isolated yet there is civilization whispering in the background.”⁵⁰ While the nature of the project requires a rural expanse, Ross is interested in keeping the space of *Star Axis* open to potential interruptions.⁵¹

In both artists’ cases, the configuration of the work establishes a means for the subject to engage with the stars, which in turn establishes a scaled relationship between the subject, the artwork, and the stars. While the works’ configurations are comparable, the type of relationship with the stars that each artist sets up and the significance of scale in their work are different.

Ross and Holt best distinguish themselves from one another in their own words. In her discussion with Saad-Cook, Holt explains that her works have varying functions: some have a weighted emphasis on the cosmos, while others are dominantly concerned with

⁴⁹ Amizlev-Shoham, “Sun Tunnels and Archaeoastronomy,” 34.

⁵⁰ Saad-Cook, “Touching the Sky,” 125.

⁵¹ Both artists maintain that their respective works are readily accessible. Ross explains that *Star Axis* “is only two hours from Albuquerque” and Holt explains that *Sun Tunnels* is “as accessible as the Grand Canyon.” Saad-Cook, “Touching the Sky,” 125, 127.

perception. In general, Holt is interested in human interest in the sky—“the need to look” that comes from inside—rather than human situation in relation to the sky.⁵² Though she similarly engages with celestial phenomena, Holt’s work has a more direct relationship with the land. She describes *Sun Tunnels* as “bringing the sky down to earth.” Due to the starlight casting onto the floors from the holes in the ceiling, the experience of *Sun Tunnels* is like “walking on stars.” The work’s relationship with the stars is an “inversion of the sky/ground relationship” and the tunnels’ isolation in the mirage-prone desert is “perceptually disorienting.”⁵³ The following description of her work illuminates the key distinction between Holt and Ross’s practice. Holt explains that the artworks

are actually and primarily an exteriorization of my own interior reality. However, they are 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. The 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.⁵⁴

By emphasizing inversion—the exteriorization of an interior reality and the inversion of the sky-ground relationship—and by designing the works for human scale, Holt explicitly lays out the parameters of the interactions between the sky, the artwork, and the subject in her practice. The scale and the space of Holt’s work is that of human perception. Regardless of the interaction, the relationship is linear.

The distinction between the two artists’ works is mostly a conceptual distinction evidenced by their language. Holt’s discussion of perception emphasizes inversion,

⁵² Saad-Cook, “Touching the Sky,” 128.

⁵³ Saad-Cook, “Touching the Sky,” 127.

⁵⁴ Saad-Cook, “Touching the Sky,” 126.

awareness, and disorientation. Ross's discussion of perception also emphasizes heightening awareness, but, rather than inversion or disorientation, he discusses the scale and space of his work as the discovery of an existing orientation.

The dramatic range in size of Polaris's circumpolar orbits is just about identical to the range of our normal visual field. It was this discovery that gave me the inspiration and the will to build *Star Axis*. The smallest circumpolar orbit of Polaris is slightly less than a 1° circle—about the size of a dime held at arm's length. That is about the smallest thing we attend to day to day. Polaris will turn in this circle from A.D. 2067 through A.D. 2137. It then slowly will spiral out over a period of 13,000 years, growing to a 95° circle, covering our entire field of focused vision. Our day-to-day range of vision is in scale with the motion of this star.⁵⁵

Whereas Holt designs the work to human scale, Ross identifies an existing scale that corresponds between humans and cosmos. With *Star Axis*, Ross seeks to present an opportunity for the subject to internalize this existing relationship. By drawing in the celestial phenomena rather than inverting it, the affective experience of the cosmos in *Star Axis* does not establish a linear relationship. The logic of internalization—drawing in and integrating, rather than inverting and occupying—makes intermediate space as relevant as any one site, point, or fragment. Holt's "bringing the sky down to earth" is a kind of flattening, whereas Ross's "boundary of earth and sky" retains multidimensionality.⁵⁶

COMPREHENSIVE SPACE AND REALITY

The multidimensional, comprehensive space that Ross's work engages with is a concept that is little discussed, if at all. The connectedness and fullness of space in his work is often fragmented in analysis in order to direct the interpretation of the work to a specific end. There is a persistent tension between the extreme precision of Ross's work and the

⁵⁵ Saad-Cook, "Touching the Sky," 125.

⁵⁶ Saad-Cook, "Touching the Sky," 125.

enigmatic concepts to which they point. His meticulous calculations are vehicles to encounter an approximation of infinite space, but the scientific, mathematic, and astronomic methods he utilizes often lead to the interpretation that his work seeks to illustrate or master reality. At best, Ross impressively and aesthetically engages with scientific concepts. At worst, he traffics excessively involved dioramas.

In “Light’s Measure,” a feature on Ross published in a 1978 issue of *Art in America*, Donald Kuspit considers the function of calculation in Ross’s work (at the time on prisms, Solar Burns, and Star Maps) and comes to the conclusion that Ross’s Star Maps demonstrate the artist’s triumph over light and time. His preliminary consideration is to situate Ross’s practice along with other art historical practices that bridged art and science. He explains that Ross’s work shares with the Renaissance a conceptual approach to art that prefigures the act of artistic representation or creation. The Renaissance’s scientific approach to perspective and pictorial space (*demostrazione*) was conceptual before it was representational because the “concept of space is logically prior to what they show inhabits ‘actual’ space.” Ross makes similar use of science for his art practice because “spacelessness—collapsed perspective” is logically prior to the forms he traces. Instead of an artistic investigation of visual space that Renaissance artists carried out, Ross is investigating the “complex reality” of “time/light.”⁵⁷ Kuspit clarifies that Ross’s investigation of “the dimensions of light” does not seek to rationalize these phenomena for understanding. Rather, the aim of his work is to redirect the skyward gaze back to Earth’s “compulsive” observers. While there is an “indisputable, primordial reality of light,” Ross does not seek to fragment, capture, or repackage luminous phenomena for the sake of

⁵⁷ Donald Kuspit, “Charles Ross: Light’s Measure,” *Art in America*, no. 66 (March/April 1978): 97.

optics, but to grapple “with the point of view which finds it necessary to grapple with light.”⁵⁸ Thus, Kuspit discusses Ross’s work as an investigation of humankind’s “psycho-mythical” relationship with light and outer space. His “new scientific art” is not about rationalizing space, as was the case during the Renaissance, but investigating the subjectivity of all forms of inquiry. Kuspit invokes telescopes in relation to Ross’s work in order to—again—redirect focus towards the observer. Unlike “the telescope neutrally viewing the stars,” Ross’s viewer looks to the cosmos as a “religious mythmaker.”⁵⁹ In Kuspit’s analysis, Ross’s work is most successful when light and space are subordinated to human observation and manipulation. He praises the Star Maps for achieving Ross’s “implicit ideal of documentation—getting light on record” and “explicit ideal of articulating the temporal characteristics of light,” while faulting the prisms and Solar Burns because they “show light narrating its own condition.”⁶⁰ For Kuspit, Ross’s meticulous arrangement of the Star Maps mastered the temporal and spatial perplexities of light.

In Saad-Cook’s conversation with Ross, she prompts a discussion of the role of reality in his work. Ross begins his explanation by juxtaposing the clarity offered by science with the mysteries of daily life that remain inexplicable. Because of this disconnect, the realities presented by science are inadequate and misleading. By utilizing both science and art in his practices, Ross attempts “an integrated sense of reality” that seeks to take the contradictory poles of science and life into consideration.⁶¹ Still, Ross is not interested in offering a clear and comprehensive “presentation of reality.”⁶² Rather, it is a sense of reality, instead of reality itself, which Ross seeks to approach. Whether this approach

⁵⁸ Kuspit, “Light’s Measure,” 97.

⁵⁹ Kuspit, “Light’s Measure,” 97.

⁶⁰ Kuspit, “Light’s Measure,” 97–98.

⁶¹ Saad-Cook, “Touching the Sky,” 124.

⁶² Saad-Cook, “Touching the Sky,” 124.

arrives at a destination or not is—and ought to be—unclear. In the interview, even Ross seems to struggle to balance the precision of his work with the open connections with which he seeks to harmonize. He flatly refuses that his work attempts to achieve a presentation of reality, but he insists that “we are fitted to the stars” and his work serves as a means to “directly experience” the way “we interface with the larger order.”⁶³ However, he goes on to describe the direct experience with waning precision. Ross is concerned with our situation in the universe and our relation with the celestial bodies that make up space and his work seeks to focus our awareness and experience of these connections. But our awareness and experience is always too specific and too situated to grant comprehension of the reality of the larger order. There is an order, which we as individuals are a part of, but we cannot grasp it.

In his discussion of Ross’s prism sculptures, Heizer introduces a definition of reality that can alleviate the tension introduced by Ross’s methodical process. Perhaps Heizer avoids the interpretive trap introduced by Ross’s scientific precision because he has the advantage of the prism sculptures’ structural simplicity. Even so, a return to the prism sculptures is an effective strategy since it allows Ross’s work to be considered at a distance from the historical practices that do not necessarily aid the analysis of his work. Heizer writes that the perception of the prism sculptures is “ocular, perceived in planes, in fragments, and in angles of the prisms. They present the general condition of vision rather than any closed or specific idea of form.”⁶⁴ The impossibility of fragmenting the space of Ross’s work is a component of the work itself. Because of the interconnectedness of subjective, physical, and atmospheric space in the work, the act of perception becomes

⁶³ Saad-Cook, “Touching the Sky,” 124–126.

⁶⁴ Heizer, “Obituary,” 326.

disjointed. The viewer is limited to perception and barred from apprehension. Heizer goes on to conclude that the foundation for Ross's work is "the opaque."

His work tends toward the invisible, achieves the transparent, and relies upon the opaque. The opaque, which is reality, has been dealt with throughout art in many ways and has also been disregarded as an issue. The walled, contained mass is "made clear" so it is seen as both outside and inside simultaneously. What is there, suggests. What it is, is clear. The viewer is allowed the experience of looking for himself. Ross's art is analytical of itself and its place. The form of this analysis is structured but the responses available are innumerable. This way and means of seeing is offered as experience. It does not compromise its insistence that art is transient experience rather than abiding, preserved experience.⁶⁵

Ross's work contends with the invisible phenomena beyond perception by filling space to the boundless brim, but the transparent connections never materialize. Unlike Ottmann, Amizlev-Shoham, Kuspit, and sometimes Ross himself, Heizer rejects the notion that Ross's work offers a concrete experience. The reality that Ross's work interfaces with is at once something and nothing. What is seen is simply a reflection of something else and elsewhere, a suggestion of some other thing that is always absent. What is there is the opaque. Opacity is the cloudy intersection of transparency and matter. It is the connectedness of the universe that comes in and out of view, without guarantee and absent of disavowal. That is enough for Ross and that is enough for me.

⁶⁵ Heizer, "Obituary," 326.

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APPENDIX: SUGGESTED ARTWORKS FOR REFERENCE

Example 1. Charles Ross, *Clipped Cube*, 1966

Example 2. Charles Ross, *Split Pyramid*, 1966-67

Example 3. Charles Ross, *Prism Wall*, 1966

Example 4. Charles Ross, *Collapsing Cube*, 1968

Example 5. Judson Dance Theater, *Concert of Dance #13, A Collaborative Event: Charles Ross Chair Sculpture*, November 20, 1963, New York

Example 6. San Francisco Dancers' Workshop, *Parades and Changes*, 1964–1966, San Francisco, Stockholm, Helsinki, and Warsaw

Example 7. Charles Ross, *Spring, March 20–June 20, 1972, 1972*

Example 8. Charles Ross, *Solar Burns: Week of Summer Solstice June 18–June 24, 2007, 2007*

Example 9. Charles Ross, *Point Source / Star Space: Milky Way Center by Earth Hour*, 1975/86

Example 10. Charles Ross, *Point Source / Star Space: Weave of Ages*, 1975/86

Example 11. Charles Ross, *Light Becomes Matter*, 1995

Example 12. Charles Ross, *Energy Navigation #3*, 1983–84

Example 13. Charles Ross, *Solar Spectrum*, 1993, Harvard Business School Chapel, Cambridge, Massachusetts

Example 14. Charles Ross, *Dwan Light Sanctuary*, 1996, United World College, Montezuma, New Mexico

Example 15. Charles Ross, *Spectrum Chamber*, 2018, Museum of Old and New Art, Hobart, Tasmania

Example 16. Charles Ross, *Star Axis*, 1971–ongoing